

ISSN: 0976-8270

PENINSULAR ECONOMIST

Vol. XLI

2021-2022

No.1



JOURNAL OF THE ASSOCIATION OF ECONOMISTS OF TAMIL NADU

Reg. No. 135/2000

Department of Economics

St. JOSEPH'S COLLEGE (Autonomous)

Tiruchirappalli – 620 002, TN

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Price per copy of the Journal	-	Rs.750/-
Annual Membership		
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Life Membership	-	Rs.2,250/-
Institutional Membership	-	Rs.10,000/-

Printed By

GOLDEN NET COMPUTERS

Prem Towers, I Floor,
Old Karur Road, Near Anna Statue,
TIRUCHIRAPPALLI - 620 002
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AET CHAIRMAN'S MESSAGE

- Fr A G Leonard SJ

AET XLI CHAIRMAN'S MESSAGE *PENINSULAR ECONOMIST* 2021-2022

It is customary that the Chairman, Association of Economists of Tamil Nadu, familiarly known as AET, provides some simple observations on a theme of the AET's Annual Conference. This year we have papers numbering 74 to be presented at our AET's Annual Conference. They will be brought to you through our journal *Peninsular Economist* (ISBN 0976-8270). The themes for this year's Annual Conference are



01. Growth and Stability; 10 Papers
02. Financial Sector; 3 Papers
03. Tamil Nadu Economy; 31 Papers
04. The Three Farm Laws; 2 Papers
05. Covid-19; 22 Papers
06. Regional Economy 6 Papers
(Thanjavur District; Tiruvarur District; Nagapattinam District; Mayiladuthurai District; and Cuddalore District)

Prior to that presentation, it is my pleasant duty to thank the authorities at our conference Dr R M Kathiresan, Vice-Chancellor of Annamalai University; Dr S Balasubramanian, Director, Research and Development. Dr T R Jeyaraaj, Head, Department of Economics and staff members and students.

The preparations for the AET Annual Conference – XLI started at the St Joseph's College, Tiruchirappalli. We all together proposed the following six themes: and we received 74 papers to be presented.

I would like to bring to your notice some information pertaining to our presence at the Annual Conference of our AET. Our AET members keen of holding the Annual Conference by undertaking to serve as the venue are to produce a letter from their college authorities. So far we have enjoyed the generosity and magnanimity and benevolence from all concerned. We don't have discussion on the Delegate Fee, collected by the venue authorities from *everyone* attending the Annual Conference; it has an increase every year of about Rs.20/30. There is no Spot Admission.

Our Life-Members pay only once the Membership Fees. The non-Life members (staff member/ student) pay to the AET Treasurer, the Annual Membership Fees as required. Similarly, the paper-presenters (staff member/ student) pay as required by the AET.

My simple statement: TOGETHER WE SHOULD ADD; AND NOT SUBTRACT

All the Best

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Association of Economists of Tamil Nadu
Annual Conference – XLI - 2021

Venue : St. Joseph's College, Tiruchirappalli

Date : 02.02.2020

Presidential Address

on

**Rediscovery of India: Current Economic
Scenario & Wayward**

By

Dr. ARUL CHELLAKUMAR JA,

Professor & Head,

Department of Economics

Bharathidasan University, Tiruchirappalli-620 024.

REDISCOVERY OF INDIA: CURRENT ECONOMIC SCENARIO & WAYWARD

Presidential Address by
Prof. J.A. ARUL CHELLAKUMAR
Bharathidasan University, Trichy.

Most Respected Chair of the Presidium, Association of Economists of Tamilnadu, Honorable Vice-Chancellor, Annamalai University, Conference Secretary, Secretary, Treasurer, PRO-AET, Registrar, Deans, Professors of Economics, Annamalai University, Illustrious Members of AET, Delegates, and Participants, I am happy to state that I have been associating with this Association, an year later since when the Assn. was started in 1981. Thanks to the Holy spirit of Rev. Fr. Dr. M. Sebastians. J., the Assn. has seen many milestones in its Academic Journey and now organizing its 41st Conference in this Great Temple of Learning namely, Annamalai University Campus, Chidambaram.

I greet all Senior Fellows & Founder Members, Members Present and Former Presidents, Secretaries, Treasurers and Office bearers of the Association with warm wishes.

Our India was discovered as a Great Country with its rich resources viz., 32.67laks of sq km of lands, 130 cr. population of which 64 percent is workforce, 2.5 trillion \$ worth of Capital and 250 PSUs and scores of Private Organizations. With its Economic Reforms, India made strident strides with almost 10percent GDP Growth but not with Stability. India stood in good stead even at times of Global Downturn in 2009.

But When the Pandemonium caused by Pandemic all over the world, i.e., COVID'19, put India also in a severe crisis. "This is the greatest emergency for the Indian economy since independence," said Raghuram Rajan, former RBI Governor. This is worse than the financial crisis of 2008, that affected the Demand Side but Workers/People could still go to work with lower wage rates, the Financial Conditions of Government of India was sound but it seems that with Every Macro Economic Parameter, against the economy in year 2022.

Almost all the countries due to COVID-19 were affected similarly in terms of demand-supply shocks and disruptions but in India, there was already a Downturn in the Economy. In the Pre-COVID era, India was encountering with major macroeconomic issues such as nearly recession with the sluggish GDP growth rate of 4.7% in 2019 which was the lowest since 2013 (as indicated by the official statistics), high unemployment rate, decline in industrial output of core sectors—the worst in 14 years, stagnancy in private sector investment, decline in consumption expenditure for the first time in several decades (Dev & Sengupta, 2020). Also, the informal sector of India which is the largest in the world employs nearly 90% of the total working population and contributes significantly to overall GDP (more than 45%) has been hit by two major shocks (or reforms) already due to Demonetization in 2016 and GST in 2017. The financial sector which has got the most important role to play in the crisis times has also been reeling under huge problems in India like Twin Balance Sheet (TBS), high levels of Non-Performing Assets (NPAs) and an inadequately capitalized banking system. In the private corporate sector too, firms were financially weak and over-leveraged (Sengupta & Vardhan, 2019). Some more problems like CMFS (Capital Market & Financial Sector) crisis, and decline in commercial credit of around 90% in FY2020 (Q1) etc.

Economists like Raghuram Rajan prescribed a five-point agenda to the Finance Ministry with respect to the upcoming Union Budget 2022-23. He said that policymakers need to focus on "dark spots" of the economy to address concerns of a 'K shaped' economic recovery.

Rajan's Tips to Rediscover the Recovery.....

“What have we learnt from the pandemic? What have we learnt about the supply of global services?” he asked. Global services offer a tremendous opportunity for India, where it can expand significantly. “Relying on our strengths; we already do well in a variety of global services. What about Telemedicine, Tele-Lawyering, Edu-Tech—areas which we can look at and think what do those industries need in terms of government support?” Rajan pointed.

It's not funding. It often better rules. For example, rules on data protection that meets the standard of the European Union. Such steps will then allow us to export services to the EU. “These are the tips we should be pondering over and they are not mere Trade Agreements,” Rajan added. He advised the government to stop worrying about just Manufacturing or Agriculture and instead focus on Services, in which India is strong. “We're still stuck in the past and that past is getting increasingly harder. Manufacturing-led growth, on which production-linked incentive schemes hinge, is something that is getting increasingly difficult to do”. The recent lesson from the farm laws is that it is important to sell an idea even it is good. The interest of Co-Operative Federalism between Union Govt. and States had to be accommodated. “It is to give and take”.

In order to boost consumption in the economy, a lot of low-end jobs, lost during the pandemic, can be created through infrastructure push by both States and the Centre. This will also create demand for capital goods like domestic steel, copper, cement etc. It is important to have infrastructure well funded. It is also important to have social security programmes such as MNREGA, well funded and to think about targeting areas that are doing badly right now and need support going forward.

It is important for both the Union & State Governments, not to ignore the “dark spots” of the economy. It is tempting to look at the stock market and say we don't have problems but if you ignore the sore spots, they can lead to long-term pain. Many Economists earlier spoke about No Data Availability of the vital data pointing towards numerous job losses as a result of pandemic-induced lockdowns and pointed out that urban jobbers leaving cities to take up agriculture does not go in good taste, well for a modern economy (Digital India) that should be aspiring to have a minimum percentage of the population in the agriculture sector. It was also pointed out that loss of two years worth of schooling for children may result in increased dropouts. These are the grey areas that AET like Fora requires the utmost attention of the government.

Sector-wise Jitters

1. Agriculture

Farmers called it a worse situation than that occurred during the demonetization in 2016 (Saha & Bhattacharya, 2020). The rural economy of India, even before this pandemic, was witnessing a decline in incomes of mainly casual workers along with declining rural wages (real). Some rays of hope were seen in January 2020 when food prices started rising but all hopes collapsed with this new crisis. (Mukhopadhyay, 2020) Agriculture and allied activities are not a homogenous group of activities, in fact, an umbrella of different activities having their different dynamics each. So, the impact is severe on various sectors that varies according to the set of activities, that is, on crops, livestock, fisheries, and so forth.

Agriculture and Food grains production is part of crops and is impacted differently. Horticulture is likely to face the brunt more because of the nature of perish ability whereas food grains are non-perishable and apart from problems in harvesting and labor shortage, this

is not impacted much. Rabi harvesting has gone well and MSP hike has also been announced for the Kharif crops which assures farmers a 50–83% return on their production cost. With declining demand and reduction in exports of fruits and vegetables, horticulture is hit hard. Similarly, floriculture has been affected because of less demands due to shut down of religious places, postponement of marriages, and so forth. In livestock (milk, meat, eggs), milk is the major contributor that has been impacted and fortunately, had stability during the lockdown.

Fishing and aquaculture are expected to have a high negative impact, food grains and livestock low, and horticulture medium, relatively. Agriculture seems to be a bright spot in India amid the COVID-19 crisis and CRISIL expects agriculture to grow at a rate of 2.5% in FY2021. (CRISIL, 2020).

2. Manufacturing

China has been the epicenter of manufacturing accounting for one-third of total manufacturing over the world. But after the outbreak of COVID-19, many countries are planning to shift focus from China and looking for countries like China where cheap labor is available.

So, it is a golden opportunity for India to make “Make in India” global. There is huge potential in India, if proper measures will be taken to boost the manufacturing sector, India will emerge as a new manufacturing hub surpassing China.

The micro, small and medium enterprises (MSMEs) as a whole form a significant share of manufacturing in India and play a crucial role in providing employment opportunities and also in the country's exports. As indicated by recent reports MSMEs contribute 30% in India's GDP and 50% in the employment of industrial workers. But this sector has issues like the non-availability of adequate, timely, and affordable institutional credit. Although all the businesses and sectors are affected due to the pandemic, this sector is badly hit due to reduced cash flows, supply chain disruptions, shortage of migrant workers due to reverse migration, less demand, and so forth.

Like China, India also was to have major destructions in this sector with more challenges emerging out of closure of 66 lakhs of MSMEs and to other small business firms as compared with upstream firms (Dev & Sengupta, 2020). It is not easy to re-start MSMEs once they are shut down (Chidambaram, 2020). India's Sherpa to the G20 also said that small industries are most vulnerable and it is difficult for them to survive without financial assistance because of their incapability to deal with such sudden disruptions.

3. Services

The stock of non-performing assets (NPAs) may increase by Rs.5 lakh crore even if only a quarter of these deferred loans go bad, eventually. And this is a conservative estimate. Senior bank officials have been quoted as estimating that the stock of NPAs could increase by as much as Rs.9 lakh crore. In this case, we would be looking at NPAs of Rs.18 lakh crore, equivalent to around 18% of current loans outstanding. For planning purposes, it is worth considering who will pay for such losses, if they do materialize. Other important dimensions of service sector like aviation, transport, travel, and tourism are worst hit not only in India, but globally. The loss to this sector too will be based on the severity and longevity of the crisis. A WB report indicates that around 38 million job losses are expected in India's travel, tourism and hospitality industry.

Other Societal Impacts

1. Gender gap and inequality
2. Health crisis
3. Domestic violence and crime
4. Poverty, job losses and informal sector
5. Reverse migration

Wayward

Digital acceleration for IR-4.0, should empower Business of Research oriented Economics by providing access to Real-Time Data and new methodologies, facilitating new opportunities for Scholars to address new frontiers of Research in Crypto currency, Block chains, Cyber Economics, Artificial Intelligence, Virtual Realty, Augmented Realty, IOT Data, and IOE and other above mentioned areas of Study. Technically advanced organizations adapt quickly to the accelerated needs and use their digital capabilities.

It has become clear after the pandemic that the digital transformation has an obvious, lasting impact as much on the Economic Systems and Commercial Players as on the lives of Individuals and the Society at large. The decisions we make, our actions, even our existence in the digital world result in the production of massive amounts of data. Machine learning algorithms combined in Academic curricula, with suitable tools, such as Python, turn raw data into useful information would lead to critical and correct decisions. Virtual Universities, Knowledge Portals of existing HEIs, in collaboration with NPTEL and Research Publications on solutions to sick Enterprises and Quantum Computing should evolve at an enormous pace. Digital Acceleration is one of the Fundamental Research Realities for Rediscovering India Today and Tomorrow. Thank You.

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Peer Reviewed Journal

Growth with Stability

Peer Reviewed Journal

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AN ECONOMIC ANALYSIS OF HEALTH STATUS AND HUMAN CAPITAL FORMATION¹

Dr. T. RAVISANKAR²

“Health is Wealth”

Introduction

Health seems to be the key factor in Human Capital formation and considered as an essential asset for an individual for contributing towards economic growth by promoting productivity and sustaining economic growth in long run. International institutions such as WHO (**World Health Organization**) acknowledge the powerful role of Health system and by measuring the economic benefits from investment in Human capital. The concept of human capital is semantically the mixture of human and capital. In the economic perspective, the capital refers to ‘factors of production used to create goods or services that are not themselves significantly consumed in the production process’ (Boldizzoni, 2008). The Human Capital Index (HCI) measures the human capital that a child born today can expect to attain by age 18, given the risks to poor health and poor education that prevail in the country where she lives. The HCI follows the trajectory from birth to adulthood of a child born today. In the poorest countries in the world, there is a significant risk that the child will not survive to her fifth birthday. Even if she does reach school age, there is a further risk that she will not start school, let alone complete the full cycle of 14 years of school from preschool to grade 12 that is the norm in rich countries. The time she does spend in school may translate unevenly into learning, depending on the quality of the teachers and schools she experiences. When she reaches age 18, she carries with her the lasting effects of poor health and nutrition from her childhood that limits her physical and cognitive abilities as an adult. India has a vast **Health care system**, but there remain many differences in quality between rural and urban areas as well as between public and private health care. India's Ministry of Health was established with independence from Britain in 1947. The government has made health a priority in its series of five-year plans, each of which determines state spending priorities for the coming five years. The National Health Policy was endorsed by Parliament in 1983. The policy aimed at universal health care coverage by 2000, and the program was updated in 2002. Hence Health status of people has an important role in Human capital formation by developing an individual and nation as whole.

Importance of Health in Human Capital Formation

Health is main factor of Human capital because only a healthy person can be more productive and can contribute more to GDP (Gross Domestic Product). The health of a person helps him to realize his potential ability to fight illness. Good health increases the efficiency of a worker and also increases the learning capacity of a worker. Only a healthy person can work in a more productive and effective manner. Like education, health is also key indicator

¹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

² Assistant Professor, PG and Research Department of Economics, Arulmigu Palani Andavar College of Arts and Culture, Dindigul Main Road, Palani, Dindigul District, Tamil Nadu.

of Human Capital formation. Human capital consists of the knowledge, skills, and health that people accumulate over their lives. People's health and education have undeniable intrinsic value, and human capital also enables people to realize their potential as productive members of society. More human capital is associated with higher earnings for people, higher income for countries, and stronger cohesion in societies. It is a central driver of sustainable growth and poverty reduction. Hence there is need to study Health Status of people by using Health indicators like Birth rate, Death rate, Infant Mortality rate and Life expectancy level and reveal the relationship between Health and Human Capital formation.

Objectives of the study

1. To study the Health status of India by using health indicators such as Birth rate, death rate, Infant Mortality Rate and Life expectancy level during the period of 1993 to 2020 of India.
2. To show the relationship between health status and human capital formation with respect to health status of India during the period of 1993 to 2020.

Data source and material: The study is mainly based on secondary data and information. It has been collected from Government of India, Reserve Bank of India annual reports (Handbook of Statistics) NSSO, data on health 75th Round, July 2017-June 2018, and various published sources. Such sources include books, journals, government reports and publications, research articles, websites etc. and the Simple Linear Regression has been used to find trend or growth analysis.

Analysis and Discussion: This section analysis the data related to the objectives chosen by the candidate and the. The discussion of this chapter is presented based on results of linear regression trend analysis. The objective of the study is to examine the Health status of India by using health indicators such as Life expectancy level, Birth rate, death rate, Infant Mortality Rate and during the period of 1993 to 2020 of India. And show the relationship between health status and human capital formation during the same period.

Table 1.1: Status of Health Indicators (Life expectancy level, Birth rate, Death rate, IMR) of India from 1993 to 2020 of India. (In percentage)

Year	Birth rate	Death rate	Infant mortality rate (IMR)	Life expectancy level
1993	30.028	10.172	82.108	59.12
1994	29.536	9.956	79.936	59.59
1995	29.044	9.739	77.764	60.06
1996	28.551	9.523	75.591	60.53
1997	28.059	9.306	73.419	61.00
1998	27.567	9.090	71.247	61.47
1999	27.101	8.947	68.988	61.88
2000	26.635	8.804	66.729	62.28
2001	26.174	8.661	64.471	62.69
2002	25.704	8.518	62.212	63.09
2003	25.238	8.375	59.953	63.50
2004	24.752	8.261	57.854	63.91
2005	24.266	8.147	55.755	64.31
2006	23.779	8.034	53.655	64.72

Year	Birth rate	Death rate	Infant mortality rate (IMR)	Life expectancy level
2007	23.293	7.920	51.556	65.12
2008	22.807	7.806	49.457	65.53
2009	22.158	7.697	47.382	65.98
2010	21.508	7.589	45.307	66.43
2011	20.859	7.480	43.232	66.87
2012	20.209	7.372	41.157	67.32
2013	19.560	7.263	39.082	67.77
2014	19.252	7.258	37.666	68.07
2015	18.944	7.253	36.249	68.37
2016	18.636	7.247	34.833	68.67
2017	18.328	7.242	33.416	68.97
2018	18.020	7.237	32.000	69.27
2019	17.806	7.273	30.924	69.50
2020	17.592	7.309	29.848	69.73

Source: Manipulated by candidate from secondary data

To examine whether the growth has been accelerating or decelerating or constant, the Simple Linear regression model is used for the table (1.1) during the period 1993 to 2020. The Variables are Birth Rate, Death Rate, Infant Mortality Rate, Life expectancy level and Time.

Estimated Results

Table 1.2: Linear Model estimated results of the Health Indicators in India from 1993 to 2020

Health Indicators	Simple Linear Regression Model			
	Regression Coefficients			
	a	b	R ²	Sig
Life expectancy level	-144.452	2.450 (0.024)* (100.866)**	0.998	0.000
Birth Rate	62.149	-2.036 (0.029)* (-70.788)**	0.995	0.000
Death Rate	83.875	-8.465 (0.479)* (-17.680)**	0.923	0.000
Infant Mortality Rate	41.068	-0.495 (0.007)* (-67.750)**	0.994	0.000

Source: Computed from the secondary data

*Figures in parentheses represents the respective standard error * and t value**

From the Tables 1.1 and 1.2, the main inferences of the analysis are:

Life expectancy level of India was 59.12 in 1993 and it had risen to 69.73 in 2020.

Life expectancy level of India had shown increasing trend and its annual rate of change was 2.450. During the same period the birth rate had declined from 30.028 to 17.592; the death rate had decreased from 10.172 to 7.309 and the infant mortality rate had fallen from 82.108 to 29.848. Birth rate, death rate and infant mortality had shown declining trend with the annual rates of change being -2.036, -8.465 and -0.495 respectively. The infant mortality rate had declined largely (-0.495) in India. The estimation results of R^2 value is 99, 99, 92 and 99 percent for Life expectancy level, Birth rate, Death rate and Infant mortality rate respectively. It reveals that 92 to 99 percent the model is varied with the help of time. Birth rate exists constantly is 62 percent but there is a variation in time reduces the percentage of Birth rate up to 2 percent. The Death rate is also constantly occurs as 83 percent but according to variation in time period it decline to 8 percent. And Infant mortality rate is constantly occurs as 41 percent and the decline time variation reduces as 0.4 percent based on simple linear regression model. The coefficients are having negative sign which stands for a year passes is inversely related to the birth rate, death rate and infant mortality rate. It means that when a year passes over there is a decline in birth rate, death rate and infant mortality rate. The annual rate of change in all the health indicators is statistically significant. In general the overall model of health indicators results shows a growth in the health status of people over the year. Therefore these results indicates the positive trends and accelerating growth of health status through measuring with life expectancy level, birth rate, death rate and infant mortality rate with respect to dependent variable time.

Findings of the study

The present study finds the increasing trend of life expectancy level and decline in birth rate, death rate and infant mortality. These results indicate the growth in the health status of people in India from 1993 to 2020. Therefore health status of people represents healthy people with higher productivity of labour in workforce, increase in per capita income and indirectly contributes towards human capital formation. Hence there is positive relationship between health status and human capital formation.

Conclusion and Suggestions

The Health is an important input like education for the development of a nation and for an individual. If a healthy person could provide uninterrupted labour supply for a longer period of time, as a result of it can generate higher productivity and increases income level. Human Capital is the only accounting differences in growth rates across countries and the estimates of life expectancy level, birth rate, death rate and infant mortality rate are necessary indicators for human capital index. This prompts production and sustaining economic growth in long run. Therefore there is a requirement of health education, strong public health facilities with awareness programs and provide easy health care insurance services and also need of strategic planning and implementation and policies with innovative networks of researches in health sector at different levels of society. Hence a healthy people of a country can only lead to economic growth through human capital formation.

References

1. Theodore W. Schultz (1961) "Investment in Human Capital" The American Economic Review, Vol.51, No.1 pp1-77.
2. Jacob Miner (1981) "Human Capital and Economic Growth" Working paper No.803 National bureau of Economic Research.

3. Gray S. Becker (2007) "Health as Human Capital: Synthesis and extensions, Oxford university press.
4. Hoyt Bleakly (2010) "Health Human Capital and Development" National bureau of Economic Research, pp 17-25.
5. Sajid Ali et al.,(2012) " Human Capital Formation and Economic Growth in Pakistan" vol.32 No.1 pp229-240, Pakistan Journal of Social Sciences
6. Reem Ahmed Mohamed et al., (2015) "Impact of Human Capital on Economic Growth in Egypt:-An ARDL approach." ISSN 1450-2275 European Journal of Economics, Finance and Administrative Sciences.
7. Clude Diebolt et al., (2016) "Human Capital, In Handbook of Cliometrics ed. pp.17-25.
8. C.R. Kothari (2012) "Research Methodology", 2nd Edition, New age International Publishers New Delhi- ISBN (10): 81-224-1522-9
9. James W. Henderson (2007) "Health Economics and Policy" 3rd Edition Akash Press, Delhi ISBN: 81-315-0315-1
10. World bank Group (2020) "The Human Capital Index 2020 UPDATE: Human Capital In the time of COVID-19 pp.31
11. Reserve Bank of India (2019-2020) "Handbook of Statistics of Indian States" pp 10-17.
12. Health in India (July2020) NSS75th Round report no 586
13. www.google scholar.com, www.nso.in, www.researchgate.com, www.indiastat.com

GROWTH AND INSTABILITY OF PADDY CULTIVATION IN SELECT CAUVERY DELTA DISTRICTS OF TAMIL NADU³

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INTRODUCTION

Tamil Nadu is the second wealthiest state in the Indian Union by Gross Domestic Product (GDP) and is the most industrialised state in the country. More than 60 per cent of the state is urbanised, accounting for around 10.6 per cent of the urban population in the country, while only comprising 6 per cent of India's total population. Services contribute to 55 per cent of the economic activity, followed by manufacturing at 34 per cent and agriculture at 11 per cent. Government is the primary investor in the state, with 52 per cent of total investments, followed by private Indian investors at 29.9 per cent and foreign private investors at 14.9 per cent. It has been ranked as the most economically free state in India by the Economic Freedom Rankings for India.

Agriculture is the mainstay of life for about half the working population of Tamil Nadu. Since very early times, Tamil farmers have skilfully conserved scarce rainwater in small and large irrigation reservoirs, or 'tanks.' Government canals, tube wells, and ordinary wells also form part of the irrigation system. Because several river valley projects depend on rain brought by the erratic northeast monsoon, the government also taps subsoil water sources. The Cauvery delta regions of Nagapattinam, Thiruvavur and Thanjavur are significantly contributed to the agriculture growth of Tamil Nadu. Paddy is the principal crop cultivated and harvested in this region in particular.

REVIEW OF EARLIER STUDIES

Muthumurugan and Sahaya (2021) studied the regional differences of agricultural development in Tamil Nadu: A district-wise analysis. The main objective of the study is to measure the extent of regional differences in agricultural development in Tamil Nadu and the study used secondary data, and it has brought into the analysis of two points of time, i.e. 2008-09 and 2017-18 with the help of composite index analysis of 31 districts. The study found wide unevenness in agricultural development observed in different districts. The northern and north-eastern part of the state was highly developed, whereas some of the western and southern districts of Tamil Nadu were low developed. While compared with the results of the composite index of development in two benchmark years, the districts of Villupuram and The Nilgiris persistently have a high and most minor in the level of agricultural development respectively based on the select indicators.

According to **Paramasivan and Pasupathi (2016)** Cauvery delta zone in Tamil Nadu. Most agricultural production and irrigation in these areas has been done through the Cauvery water and the supported water resources. Cauvery river plays a crucial role in agriculture production and lending raw materials to the agricultural industries. It generates

³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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more employment opportunities for the literate and illiterate peoples through agricultural and industrial units. Therefore, the Cauvery delta zone is unique to preserve its position to satisfy the needs and claims of the general public in and around Tamil Nadu.

A study by **Arul and Manimannan (2014)** examined the spatial pattern of agriculture productivity of crops in the Cauvery delta zone of Tamil Nadu. The study observed that the application of new agricultural technology brought wide yielding varieties that may suit the agro climate zone would be of great help. The primary reasons for low productivity are the shortage of rainfall, the release of water from the Mettur dam, delayed monsoon, lack of adequate drainage facility. Also, the drainage cum irrigation network could not drain the excess water monsoon season agricultural productivity in the zone.

Palanisami et al. (2011) analysed the performance of agriculture in river basins of Tamil Nadu in the last three decades – A total factor productivity approach. The total factor productivity indices of 17 river basins fluctuated during the whole study period. Technical efficiency change was further decomposed into pure and scale efficiency changes. The TFP analysis showed that agricultural production is technically efficient in the Chennai basin as the TFP was more than 1. In the Palar basin, the range of efficiency change was from 0.772 to 1.506. There was not much difference in TFP and other efficiency changes in the pre-liberalisation and post-liberal periods.

RESEARCH QUESTIONS

1. Is there any significant change in the growth and instability of the paddy cultivation area, production, and productivity in select Cauvery delta districts of Tamil Nadu for 2000-01 to 2019-2020?
2. Which district has the high growth rate of productivity?

OBJECTIVES

1. To study the growth rate of area, production, and productivity of Paddy cultivation in select Cauvery delta districts of Tamil Nadu for 2000-01 to 2019-2020.
2. To study the instability of the area, production, and productivity of Paddy cultivation in select Cauvery delta districts of Tamil Nadu during the study period.

Data and Methodology

This study used the secondary data obtained from aps.dac.gov.in, and covered the period from 2000-01 to 2019-2020 of Nagapattinam, Thanjavur, and Thiruvarur districts Tamil Nadu. Annual growth rates computed based on the compound interest rate formula adopted by the World Bank using the least square methods.

Results and Discussion

A district wise analysis has been done and the results are discussed.

In the initial year (2000-01) of our analysis, there were 1,68,155 hectares of the total paddy area. Its rise and fall reached 1,69,222 hectares in 2019-20, thus recording a positive compound growth rate of 0.40 per cent in the Nagapattinam district of Tamil Nadu. On average, the annual area worked out to be 1,59,194 hectares. The year-wise data of maximum area was in 2008-09 (1,70,840 hectares), followed by 1,70,042 in 2011-12. The minimum area was observed in Nagapattinam district at 1,36,039 in 2003-04. The relatively small value of the coefficient of variation reveals the lower level of instability in the area's growth during the study period.

In the case of paddy production in Nagapattinam district reported that in 2000-01 at 5,56,041 tonnes, this pattern wide fluctuated to attain 5,58,609 tonnes in 2019-20. Thus,

recording a positive growth of 3.34 per cent at 10 per cent level of significance. The mean value of production finds out at 3,85,920 tonnes. The moderate value of the coefficient of variation exposes the moderate level of instability in the production growth for 2000-01 to 2019-2020. Over the years, the maximum paddy production was at 6,30,607 tonnes in 2006-07, followed by 6,05,329 tonnes (2013-14). The minimum paddy production of Nagapattinam district was at 1,36,637 tonnes in 2005-06.

In 2000-01, the productivity was at 3.31. This trend wider the fluctuation to reach 3.30 in 2019-2020, thus recording a positive compound growth rate of 2.93 per cent in the Nagapattinam district of Tamil Nadu. The year-wise high productivity data was in 2013-14 at 3.91, followed by 3.81 in 2006-07. Moreover, the lowest productivity was in Nagapattinam district at 0.86 in 2005-06. On average, the annual productivity worked out to be 2.40, and the value of the coefficient of variation reveals the modest level of instability in the growth of productivity during the study period.

Thus, the growth of paddy cultivation in the Nagapattinam district has a significant compound growth rate of 3.34 per cent during the study period.

Table 1
Growth Rate of Paddy Cultivation in Nagapattinam District of Tamil Nadu

Year	Area (Hectare)	Production (Tonnes)	Productivity (Tonnes/Hectare)
2000-01	168155	556041	3.31
2001-02	168265	427500	2.54
2002-03	137724	159449	1.16
2003-04	136039	259866	1.91
2004-05	153139	140662	0.92
2005-06	158100	136637	0.86
2006-07	165714	630607	3.81
2007-08	154040	289317	1.88
2008-09	170840	225147	1.32
2009-10	157855	432029	2.74
2010-11	156049	321506	2.06
2011-12	170042	577026	3.39
2012-13	142210	201553	1.42
2013-14	154750	605329	3.91
2014-15	159499	579962	3.64
2015-16	163794	338260	2.07
2016-17	166312	263320	1.58
2017-18	163888	447448	2.73
2018-19	168240	568135	3.38
2019-20	169222	558609	3.30
Mean	159194	385920	2.40
I _v	6.63	44.56	42.01
CGR	0.40 (1.54)	3.34*** (1.73)	2.93 (1.62)

Note CGR:- Compound Growth Rate;

I_v:- Instability measured through coefficient of variation; Figures in parentheses are t values.

* = Statistically Significant at 1% level. ** = Statistically Significant at 5% level.

*** = Statistically Significant at 10 % level.

Source: https://aps.dac.gov.in/APY/Public_Report1.aspx

Table 2
Growth Rate of Paddy Cultivation in Thanjavur District of Tamil Nadu

Year	Area (Hectare)	Production (Tonnes)	Productivity (Tonnes/Hectare)
2000-01	196816	678014	3.44
2001-02	192161	561650	2.92
2002-03	139186	318325	2.29
2003-04	123293	354937	2.88
2004-05	160608	439323	2.74
2005-06	154901	399483	2.58
2006-07	164243	598160	3.64
2007-08	150228	479643	3.19
2008-09	177094	357161	2.02
2009-10	162938	427142	2.62
2010-11	166209	476793	2.87
2011-12	180859	722576	4.00
2012-13	146959	431121	2.93
2013-14	167289	831483	4.97
2014-15	177756	696193	3.92
2015-16	177426	636999	3.59
2016-17	147193	410117	2.79
2017-18	170697	668508	3.92
2018-19	185585	683424	3.68
2019-20	192231	715112	3.72
Mean	166684	544308	3.24
I_y	11.52	27.90	21.72
CGR	0.51 (1.10)	2.31** (2.26)	1.80** (2.35)

Note CGR:- Compound Growth Rate;

I_y:- Instability measured through coefficient of variation; Figures in parentheses are t values.

* = Statistically Significant at 1 % level. ** = Statistically Significant at 5 % level.

*** = Statistically Significant at 10 % level.

Source: https://aps.dac.gov.in/APY/Public_Report1.aspx

Table 2 presents the growth in the area, production and productivity of paddy cultivation in the Thanjavur district of Tamil Nadu for 2000-01 to 2019-2020.

In the initial year (2000-01) of our analysis, 1,96,816 hectares of the total paddy area. It was little declined to 1,92,231 hectares in 2019-20. Thus, recording a positive compound growth rate of 0.51 per cent in the Thanjavur district of Tamil Nadu. On average, the annual area worked out to be 1,66,684 hectares. A relatively small value of the coefficient of variation reveals the lower level of instability in the area's growth during the study period. The year-wise data found the maximum area in 2000-01 (1,96,816 hectares), followed by 1,92,231 in 2019-2020. The Thanjavur district observed the minimum area at 1,23,293 in 2003-04.

In the case of paddy production in Thanjavur district observed that in 2000-01 (6,78,014 tonnes). This pattern fluctuated to reach a comparatively high value of 7,15,112 tonnes in 2019-2020, thus recording positive, positive value growth of 2.31 per cent at 5 per

cent level of significance. The mean value of production finds out at 544308 tonnes. The lower value of the coefficient of variation exposes the lesser level of instability in the production growth for 2000-01 to 2019-2020. Over the years, the maximum paddy production was reported at 8,31,483 tonnes (2013-14), followed by 7,22,576 tonnes in 2011-12, and the minimum paddy production of Thanjavur district was observed at 3,18,325 tonnes in 2002-03.

In 2000-01 of our analysis, the productivity was at 3.44 kg. This trend flux to reach little high at 3.72 kg in 2019-2020, thus recording a positive compound growth rate of 1.80 per cent in Thanjavur district Tamil Nadu at 5 per cent level of significance. On average, the annual productivity worked out to be 3.24 kg, and the value of the coefficient of variation reveals the modest level of instability in the growth of productivity during the study period. The year-wise high productivity data was in 2013-14 (4.97 kg), followed by 4 kg in 2011-12. The lowest productivity was in the Thanjavur district at 2.02 kg (2008-09).

Thus, it is evident that the growth of paddy cultivation in the Thanjavur district has a significant compound growth rate of 2.31 per cent during the study period.

Table 3
Growth Rate of Paddy Cultivation in Thiruvarur District of Tamil Nadu

Year	Area (Hectare)	Production (Tonnes)	Productivity (Tonnes/Hectare)
2000-01	181379	554654	3.06
2001-02	174722	460110	2.63
2002-03	131055	112183	0.86
2003-04	121437	169428	1.40
2004-05	148608	239805	1.61
2005-06	156098	243450	1.56
2006-07	176900	586375	3.31
2007-08	151629	311306	2.05
2008-09	178040	206611	1.16
2009-10	166252	483125	2.91
2010-11	160237	285589	1.78
2011-12	186307	789997	4.24
2012-13	158904	192843	1.21
2013-14	174366	820538	4.71
2014-15	192615	852925	4.43
2015-16	194743	666958	3.42
2016-17	186958	332913	1.78
2017-18	180999	699921	3.87
2018-19	188709	656436	3.48
2019-20	180900	659279	3.64
Mean	169543	466222	2.66
I _v	11.83	51.65	45.34
CGR	1.27* (3.10)	5.53* (2.62)	4.20** (2.31)

Note CGR:- Compound Growth Rate; **I_v:-** Instability measured through the coefficient of variation; Figures in parentheses are t values.

* = Statistically Significant at 1% level. ** = Statistically Significant at 5% level.

*** = Statistically Significant at 10% level.

Source: https://aps.dac.gov.in/APY/Public_Report1.aspx

Table 2 presents the growth in the area, production and productivity of paddy cultivation in the Thiruvarur district of Tamil Nadu for 2000-01 to 2019-2020.

In the initial year (2000-01), there were 1,81,379 hectares of the total paddy area, and it swung to reach 1,80,900 hectares in 2019-2020, thus recording a positive compound growth rate of 1.27 per cent at significant at 1 per cent level in Thiruvarur district of Tamil Nadu. On average, the annual area worked out to be 1,69,543 hectares. The year-wise data of maximum area was in 2015-16 (1,94,743 hectares), followed by 1,92,615 (2014-15). The minimum area was in the Thiruvarur district at 1,21,437 (2003-04). The relatively small value of the coefficient of variation reveals the lower level of instability in the area's growth during the study period.

The mean production value is 4,66,222 tonnes, and the moderate coefficient of variation exposes the reasonable level of instability in the growth of production for the period 2000-01 to 2019-2020. In the case of paddy production in Thiruvarur district reported that in 2000-01 at 5,54,654 tonnes, this pattern increased to 6,59,279 tonnes (2019-20). Thus, recording a positive growth of 5.53 per cent at 1 per cent level of significance. Among the years, the maximum paddy production was reported at 8,52,925 tonnes in 2014-15, followed by 8,20,538 tonnes in 2013-14. The minimum paddy production of the Thiruvarur district was observed at 1,12,183 tonnes (2002-03).

In 2000-01 of our analysis, the productivity was evidenced at 3.06 kg. This trend augmented at 3.64 kg in 2019-2020, thus recording a positive compound growth rate of 4.20 per cent in the Thiruvarur district Tamil Nadu. On average, the annual productivity worked out to be 2.66 kg, and the value of the coefficient of variation reveals the modest level of instability in the growth of productivity during the study period. The year-wise high productivity data was in 2013-14 (4.71 kg), followed by 4.43 kg (2014-15). The lowest productivity was evidenced in Thiruvarur district at 0.86 kg in 2002-03.

Thus, it is evident that the growth of paddy cultivation in the Thiruvarur district has a significant compound growth rate of 5.53 per cent during the study period.

Comparative analysis

Table 4 reveals the analysis of growth in the area, production and productivity of paddy cultivation in Select Cauvery delta districts of Tamil Nadu for 2000-01 to 2019-2020.

Table 4
Comparative Analysis of Growth and Instability in Area, Production and Productivity of Paddy Cultivation in Select Cauvery Delta District of Tamil Nadu

Districts	Area	Production	Productivity
Nagapattinam	0.40 (1.54)	3.34*** (1.73)	2.93 (1.62)
Thanjavur	0.51 (1.10)	2.31** (2.26)	1.80** (2.35)
Thiruvarur	1.27* (3.10)	5.53* (2.62)	4.20** (2.31)

Note: Figures in parentheses are t values.* = Statistically Significant at 1% level.

** = Statistically Significant at 5% level. *** = Statistically Significant at 10% level.

Source: https://aps.dac.gov.in/APY/Public_Report1.aspx

Among the three Cauvery delta districts, the Thiruvarur district has the highest growth rate of the area of 1.27 per cent at 1 per cent level of significance, followed by 0.51

per cent in evidenced Thanjavur district, and the minimum growth rate of the area was found in Nagapattinam at 0.40 per cent. In case of the growth rate of production also observed that 5.53 per cent at 1 per cent significant level in Thiruvarur district followed by 3.34 per cent at 10 per cent level of significance in Nagapattinam and the minimum growth rate of production reported in Thanjavur district of 2.31 per cent at 5 per cent significance level. In the growth of productivity found higher in Thiruvarur district of 4.20 per cent at 5 per cent level of significant followed by 2.93 per cent in Nagapattinam district and the low level of productivity was evidenced in Thanjavur district of 1.80 per cent at 5 per cent level of significance.

Conclusion

The positive sign of area, production, and productivity was found in the Cauvery delta districts for paddy cultivation during the study period. Further, it could be observed that in all the three Cauvery delta districts, productivity growth has a positive sign. The reasons for the positive productivity of these districts were the farmers well known for the cultivation method and adopted the new technology. The present study suggested that specific agriculture policies are needed for each district of Tamil Nadu to improve the agriculture sector growth of the state.

References

1. Arul Kumar, C., and Manimannan., G. (2014). Spatial Pattern of Agriculture Productivity of Crops in Cauvery Delta Zone of Tamilnadu, *IOSR Journal of Agriculture and Veterinary Science*, 7(11), 01-07.
2. Larson, D.W, E. Jones, R.S. Pannu and R.S. Sheokand (2004), "Instability in Indian Agriculture – A Challenge to the Green Revolution Technology", *Food Policy*, Vol.29, No.3, 257-273.
3. Muthumurugan, P., and Sahaya, J. (2021). Regional differences of agricultural development in Tamil Nadu: A district-wise Analysis" *Indian Journal of Economics and Development*, 9, 1-9.
4. Nadkarni MV, Deshpande RS (1982), "Agricultural Growth, Instability in Productivity and Rainfall: Case of Karnataka", *Economic and Political Weekly*, Vol. 17, Iss. 52.
5. Palanisami K., Ranganathan C.R., Vidhyavathi A., Rajkumar. M, & Ajjan N. (2011). Performance of Agriculture in River Basins of Tamil Nadu In the last three Decades – A Total Factor Productivity Approach, A Project Sponsored by Planning Commission, Government of India Final Report March 2011, Centre for Agricultural and Rural Development Studies Tamil Nadu Agricultural University, Coimbatore – 641 013.
6. Paramasivan, C., and Pasupathi, R. (2016). An Overview of Cauvery Delta Zone in Tamil Nadu, *International Journal of Trend in Research and Development*, 3(5), 399-403.

DOMESTIC SAVINGS AND ECONOMIC GROWTH IN INDIA⁶

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Introduction

Policymakers and academicians still debate the relationship between savings and economic growth. Savings influence the growth rate of an economy because higher savings result in higher capital accumulation, which in turn improves the rate of economic growth (Solow 1956). This presumes that increased savings contribute directly to economic growth, and as such, it has resulted in strong macroeconomic policy recommendations for growth and development in numerous countries. One of the fundamental objectives of macroeconomic policies is to attain sustainable economic growth. Accordingly, the linkages between economic growth and other macroeconomic factors are very significant in determining the policies that steer economic growth. Theoretically, the studies on the association between economic growth and saving were dated from the growth models (Harrod 1939 and Domar 1946), which opined that economic growth hinges on the level of savings, and as a result, an increase in savings leads to a surge in the rate of economic growth. However, in the neoclassical growth model (Swan 1956), changes in savings have an impact on economic growth only in the short run, with a steady state output achieved only in the short run. Although economic theories postulate that savings are one of the main factors influencing economic growth, empirical studies on the nexus between savings and economic growth have attained mixed conclusions. The Carroll-Weil hypothesis (Carroll and Weil 1994) avows that it is economic growth that contributes to savings, not savings to growth. From this point of view, this study is an attempt to empirically examine the effect of gross domestic savings on the economic growth of the country and the effect of GDP growth on domestic savings.

Review of Literature

The literature review on the relationship between savings and economic growth indicates a positive relationship between domestic savings and economic growth. Several hypotheses can explain this positive relationship. The first assumes that increased savings may stimulate economic growth through increased investment (Bebczuk 2000). Results of empirical research by Alguacil, Cuadros, and Orts (2004) and Singh (2009) provide support for the hypothesis that increased savings promote economic growth.

On the other hand, the second hypothesis says that economic growth stimulates increased savings. This approach is backed up by the Keynes model (1936). This is also true based on research done by Jappelli and Pagano (1994), Sinha and Sinha (1998), Saltz (1999), Agrawal (2000), Carroll et al. (2000), Rodrik (2000), Anoruo and Ahmad (2001), Narayan and Narayan (2006), Verma (2007) and Abu (2010). The economic literature usually analyses

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the relationship between economic growth and savings using the correlation coefficient and dynamic econometric models. To analyse the relationships between savings and economic growth, Otani and Villanueva (1990), Jappelli and Pagano (1994) used the ordinary least squares method (OLS). Their research proved that the higher the domestic savings rate (share of domestic savings in GDP), the higher the economic growth rate. Also, research carried out by Kriekhaus (2002) in 32 countries indicates that a higher level of domestic savings led to higher investment levels and thus contributed to a higher economic growth rate in analysed countries.

Mohan (2006), using the Granger causality test (1960–2001 period) found that in 13 of the analysed countries, economic growth was the cause of increased savings in the Granger sense. In two countries, the opposite results were obtained, pointing to savings as the cause of economic growth. Also, no causal relationship between savings and economic growth was observed in the other two countries. The growing importance of research on the relationship between savings and economic growth using co-integration techniques has brought out a few significant. Katircioglu and Naraliyeva (2006) results the relationships between domestic savings, direct foreign investment, and economic growth in Kazakhstan in the 1993-2002 period using the Granger causality test and co-integration methods. The results of their study showed that there has been a long-term relationship between Kazakhstan's economic growth and domestic savings. Saltz (1999), using the model of vector error correction (VEC) and the model of vector autoregression (VAR), analysed the relationship between savings and economic growth in seventeen countries from all over the world. The analysis results indicated that in nine of the studied countries, economic growth was the cause of increased domestic savings. In two countries, the opposite relationship was noticed, while in three other countries, no causal relationship between economic growth and domestic savings was identified. Finally, in the two countries, the existence of a two-way causal relation between the analysed variables was confirmed. Baharumshah, Thanoon, and Rashid (2003) examined the relationship between economic growth and savings in five Asian countries (Singapore, South Korea, Malaysia, Thailand, and the Philippines). They looked at statistical data from 1960 to 1997 and used the VECM model to come to their conclusion. They found that the growth rate of savings did not play a big role in economic growth in all of the countries they looked at, except for Singapore.

Methodology

The study used secondary data for the period 2005-06 to 2019-20. The data on Gross Domestic Product, Gross Savings, and Gross Capital Formation (at current prices) were collected from the National Statistical Office (NSO), India. The percentage analysis, growth analysis, ADF test, and Granger Causality Test were employed for the results.

Results and Discussion

The trends in Gross Domestic Product (at Current Prices), Gross Domestic Product (Annual Growth Rate), Gross savings (at Current Prices), Gross capital formation (at Current Prices), Gross capital formation (Annual Growth Rate), and Gross Capital Formation (as % of GDP) in India were analyzed.

Table 1 Trends in Economic indicators (Base year: 2011-2012)

Year	Gross Domestic Product (at Current Prices)	Gross Domestic Product (Annual Growth Rate)	Gross savings (at Current Prices)	Gross savings (As % of GDP)	Gross capital formation (at Current Prices)	Gross capital formation (Annual Growth Rate)	Gross Capital Formation (As % of GDP)
2005-06	3632125	14.0	1278387	35.2	1322989	18.0	36.4
2006-07	4254629	17.1	1485991	34.9	1531514	15.8	36.0
2007-08	4898662	15.1	1852643	37.8	1917072	25.2	39.1
2008-09	5514152	12.6	1986268	36.0	2115027	10.3	38.4
2009-10	6366407	15.5	2292686	36.0	2473478	16.9	38.9
2010-11	7634472	19.9	2817807	36.9	3037520	22.8	39.8
2011-12	8736329	14.4	3026837	34.6	3403008	12.0	39.0
2012-13	9944013	13.8	3369202	33.9	3847122	13.1	38.7
2013-14	11233522	13.0	3608193	32.1	3794135	-1.4	33.8
2014-15	12467959	11.0	4019957	32.2	4179779	10.2	33.5
2015-16	13771874	10.5	4282259	31.1	4422659	5.8	32.1
2016-17	15391669	11.8	4825113	31.3	4918077	11.2	32.0
2017-18	17090042	11.0	5480741	32.1	5791573	17.8	33.9
2018-19	18886957	10.5	5776960	30.6	6172623	6.6	32.7
2019-20	20351013	7.8	6385981	31.4	6551251	6.1	32.2

Notes: 1. Data for 2017-18 are Third Revised Estimates for 2018-19 are Second Revised Estimates and for 2019-20 are First Revised Estimates.

2. Data for 2020-21 are Provisional Estimates.

Source: National Statistical Office (NSO).

In 2005-06, the GDP growth rate was 14.0, which decreased to 7.8 in 2019-20. The highest growth rate was registered in the year 2010–11. The gross capital formation (at current prices) was 18.0 in 2005-06, which also decreased to 6.1 in 2019-20. The highest growth rate was registered in 2010-11. Gross savings and cross-capital formation (as a percentage of GDP) were 35.2 and 36.4 in 2005-06, respectively, and have since fallen to 31.4 and 32.2 in 2019-20. The following table presents the ADF test of the variables.

Table 2 The ADF Test Results

Variables	Coef.	Std. Err.	t	P> t
GDP (Annual Growth rate) Has a Unit Root	-0.043	0.010	-4.133	0.000**
Gross Capital Formation (% of GDP) Has a Unit Root	-0.825	0.288	-2.864	0.014**
D (Gross Capital Formation { % of GDP}) Has a Unit Root	-0.019	0.003	-5.811	0.000**
Gross Domestic Savings (% of GDP) Has a Unit Root	-0.019	0.002	-9.611	0.000**

Source: Calculated Value ** Significant at 5% level

The ADF test results that both GDP growth and gross domestic savings rate do not have unit roots in the level data and are stationary while the rate of gross capital formation does have a unit root in the level data and needs to be differentiated. Without differencing the series, the causality test would lead to misspecification. The Correlation Co-efficient Matrix between Gross Domestic Savings (% of GDP) and Other Variables is significant at 5% (two-tailed).

Table 3 Correlation

Variables	Gross Capital Formation (Annual Growth Rate)	Gross Domestic Product (Annual Growth Rate)	Gross savings (As % of GDP)	Gross Capital Formation (As % of GDP)*
Gross capital formation (Annual Growth Rate)	1	.639*	.754**	.646**
Gross Domestic Product (Annual Growth Rate)	.639*	1	.794**	.776**
Gross savings (As % of GDP)	.754**	.794**	1	.918**
Gross Capital Formation (As % of GDP)	.646**	.776**	.918**	1

Source: Calculated Value ** Significance at 5% level

* indicates that the first difference of the variables have been taken.

From the correlation matrix, it was observed that both gross capital formation growth (previously known as gross domestic investment) and GDP growth show a significant positive correlation, which is congruent with the economic theory. Furthermore, the gross domestic savings rate and GDP growth also show a significant positive correlation. When people abstain from current consumption, they make available a pool of funds from which firms and the government can borrow to invest in capital goods. This investment (net restitution investment) adds to the capacity for production of the economy and leads to economic growth. Also, there is a strong positive correlation between the gross capital formation rate and gross capital formation growth, as expected. Adam Smith held that the rate of investment, which is an important determinant of economic growth, is determined by the rate of savings in an economy. Thus, savings form the backbone of economic growth. Several factors have contributed to the rapid growth. One of the most important of these has been the high gross domestic savings rate, which has been a major source of funds for investment to expand production capacity in the days after independence, when international capital flows were almost negligible and highly constrained. Indian economic growth has been predominantly financed by domestic savings (Mohan, R. 2008). Hence, domestic savings facilitated growth, which in turn enabled savings to be ample. Prior to its financial liberalisation in 1991-92, the Indian economy was closed. From the point of view of a standard theory of economic growth, we expect a positive cause and effect relation to exist between domestic savings and economic growth, in which domestic savings may constitute an essential source of financing domestic investment and an economic growth factor in the absence of foreign investment. Thus, we expect these variables to reinforce each other mutually.

Null Hypotheses

1. Gross Domestic Savings (% of GDP) does not Granger Cause GDP growth
2. GDP (Annual Growth Rate) does not Granger cause Gross Domestic Savings (% of GDP)
3. Gross Domestic Savings (% of GDP) does not Granger cause Gross Capital Formation (% of GDP)
4. Gross Capital Formation (% of GDP) does not Granger cause Gross Domestic Savings (% of GDP)

Table 4 Results of Pair-Wise Granger Causality Tests

Variables	F-statistics	Significance
Gross Domestic Savings (% of GDP)	19.721	0.000**
GDP (Annual Growth rate)	3.0186	0.021**
Gross Domestic Savings (% of GDP)	10.127	0.006**
Gross Capital Formation (% of GDP)	24.314	0.000**

Source: Calculated Value ** Significant at 5% level

The results of the pair-wise Granger test at 5% significance do show that bidirectional causality exists between GDP growth and gross domestic savings rate, which indicates that during the period under study (2005-06 to 2019-20), these variables mutually reinforced each other. These results bolster Rakesh Mohan's observation that India's economic growth since independence has been predominantly financed by domestic saving and show that this economic growth has had a major influence on domestic savings. A rise in GDP can be seen as an increase in the citizens' incomes, giving them more money to save. Further, the results showed the gross capital formation rate, which affects the gross domestic savings rate. It is determined by the fact that a higher rate of capital formation adds to the economy's existing capital stock, increasing its capacity for production in the future, leading to economic growth that increases the incomes of the citizens who can then afford to save more.

Conclusion

The study concluded that India's GDP growth is linked to the country's gross domestic savings rate, which is in line with the theories about how economies grow. The study results also confirmed a positive, bidirectional causal relationship between economic growth and the savings rate. Namely, the growth of gross domestic savings was the cause of the growth of gross domestic product, which in turn sustained the high savings rate. It's because India is opening up its economy and getting more foreign investment than ever before that domestic savings are now the main source of money for the Indian economy to grow at a high rate. Given that household savings account for the majority of gross domestic savings, the primary goal of national economic policy should be to encourage people to save. In addition, national economic authorities should create appropriate conditions for the reallocation of national resources from traditional (non-growth) sectors to the so-called modern (growth-led) sectors of the economy to stimulate economic growth.

References

1. Sinha, D. and Sinha, T. (1998) Cart before the Horse? The Saving-Growth Nexus in Mexico. *Economics Lectures*, 6, 43-47.
2. Agrawal, P. (2000) *Savings, Investment and Growth in South Asia*. Indira Gandhi Institute of Development Research, Mumbai, India.

3. Carroll, C.D., Overland, J. and Weil, D.N. (2000) Saving and Growth with Habit Formation. *The American Economic Reviews*, 90, 341-355.
4. Anoruo, E. and Ahmad, Y. (2001) Causal Relationship between Domestic Savings and Economic Growth: Evidence from Seven African Countries. *African Development Review*, 13, 238-249.
5. Verma, R. (2007) Savings, Investment and Growth in India: An Application of the ARDL Bounds Testing Approach. *South Asia Economic Journal*, 8, 87-98.
6. Abu, N. (2010) Saving-Economic Growth Nexus in Nigeria, 1970-2007: Granger Causality and Cointegration Analyses. *Review of Economic and Business Studies*, 3, 93-104.
7. Singh, T. (2009). Does Domestic Saving Cause Economic Growth? A Time-Series Evidence from India, *Journal of Policy Modeling*, Volume 32, Issue 2.
8. Otani, I., Villannueva, D. (1990). Long Term Growth in Developing Countries and Its Determinants: An Empirical Analysis, *World Development*, Vol. 18.
9. Mohan, R. (2006). Causal Relationship between Savings and Economic Growth in Countries with Different Income Levels, *Economics Bulletin*, Vol. 5, Nr 3.
10. Saltz, I. S. (1999). An Examination of the Causal Relationship between Savings and Growth in the Third World, *Journal of Economics and Finance*, Nr 23.
11. Hashmi, NaziaIqbal and Sedai, Ashish Kumar. (2016). Domestic Savings and Economic Growth in India, *International Journal of Applied Business and Economic Research*, Vol. 14, No. 3, (2016): 2119-2127

A STUDY ON THE STATUS OF FEMALE LITERACY IN SRIRANGAM TALUK OF TIRUCHIRAPPALLI DISTRICT⁹

Dr. N. KANNAN¹⁰ & Dr. T. SUDAKAR¹¹

Human Resource Development has necessarily to be assigned a key role in any development strategy, particularly in a country with a large population. The most important factors which lead to HRD are education, health, housing, nutrition, better environment, improved socio-economic opportunity with regard to under privileged sections of society like scheduled castes, scheduled tribes, women, children and aged persons etc., A country can have some growth even without capital and technology, but no growth is possible without manpower. Thus human labour plays a vital role in the process of economic development. This study attempts to bring forth the literacy status of female who are residing in Manigandam Village. Since this village comes under Srirangam Taluk which is famous for industries and Educational Institutions, it remains to see the impact of the above mentioned factors on female education and employment. A study of this nature has enormous scope to examine the economic and political participation through education. As a result there is ample scope for suggesting suitable measures to improve the standard of education particularly female literacy. Some specific measures are suggested for improving the status of female literacy. There is need for high school with-in the village. Steps must be taken by the school authorities to provides security in the form of school bus for girl children and also to improve sanitation facilities. There is an urgent need for Girls' higher secondary school in the village to avoid eve teasing and to protect them from diversion. This could also reduce the number of dropouts. Women in the age-group of 31-40 are not willing to project their economic participation, political participation and status of literacy that is standard of education out of fear and shyness. This situation must be changed in future. This is possible with the help of counselling.

Introduction

Literacy and education could be reasonably good indicator of development in a society growth and diffusion of literacy is generally linked with culture, attitude infrastructure facilities economic condition of parents and development of urban industrialization. Being in the lower ranks of the socio-cultural and economic ladder a negative relationship between female literacy and their population is erepected. Literacy is an important component both as an input in and out come- of the development process. It forms on important input in the over all development of individuals enabling them to comprehend their social, Political and cultural environment better and to respond to it appropriately.

The socioeconomic impact of female education constitutes a significant area of research within international development. Increases in the amount of female education in regions tends to correlate with high levels of development. Some of the effects are related

⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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to economic development. Women's education increases the income of women and leads to growth in GDP. Other effects are related to social development. Educating girls leads to a number of social benefits, including many related to women's empowerment.

Recent research in human development has established a strong link between women's education and international development. International development is an academic discipline concerned with the social and economic progress in impoverished regions. In particular, researchers seek to determine what factors explain differences in rates of development. Women's education is one of the major explanatory variables behind the rates of social and economic development, and has been shown to have a positive correlation with both. According to notable economist Lawrence Summers, "investment in the education of girls may well be the highest-return investment available in the developing world." Closing gender disparity is also one of the U.N. Millennium Developmental Goals.

There are multiple ways researchers measure the effects of women's education on development. Typically, studies concern themselves with the gender gap between the education levels of boys and girls and not simply the level of women's education. This helps to distinguish the specific effects of women's education from the benefits of education in general. Note that some studies, particularly older ones, do simply look at women's total education levels. One way to measure education levels is to look at what percentage of each gender graduates from each stage of school. A similar, more exact way is to look at the average number of years of schooling a member of each gender receives. A third approach uses the literacy rates for each gender, as literacy is one of the earliest and primary aims of education. This provides an idea of not just how much education was received but how effective it was.

The most common way to measure economic development is to look at changes in growth of GDP. In order to ensure that a connection holds, correlations are analyzed across different countries over different periods of time. Typically the result given is a relatively steady average effect, although variation over time can also be measured.^[6] The benefits of education to an individual can also be analyzed. This is done by first finding the cost of education and the amount of income that would have been earned during years enrolled in school. The difference between the sum of these two quantities and the total increase in income due to education is the net return.

Statement of the problem

The importance of education for women is high. The percentage of females who are illiterate is twice as high in rural areas (74.9%) as in urban areas (37.1). The literacy gap between the males and females is greater in rural than in urban areas. If female schooling raises human capital, Productivity, and economic growth as much as male schooling does, then women's disadvantage in education is economically inefficient. Research world-wide shows that, in general, the economic benefits from women's education- calculated as the economic rate of return to education- are comparable to those from men's education. Thus, from the point of view of economic efficiency, the gender gap in education is undesirable.

Objectives

1. To study the social-economic status-wise female literacy in the study area.
2. To find out the level of education and employment opportunity in the study area.
3. To suggest policy measures to reduce the educational gap in the study area.

Methodology

This study is based on both primary data and secondary data. Primary data was collected through questionnaire among 100 respondents in the study area. Secondary data were collected information are available from Srirangam taluk office, News papers, Journals, Internet service etc....

Sample Size

For the present study 100 samples taken between the Literacy rate from the study area.

Statistical Tools

Simple statistical tools like percentage, pie- diagram have been used to internet data.

Limitations of the Study

Due to lack of time, we are unable to collect the data from whole village population. This study is only applicable to our project area. This is not universally applicable.

Major Findings

The following findings are made out of the present study.

- Majority of the respondents belongs to Hindu religion only.
- There is three Muslim family in the study area.
- Majority of the people in the study area belongs to Scheduled Caste in number of 24 and 24% followed by BC in number of 42 and 42%.
- One of the important features of this study is that not even a single respondent belongs to Forward Class (FC).
- Majority of the respondents belongs to nuclear family.
- Majority of the respondents are un employed.
- Majority of the respondents are doing small business.
- 76% of the respondents are having saving attitude.
- Majority of the people save their money in Bank.
- Majority of the respondents are Literate

Conclusion

Due to poverty and their family problems some respondents cannot do their higher studies. But all the respondents are willing to send their children for higher education. If you provide quality education in primary level, Middle level, higher secondary level and Higher education level the respondents will get better education. So **Sarva Sikshya Abhiyan (SSA)** Scheme is better way those to discontinue in school education that students was benefit this scheme.

GROWTH ACCELERATION IN SPICES ECONOMY OF INDIA¹²

R. RAJANBABU¹³

Introduction

Indian spices are not just an ingredient as they add flavour as well as aroma to the food making. These spices include a wide variety of herbs that are grown across the South Asia. Owing to different weather conditions across the country, India produces a variety of spices while others are imported from countries having similar weather. Indian spices like turmeric, ginger, chillies, pepper, cardamom, coriander and mint are widely used for preparing variety dishes of Indian cuisine. In addition these spices are used for flavouring foods and medicines in pharmaceutical, perfumery and cosmetics. Being rich in medical value, these spices are good for health and are excellent appetizers & digestives and are also considered essential in the culinary art all over the world. Several spices possess anti-oxidants whereas others have preservative properties and are used in foods like pickles and chutneys. Some spices also own strong anti-microbial and antibiotic activities. In the preparation of Indian spices, a variety of ingredients like dried seeds, leaves, flowers, barks, roots and fruits are utilized. Convinced spices are grinded and used in powder forms.

Spices Products Industry

The food industry across the world is turn-off more and more to spice products to make newer varieties of food. New taste and flavour systems are being developed to introduce new products in the market and create competitive advantages. The Indian spices products industry is engaged in continuous innovation (diversification) and up-gradation of process and products to meet the new worldwide demand. India produces and markets over fifty different varieties of spices and exports them to most of the counties around the world.

Export of Spices

During 2017-18, spices exports from India attained an all time record both in volume and value: 1028060 tonnes valued at Rs.17929.55 crores. In the case of value added products, the export of curry powder/paste in 2017-18 was 30150 tonnes valued at Rs.616.20 crores. Further a total export volume of 17200 tonnes of spice oils and oleoresins valued Rs.2661.72 crores, as against 12100 tonnes valued at Rs.2307.75 crores of the previous year, registering an increase of 42 per cent in volume and 15 per cent in value (Annual Report 2019, Spices Board India).

Review of Literature

The future of spice exports depended on the ability to meet quality standards set by imported countries. The Indian spices industry moved from only trade to consumer-oriented processing and production, some of the companies have gone into joint ventures/marketing tie-ups with multinationals (John, 2003). Hema and Ranjit (2007) in their study found that black pepper had very dubious distinction as the yield of this crop has in fact declined mainly

¹² Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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due to senile plantation and minimum input use on account of declining market price and thereby declining profit margin. Although the export volume of all spices from India has been increasing, black pepper and small cardamom were facing stiff competition from other major producing countries like Vietnam (for black pepper) and Guatemala (for small cardamom). The growth in production and export of turmeric has reported significant, because of the high demand coupled with inflation (Angles *et al.*, 2011). Consumption pattern of spices revealed domination of dry-chilli followed by turmeric in spice basket of rural and urban households in India. Diagnosis of production performance of spices showed their satisfactory performance. Total production of spices increased because of the area as well as yield effects (Srivastava *et al.*, 2011). Thumar *et al.* (2012) estimated the growth, instability and performance in export of seed spices i.e. coriander, cumin, fennel and fenugreek of India. The growth rates of export quantity were found less than the export value for all the seed spices as well as total spices. Karthick *et al.*, (2015) analysed growth and export performance of ginger in India. The rate of growth between pre and post-WTO period in area and production were positive. Since the export growth of post WTO period in terms of quantity and values were establish to be not significant and decreasing but unit price value were found to be significant and positive. Rajanbabu and Ganesan (2015) examined production and trade performance of spices grown in India and concluded that among the various spices groups, turmeric, coriander and other spices were recorded positive growth rates in all the selected economic indicators. Sachu and Anil (2016) analysed the price instability of black pepper in domestic and international markets in the pre and post-liberalisation periods and found that the scale of price instability of black pepper has increased significantly in Indian markets during the liberalization period, while it has declined in the international markets. Lande *et al.* (2018) studied export performance of turmeric in India. Overall analysis revealed that production and export quantity and export value was registered significantly positive whereas, consumption was found non-significant. Meena *et al.* (2018) found that there is more scope for seed spices. Symmetric comparative advantage envisages that India is having unique comparative advantage in exports of cardamom, turmeric and seed spices. Indian spice exports face significant challenges including poor post-harvest handling, inadequate legal provisions, insufficient quantity of legal spices, and loss of indigenous products (Sebastian and Praveen, 2019).

Research Gap

It is evident that most of the studies reviewed above had focused on the issues such as growth, instability and trends in spices production and export. Moreover, going through the above literature, it is found that the earlier studies have either covered single spice or have been done for smaller period. In order to fill these gaps this study has been undertaken on major spices of India for a longer period of time.

Significance of the Study

The consumption of spices is growing in India with increase in purchasing power. It is forecasted that everyone in the country would be consuming one spice or the other with a high per capita consumption. It is estimated that we may have a population of around 1.69 billion people during 2050 and approximately the per capita consumption of turmeric, ginger, black pepper and cardamom is expected to be about 1.6 kg, 1.2 kg, 148 g and 54 g, respectively. India expected to have the second largest urban population (0.9 billion) in the world by 2050 (Kandiannan *et al.* 2017). Hence looking upon the importance of spices, the present study was undertaken.

Objective

1. To make an overview of the present scenario Area under cultivation, Production, Domestic market and Export of spices, particularly pepper, cardamom, chillies, ginger, turmeric and coriander and their growth acceleration/deceleration during the reference period.

Methodology

The study covers a period of 29 years that is from 1990-91 to 2018-19. The relevant data were collected from the Statistical Year Books, Annual Reports of Spices Board, Cochin. An econometric model was constructed to analyse the data.

Growth Indicators

Area, Production, Domestic market, Export and Value of exports.

Econometric Analysis: Average (Annual Trend) growth and Growth Acceleration / Deceleration.

Model

For estimating the acceleration in the growth rates, the following semi-logarithmic specification of a non-linear (quadratic) equation has been used

$$\ln Xt = \alpha + \beta_1 t + \beta_2 t^2 \quad (1)$$

where 't' is time, the coefficient β_1 is interpreted as average annual trend growth and β_2 gives the rate of acceleration or deceleration in the average growth (Kaur, 2007). The purpose of fitting a non-linear trend is to check whether the trend growth over the entire period has remained constant or has changed over time.

Results and Discussion

Area under cultivation of spices in India

Table1: Average Annual Growth of Area under Cultivation of Spices in India (1990-91 to 2018-19)

Spices (1)	α (2)	β_1 (3)	β_2 (4)	DW (5)
Pepper	5.093*** (66.56)	0.046*** (3.93)	-0.002*** (-5.24)	1.16
Cardamom	4.713*** (205.01)	-0.011*** (-3.15)	0.0003** (2.21)	0.93
Chillies	6.783*** (174.06)	-0.001 (-0.14)	-0.0002 (-1.05)	1.82
Ginger	3.871*** (78.91)	0.063*** (8.38)	-0.001** (-2.54)	0.87
Turmeric	4.813*** (57.87)	0.028** (2.20)	-0.0002 (-0.60)	1.80
Coriander	6.010*** (53.69)	-0.002 (-0.13)	0.001 (-0.95)	1.44
Other Spices	6.037*** (27.32)	0.002 (0.05)	0.002 (1.76)	1.32
Total Spices	7.738*** (137.50)	-0.005 (-0.58)	0.001** (2.99)	1.35

Note: Figures in parentheses indicate t values, β_1 -Average annual trend growth, β_2 -Rate of acceleration or deceleration in the average growth, DW-Durbin Watson, ***, ** showed

significance at 1 and 5 per cent level respectively.

Since the value of β_1 is negative and β_2 is positive, the interpretation is that over the entire period of 29 years ranging from 1990-91 to 2018-19, area under cultivation of spices in India slowed down at an average rate of -0.5 per cent per annum with acceleration over time.

Out of the seven spices four products viz., pepper, ginger, turmeric and other spices indicated a positive growth, the pepper and ginger significant at 1 per cent level ranged between -1.1 per cent and -0.1 per cent. In the case of remaining three products, the growth rates were negative. Eventhough, ginger indicated a maximum growth rate (6.3%) the growth momentum in this product decelerated during the period under review (β_2 was negative and significant).

Production of spices in India

Since β_1 and β_2 are reasonably significant at 1 per cent level and 5 per cent level correspondingly, the average growth has been positive at 3.3 per cent with a meagre acceleration of 0.1 per cent, over time.

Across the products, growth has been highly significant in four products, the maximum being 7.9 per cent in ginger. Cardamom (4.6%), chillies (3.8%) and turmeric (7.2%) indicated positive growth rates. At the same time their β_2 value is negative and highly significant, the growth momentum in these products decelerated during the period under study.

**Table 2: Average Annual Growth of Production of Spices in India
(1990-91 to 2018-19)**

Spices (1)	α (2)	β_1 (3)	β_2 (4)	DW (5)
Pepper	3.987*** (45.45)	0.007 (0.55)	-0.0003 (-0.76)	2.33
Cardamom	2.124*** (23.41)	0.046*** (3.33)	-0.0004 (-0.79)	0.80
Chillies	6.503*** (90.86)	0.038*** (3.45)	-0.0001 (-0.35)	2.58
Ginger	4.937*** (35.75)	0.079*** (3.72)	0.0002 (0.29)	0.68
Turmeric	5.859*** (59.94)	0.072*** (4.76)	-0.001** (-2.54)	1.04
Coriander	5.226*** (42.19)	0.017 (0.92)	0.001 (1.70)	2.16
Other Spices	6.271*** (46.28)	0.021 (0.52)	0.001*** (3.27)	1.84
Total Spices	7.592*** (124.85)	0.033*** (3.54)	0.001** (2.44)	1.58

Note: As in Table 1.

Domestic market of spices in India

In case of domestic market of Indian spices, the values of both β_1 and β_2 are positive and statistically significant at 1 per cent level and 5 per cent level respectively, implying a 3.2 per cent growth in domestic market, over time. The acceleration in the growth, in domestic market has been about 0.1 per cent. Since the parameter which signifies the acceleration (β_2)

in growth is statistically significant it is to be inferred that the increased growth of domestic market is deliberate.

**Table 3: Average Annual Growth of Domestic Market of Spices in India
(1990-91 to 2018-19)**

Spices (1)	α (2)	β_1 (3)	β_2 (4)	DW (5)
Pepper	2.873*** (8.820)	0.034 (0.672)	-0.0004 (-0.276)	2.23
Cardamom	1.903*** (18.52)	0.056*** (3.55)	-0.001 (-1.44)	0.71
Chillies	6.468*** (77.95)	0.038*** (2.96)	-0.0004 (-1.06)	2.54
Ginger	4.843*** (33.54)	0.085*** (3.83)	0.0001 (0.11)	0.67
Turmeric	5.799*** (55.90)	0.075*** (4.70)	-0.001*** (-2.79)	1.03
Coriander	5.193*** (39.31)	0.012 (0.58)	0.001 (1.84)	2.26
Other Spices	6.211*** (38.95)	0.003 (0.13)	0.002*** (3.05)	1.80
Total Spices	7.527*** (109.55)	0.032*** (3.02)	0.001** (2.05)	1.56

Export of spices in India

Regarding export of Indian spices, the average growth rate has been positive at 5.5 per cent but with a meagre acceleration of 0.1 per cent, over time. Across the products, the growth rates are statistically significant in five products in which a maximum of 12.8 per cent is found in chillies followed by coriander (12.2%).

Table 4: Average Annual Growth of Export of Spices in India (1990-91 to 2018-19)

Spices (1)	α (2)	β_1 (3)	β_2 (4)	DW (5)
Pepper	3.488*** (19.29)	0.015 (-0.53)	-0.0002 (-0.28)	1.43
Cardamom	0.120 (0.73)	0.044 (1.76)	0.0003 (0.38)	2.25
Chillies	2.936*** (27.20)	0.128*** (7.71)	-0.001 (-0.94)	2.50
Ginger	2.857*** (9.51)	-0.101** (-2.19)	0.004*** (2.76)	0.97
Turmeric	2.887*** (36.13)	0.048*** (3.94)	0.001 (1.50)	1.45
Coriander	1.799*** (10.09)	0.122*** (4.44)	-0.002** (-2.15)	1.31
Other Spices	3.506*** (33.06)	0.064*** (3.92)	0.001 (1.69)	2.17
Total Spices	4.802*** (82.85)	0.055*** (6.22)	0.001*** (2.70)	1.46

Export value of spices in India

Since the value of β_1 is reasonably significant at 1 per cent level, the growth rate of export value of Indian spices has been stood at 16.1 per cent during the period of analysis. However the value of β_2 is negative and not statistically significant; it is difficult to draw any inference at this stage.

Across the products, growth is highly significant in four products, the maximum being 22.2 per cent in other spices followed by coriander (18.6%) and chillies (16.6%). Regarding growth acceleration in export value, no inference can be drawn because the value of β_2 is negative signifying a deceleration in the growth.

**Table 5: Average Annual Growth of Export Value of Spices in India
(1990-91 to 2018-19)**

Spices (1)	α (2)	β_1 (3)	β_2 (4)	DW (5)
Pepper	4.801*** (13.40)	0.078 (1.42)	-0.0002 (-0.12)	0.80
Cardamom	2.795*** (10.28)	0.041 (.0.98)	0.003** (2.34)	0.79
Chillies	3.720*** (24.31)	0.166*** (7.05)	0.0003 (0.35)	1.82
Ginger	3.034*** (9.86)	-0.001 (-0.03)	0.003** (2.24)	0.71
Turmeric	3.240*** (18.52)	0.107*** (3.99)	0.001 (1.32)	0.99
Coriander	2.017*** (9.48)	0.186*** (5.70)	-0.002 (-1.55)	1.03
Other Spices	4.394*** (44.54)	0.222*** (14.62)	-0.002*** (-3.31)	1.74
Total Spices	5.674*** (50.95)	0.161*** (9.41)	-0.0003 (-0.68)	0.48

Conclusion

Over a period of 29 years (1990-91 to 2018-19) the area under cultivation of spices in India slowed down at an average rate of -0.5 per cent, per annum with acceleration over time. Regarding production, the average growth is positive at 3.3 per cent with a meagre acceleration rate of 0.1 per cent, over time. In case of domestic market of Indian spices, the values of both β_1 and β_2 are positive and statistically significant, implying a 3.2 per cent growth in domestic market, over time. In case of exports, the average growth is positive at 5.5 per cent with a meagre acceleration of 0.1 per cent. Since β_1 is reasonably significant (1%), the growth rate of export value of Indian spices is 16.1 per cent during the 29 year periods.

References

1. Hema, M. and Ranjit Kumar (2007), "Production and Trade Performance of Major Spices Grown in Western Ghat Region in India", *Indian Journal of Agricultural Marketing*, 21(1), pp.83-95.
2. John, K.C (2003), "Spices Export from India", *Economic and Political Weekly*, 38(19), pp.1832-1834.

3. Karthick, V., T. Alagumani, and A. Anbarassan (2015), "Growth and Export Performance of Ginger in India – An Economic Analysis", *Economic Affairs*, 60(2), pp.207-214.
4. Kumawat, R.C and P.C. Meena (2005), "Growth and Instability in Area, Production and Yield of Major Spice Crops in Rajasthan vis-à-vis India", *Journal of Spices and Aromatic Crops*, 14(2), pp.102-111.
5. Madan, M.S. and M. Tamil Selvan (2001), "Globalization and Spice Economy of India. *Indian Journal of Arecanut, Spices and Medicinal Plants*, 3(4), pp.262-269.
6. Meena, M.D., G. Lal, S.S. Meena and N.K. Meena (2018), "Production and Export Performances of Major Seed Spices in India during Pre and Post-WTO Period", *International Journal of Seed Spices*, 8(1), pp.21-30.
7. Rajanbabu, R. and S. Ganesan (2015), "Production and Trade Performance of Spices Grown in India, *International Research Journal of Commerce, Arts and Science*, 6(9), pp.29-45.
8. Sachu Sara Sabu and Anil Kuruvila (2016), "Price Instability in Black Pepper: A Comparative Analysis of Pre-liberalisation and Post liberalisation Periods", *Journal of Tropical Agriculture*, 54(1), pp.41-49.
9. Sebastian, J. and K.V. Praveen (2019), "Performance and Prospects of Spice Trade in India: An Economic Analysis", *Journal of Crop and Weed*, 15(2), pp.1-8.
10. Thumar, V.M., K.A. Khunt, P.M. Thanki and K. Kumar (2012), "Growth and Export Performance of Major Seed Spices of India", *Indian Journal of Agricultural Marketing*, 26(1), pp.21-35.

A STUDY ON GROWTH PERFORMANCE OF MANGO IN INDIA¹⁴

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Introduction

Mango is a very delicious and widely liked fruit all over the world. It is called the “King of Fruits” that makes it the most popular fruit than others. It is a historical fruit because in ancient days of its cultivation, thousands of years it was cultivated in South Asia. It is available in sweet as well as sour tastes which are used in different ways of consumption. Mango occupies a unique and important place amongst the fruit crops of India. It is now playing vital role in the national economy of the country. Approximately 50% of all tropical fruits produced worldwide are mangoes. With 13.79 million tons, India accounts for almost half of the world production, followed by China, Mexico and Thailand. In fact, the aggregated production of ten countries is responsible for roughly 80% of the entire world mango production.

As per WTO's Trade Statistics, share of India's agricultural exports and imports in the world agriculture trade in 2017 was 2.27% and 1.90%, respectively. Even during the difficult time of pandemic lockdown, India took care to not to disturb the world food supply chain and continued to export. The exports of Agri commodities during March 2020 to June 2020 were Rs.25552.7 Crore against an export of Rs.20734.8 Crore during the same period in 2019, showing a sharp increase of 23.24%. The agricultural exports as a percentage of India's agricultural GDP has increased from 9.4% in 2017-18 to 9.9% in 2018-19. While the agricultural imports as a percentage of India's agricultural GDP has declined from 5.7% to 4.9% indicating exportable surplus and decreased dependence on import of agricultural products in India.

Objectives of the Study

This study is undertaken with the following objectives:

- 1) To study the Area, Production and Productivity of Mango in India and Tamil Nadu level.
- 2) To analyse the growth of Area, Production and Productivity of Mango in Tamil Nadu level.
- 3) To give the suggestions and conclusion of the present study.

Research Methodology and Source of Data

The present study is primarily based on secondary data. The data were collected from FAOSTAT, Horticultural Statistics at a Glance 2018, Horticulture Statistics Division, Department of Agriculture, Cooperation & Farmers Welfare, indiastat and Websites.

Statistical Techniques

To analyze the collected data, various statistical techniques like descriptive, time series analysis are used. That is, as the data are of time series in nature, trend and growth both in compounded terms and linear terms are calculated in addition to general descriptive statistics like mean, standard deviation, coefficient of variation and AGR.

¹⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Review of Literature

A large number of research studies have been conducted on growth of mango cultivation both in India and the abroad. The available literature on the selected topic reveals that the research studies of mangoes cultivation back to early forties up to the present period. An attempt is made here to review some of the selected works in this direction.

R.S. Patil¹, R.G. Deshmukh¹, K. R. Bhaskar¹ and S.W. Jahagirdar, (2018) in their study entitled, growth and export performance of mango in India with objective of estimation of growth and export performance of mango in India. From study, it was revealed that, positive and significant growth of area, production and productivity of mango was observed. Highest variation was observed in case of production i.e. 15.88 per cent. Highest growth rates in case of area and production were found in Odisha state, where as highest variation in case of area and production was observed in Maharashtra. Highest growth i.e. 23.79 per cent of mango exported from India to Kuwait was observed. It was also observed that, Bangladesh was most stable importer of Indian mango followed by UAE, Baharain and other countries respectively. India produces 50 per cent of total mango produced in the world, but have low export share. Therefore, it is need to more emphasize on export of mango from India.

N.J. Thakor, in his study reveals that (2019), Mango is the fruit referred world over as the peach of tropics. It is the national fruit of India, Pakistan and Philippines and national tree of Bangladesh. 50 per cent of all the tropical fruits produced worldwide are Mangoes. Mangoes are commercially grown in more than 80 countries. World production of mangoes is around 46 million tonnes and India is the world's biggest grower of mangoes, with a 40 per cent share of total world production. Export of mangoes has amplified significantly and increased by 2.6 times in the last decade. Leading mango exporting countries are India, Thailand, Brazil, Peru, Netherland and Pakistan and leading mango importing countries are United Arab Emirates, US, Saudi Arabia, UK, France, Germany and Malaysia. Only 3.4 percent of the mangoes are traded (1.65 mnT) of the total world mango production (49.1mnT). Mexico, Thailand and Brazil export more of the mango produced. India's share in the world trade of mango is around 15 per cent, however, it is just 1.5 per cent of its total mango production. Total fruit production of India is about 90 million tonnes of which mango production is about 18 million tonnes sharing 20% of the total fruit production. Leading mango producing states are Uttar Pradesh, Andhra Pradesh, Telangana, Karnataka, Bihar Gujrat, Maharashtra, and Tamil Nadu. Leading mango exporting states of the country are Maharashtra, Tamil Nadu, Gujrat, West Bengal, Karnataka and Andhra Pradesh.

Table 1: The Growth of Area, Production and Productivity for Mango in India

Year	Area (In '000 Hectare)	AGR	Production (In '000 MT)	AGR	Productivity (In MT/Hectare)	AGR
1991-1992	1077.6	-	8715.6	-	8.1	-
1992-1993	1136.7	1036.7	9223.3	9123.3	8.1	-91.9
1993-1994	1217.4	1117.4	10113.3	10013.3	8.3	-91.7
1994-1995	1228.3	1128.3	10993.3	10893.3	9	-91
1995-1996	1283.1	1183.1	10810.9	10710.9	8.4	-91.6
1996-1997	1344.9	1244.9	9981.2	9881.2	7.4	-92.6
1997-1998	1384.9	1284.9	10234.2	10134.2	7.4	-92.6

Year	Area (In '000 Hectare)	AGR	Production (In '000 MT)	AGR	Productivity (In MT/Hectare)	AGR
1998-1999	1401.6	1301.6	9781.8	9681.8	7	-93
1999-2000	1486.9	1386.9	10503.5	10403.5	7.1	-92.9
2000-2001	1519	1419	10056.8	9956.8	6.6	-93.4
2001-2002	1575.8	1475.8	10020.2	9920.2	6.4	-93.6
2002-2003	1623.4	1523.4	12733.2	12633.2	7.8	-92.2
2003-2004	1906.7	1806.7	11490	11390	6	-94
2004-2005	1970.4	1870.4	11829.7	11729.7	6	-94
2005-2006	2080.7	1980.7	12663.1	12563.1	6.1	-93.9
2006-2007	2153.7	2053.7	13734.1	13634.1	6.4	-93.6
2007-2008	2201	2101	13997	13897	6.4	-93.6
2008-2009	2309	2209	12750	12650	5.5	-94.5
2009-2010	2312.3	2212.3	15026.7	14926.7	6.5	-93.5
2010-2011	2297	2197	15188	15088	6.6	-93.4
2011-2012	2378.1	2278.1	16196.4	16096.4	6.8	-93.2
2012-2013	2500	2400	18002.4	17902.4	7.2	-92.8
2013-2014	2516	2416	18431.3	18331.3	7.3	-92.7
2014-2015	2163	2063	18527	18427	8.6	-91.4
2015-2016	2209	2109	18643	18543	8	-92
2016-2017	2212	2112	19506	19406	8.8	-91.2
2017-2018	2258	2158	21822	21722	9.7	-90.3
2018-2019	2296	2196	21378	21278	9.3	-90.7
2019-2020	2294	2194	20317	20217	8.9	-91.1
2020-2021	2325	2225	20822	20722	9	-91
Mean	1888.72	1816.69	14116.37	14202.60	7.49	-92.53
SD	470.16	452.37	4192.78	4138.79	1.14	1.15
CV	24.89	24.90	29.70	29.14	15.22	-1.25

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India. (ON2841) & Past Issues.

The trend and growth in area, production and productivity for mango in India are analyzed and the results of the analysis are reported in Table 1. It is understood from the table that the area and production of mango with average of 1888.72 and 14116.37 respectively during 1991-92 to 2021. The mean value of productivity for mango is -92.53 in India during 1991-92 to 2021. The AGR value of area is increasing from 1036.7 to 2225. The SD value of area estimated with 470.16. The co-variance value of area is 24.89. The AGR value of production is increasing from 9123.3 to 20722. The SD value of area calculated with 4138.79. The co-variance value of area is computed that 29.14. The mean value of production computed with 14202.60. The AGR value of productivity is showing negative growth of -91.9 to -91. The SD value of productivity is calculated with 1.14. The co-variance value of productivity analyzed that 15.22. The mean value of productivity computed with 7.49.

Table 2: Area and Production of Mango in Tamil Nadu during 2015-2016 to 2017-18

State	Area (In `000 Hectare)			MEAN	Production (In `000 MT)			MEAN
	2015-16	2016-17*	2017-18		2015-16	2016-17*	2017-18	
Tamil Nadu	125.98	163.26	152.57	147.27	975.11	1167.84	1,234.00	1125.65
India	2208.56	2272.61	2,258.13	2246.433	18642.53	19217.64	21,822.32	19894.2

Source: Ministry of Agriculture and Farmers Welfare, Govt. of India. (ON1549)

The above table shows that Area and Production of Mango in Tamil Nadu during 2015-2016 to 2017-18. In Tamilnadu, the mean value of Area and Production of Mango analyzed that 147.27 and 1125.65 respectively in the period 2015-2016 to 2017-18. The mean value of Area and Production of Mango computed that 2,258.13 and 19894.2 respectively in all India level.

Table 3: State-wise Area, Production and Productivity of Mango in India during 2017-18

S. No.	State/Uts	Area (in '000 Ha)	Production (in '000 MT)	Productivity (in MT/ Ha)
1	Andhra Pradesh	363	4,373.61	12.05
2	Arunachal Pradesh	-	-	-
3	Assam	4.68	48.44	10.34
4	Bihar	149.28	2,443.47	16.37
5	Chhatisgarh	77.03	461.73	5.99
6	Gujarat	162.77	1,207.78	7.42
7	Haryana	9.35	98.6	10.54
8	Himachal Pradesh	41.99	31.35	0.75
9	Jammu & Kashmir	12.96	30.35	2.34
10	Jharkhand	54.53	435.86	7.99
11	Karnataka	183.23	1,760.60	9.61
12	Kerala	83.12	439.2	5.28
13	Madhya Pradesh	45.52	654.79	14.38
14	Maharashtra	166.76	791.36	4.75
15	Mizoram	0.91	4.19	4.6
16	Nagaland	0.64	4.24	6.61
17	Odisha	199.08	805.77	4.05
18	Punjab	6.9	116.52	16.9
19	Rajasthan	4.97	87.37	17.58
20	Tamil Nadu	152.57	1,234.00	8.09
21	Telangana	115.99	1,080.14	9.31
22	Tripura	10.33	54.93	5.32
23	Uttar Pradesh	265.62	4,551.83	17.14
24	Uttarakhand	36.48	152.71	4.19
25	West Bengal	103.25	918.35	8.89
26	Others	7.17	35.14	4.9
	Total	2,258.13	21,822.32	9.66

Source: Horticulture Statistics Division, Department of Agriculture, Coopen & Farmers Welfare.

State Wise - Area Level

The cultivated area of Mango is high in Andhra Pradesh with 363.00 Thousand Hectare followed by Uttar Pradesh (265.62 Thousand Hectare) and Odisha (199.08 Thousand Hectare). Next to these states, the cultivated area of mango was at substantial level in Karnataka (182.23 Thousand Hectare) Maharashtra (166.76 Thousand Hectare) and Gujarat (162.77 Thousand Hectare). The total area of Mango was 2,258.13 Thousand Hectare during the year 2017-18. In Tamilnadu, the total area and productivity of Mango were 152.57 Thousand Hectare and 8.09 respectively during the year 2017-18.

State Wise - Production Level

The above table shows that the production of Mango is high in Uttar Pradesh with 4,551.83 Thousand Million Tons followed by Andhra Pradesh (4,373.61 Thousand Million Tons) and Bihar (2,443.47 Thousand Million Tons). Next to these states, the production of Mango was at sufficient level in Karnataka (1,760.60 Thousand Million Tons) Tamil Nadu (1234.00 Thousand Million Tons) and Gujarat (1,207.78 Thousand Million Tons) and rest of the states, the production of Mango was increased at significant level. The total production of Mango was 21,822.32 Thousand Million Tons during the year 2017-18.

State Wise - Productivity Level

The above table exhibits that the productivity of Mango is high in Rajasthan with 17.58 in MT/ Ha followed by Uttar Pradesh (17.14 in MT/ Ha) and Punjab (16.90 in MT/ Ha). Next to these states, the productivity of Mango in Bihar (16.37 in MT/ Ha), Madhya Pradesh (14.38 in MT/ Ha) and Andhra Pradesh (12.05 in MT/ Ha) are increased at significant level, and rest of the state, the productivity of Mango was crisscross movement. The total productivity of Mango was 9.66 in MT/ Ha during the year 2017-18.

Table 4: District-Wise Area, Production and Productivity of Mango in Tamil Nadu during the year 2018-19 (Final Estimates - Provisional)

S. No.	Districts	Area in Ha	Production in MT	Productivity in MT/Ha
1	Ariyalur	530	4,240.00	8
2	Coimbatore	2,462.22	14,770.00	6
3	Cuddalore	522	4,150.00	7.95
4	Dharmapuri	18,388.00	169,270.00	9.21
5	Dindigul	15,742.00	143,031.45	9.09
6	Erode	781	6,370.09	8.16
7	Kanchipuram	3,998.00	39,980.00	10
8	Kanniyakumari	1,319.00	7,251.50	5.5
9	Karur	822	4,110.00	5
10	Krishnagiri	33,679.00	151,555.50	4.5
11	Madurai	6,253.15	35,830.53	5.73
12	Nagapattinam	3,165.00	25,320.00	8
13	Namakkal	2,393.00	15,322.90	6.4
14	Perambalur	150	975	6.5
15	Pudukkottai	1,562.00	15,620.00	10
16	Ramanathapuram	393	2,550.00	6.49
17	Salem	6,262.90	37,577.40	6

S. No.	Districts	Area in Ha	Production in MT	Productivity in MT/Ha
18	Sivagangai	2,218.00	26,616.00	12
19	Thanjavur	780	5,012.00	6.43
20	Theni	9,640.00	81,940.00	8.5
21	Nilgiris	17.03	72.38	4.25
22	Thiruvallur	11,057.67	121,634.00	11
23	Tiruvannamalai	1,009.67	8,072.00	8
24	Thiruvarur	325	2,350.00	7.23
25	Tututorin	695.15	6,951.50	10
26	Tiruppur	1,568.05	10,079.42	6.43
27	Tiruchirappalli	2,239.00	16,119.00	7.2
28	Tirunelveli	5,933.00	77,810.50	13.11
29	Vellore	12,319.00	160,147.00	13
30	Villupuram	1,387.26	8,808.77	6.35
31	Virudhunagar	3,335.00	14,200.00	4.26
	Total	150,945.43	1,217,736.94	8.07

Source: Horticulture and Plantation Crops – Tamil Nadu

District Wise - Area Level

This value was slightly higher than the previous year's. The cultivated area of Mango is high in Krishnagiri with contribution of mangoes from the state. Uttar Pradesh 33,679.00 Thousand Hectare followed by Dharmapuri (18,388.00 Thousand Hectare) and Dindigul (was the largest contributor to the agricultural gross value 15,742.00 Thousand Hectare). Next to these districts, the cultivated area of mango was at substantial level in added for mangoes amongst other states in the south Vellore (12,319.00 Thousand Hectare) Thiruvallur (11,057.67 Asian country, followed by Andhra Pradesh. Thousand Hectare) and Theni (9,640.00Thousand Hectare). The area of Mango was 781 Thousand Hectares out of 150,945.43in Erode during the year 2018-19. Total area of Mango was 150,945.43 Thousand Hectares during the year 2018-19.

District Wise - Production Level

The above table shows that the production of Mango is high in Dharmapuri with 169,270.00 Thousand Million Tons followed by Vellore (160,147.00Thousand Million Tons) and Krishnagiri (151,555.50 Thousand Million Tons). Next to these districts, the production of Mango was at sufficient level in Dindigul (143,031.45 Thousand Million Tons) Thiruvallur (121,634.00 Thousand Million Tons) and Theni (81,940.00 Thousand Million Tons) and rest of the districts, the production of Mango was increased at significant level. The total production of Mango was 1,217,736.94 Thousand Million Tons during the year 2018-19.The production of Mango was 6,370.09 Thousand Million Tons in Erode during the year 2018-19. The total production of Mango was computed with 37,577.40 Thousand Million Tons in Salem during the year 2018-19.

District Wise - Productivity Level

The above table exhibits that the productivity of Mango is high in Tirunelveli with 13.11 in MT/Ha followed by Vellore (13.00 in MT/ Ha) and Sivagangai (12.00 in MT/Ha).

Next to these districts, the productivity of Mango in Thiruvallur (11.00 in MT/Ha), Madhya Pradesh (14.38 in MT/Ha) and Kancheepuram & Tuttorin (10.00 in MT/Ha) are increased at significant level, and rest of the districts, the productivity of Mango was crisscross movement. The total productivity of Mango was 8.07 in MT/Ha during the year 2018-19. The productivity of Mango was 8.16 in MT/Ha in Erode during the year 2018-19. The total productivity of Mango was 6 in MT/Ha Salem during the year 2018-19. Selected Country-wise Export of Mango from India (2015-2016 to 2019-2020) computed values of (Rs. in Lakh) 32063.89 (2015-16), 44366.00 (2016-17), 38340.89 (2017-18), 40664.19 (2018-19), 40021.35 (2019-20) (Ministry of Commerce and Industry, Govt. of India).

Conclusion

According to the finding of this study, it was concluded that average area, production and productivity of mango in India were 17.73 lakh hectares, 12.05 million tonnes and 6.92 tonnes per hectare respectively. It is understood from the study that the area and production of mango with average of 1888.72 and 14116.37 respectively. The mean value of productivity for mango is -92.53 in India during 1991-92 to 2021. The AGR value of area is increasing from 1036.7 to 2225. The SD value of area estimated with 470.16. The co-variance value of area is 24.89. The AGR value of production is increasing from 9123.3 to 20722. The SD value of area calculated with 4138.79. The total area of Mango was 2,258.13 Thousand Hectare during the year 2017-18.

In Tamilnadu, the total area and productivity of Mango were 152.57 Thousand Hectare and 8.09 respectively during the year 2017-18. Tamil Nadu (1234.00 Thousand Million Tons) and Gujarat (1,207.78 Thousand Million Tons) and rest of the states, the production of Mango was increased at significant level. The total production of Mango was 21,822.32 Thousand Million Tons during the year 2017-18. This value was slightly higher than the previous year's. The cultivated area of Mango is high in Krishnagiri with contribution of mangoes from the state. Uttar Pradesh 33,679.00 Thousand Hectare followed by Dharmapuri (18,388.00 Thousand Hectare) and Dindigul (was the largest contributor to the agricultural gross value 15,742.00 Thousand Hectare). The area of Mango was 781 Thousand Hectares out of 150,945.43 in Erode during the year 2018-19. Total area of Mango was 150,945.43 Thousand Hectares during the year 2018-19.

The productivity of Mango was 8.16 in MT/Ha in Erode during the year 2018-19. The total productivity of Mango was 6 in MT/Ha Salem during the year 2018-19. The production of Mango was 6,370.09 Thousand Million Tons in Erode during the year 2018-19. The total production of Mango was computed with 37,577.40 Thousand Million Tons in Salem during the year 2018-19. The mango fruit's nutritional value, aesthetic and gustatory appeal have assured its growing importance in non-traditional markets since the late 1950s, as it has been introduced to consumers previously unacquainted with it. Furthermore, the migration of large populations from South-East Asia and other regions where this fruit is a traditional crop to metropolitan centres where it has not been well known has created a permanent demand for it in this new market.

Suggestions

India ranks the first position in world for mangoes production it doesn't sound high in case of productivity and quality. It may be due to adoptability low technology and lack of knowledge among the producers and distributors. As many reports, studies and works depicts.

Educate the mango growers in case of pest control, diseases, and necessities of water drip irrigation, marketing knowledge, the updates and information of Government policies, Regulations and financial remedies and subsidies should be enhanced to the farmers. Reduce the intervention of intermediaries in the marketing channels.

Mango farmers should be trained in Hi-tech mango cultivation, which includes adoption of high-density planting, use of fertigation etc. Alternate bearing of fruits in mango tress is serious problem, which has to be solved through proper application of suitable hormones. ICAR institutes and KVK should take initiative to motivate the orchard owners through the visit to orchards, which adopted hi-tech mango in their areas. Therefore large-scale demonstrations of the techniques have to be laid out in different parts of the country. Farmers should be trained with proper methods of harvesting.

Government agencies are to take initiatives to develop the sufficient number of cold storages in the country to store the mango fruit and sell the same in the off-season to get higher price. The total area and production of mango in India has accelerated annually. The overall productivity of mango is revelled to be decreasing annually. Thus there is a need to take productivity enhancing measures in mango cultivation like adoption of high density planting technique, appropriate orcharding system, provide the facility of modern infrastructure services, enhanced the level technical awareness of growers about the cultivation of mango to tackle the natural calamity and disease attack with respect to fruit protection.

References

1. Acharya, S.P., Basavaraja, H., Kunnal, L.B., Mahajanashetti, S.B. and Bhat, A.R.S., Growth in Area, Production and Productivity of Major Crops in Karnataka, Karnataka Journal of Agriculture Science, 25(4): 431-436 (2012).
2. Anonymous. 2013. Post-Harvest Profile of Mango. Directorate of Marketing & Inspection Branch, Ministry of Agriculture, Government of India, Nagpur.
3. Chandra, S., Kumar, S. and Bairwa, K.C., An Introduction to Agricultural Social Science. New Vishal Publication New Delhi-110008 (2013).
4. Dr. D. Paul Dhinakaran, "Exports and Imports Stagnation in India During Covid-19- A Review" GIS Business (ISSN: 1430-3663 Vol15-Issue-4-April-2020).
5. J. Thakor, "Indian Mango – Production and Academic Research (SSIJMAR), Volume No. 2, Export Scenario" Advanced Agricultural Research & Technology Journal, Vol. III, Issue1, JANUARY 2019, ISSN: 2581-3749 (online), IMC – 2018 Special Issue. Pp. 80-88.
6. Rekhapriyadharshini, A Study on the Export Performance of Fresh Mangoes from India. International Journal of Interdisciplinary and Multidisciplinary Studies, 2(6): 134-140 (2015).
7. R.S. Patil, R.G. Deshmukh, K. R. Bhaskar and S.W. Jahagirdar, "Growth and Export Performance of Mango in India" International Journal of Current Microbiology and Applied the Export of Mango from India", Shiv Shakti, Sciences, ISSN: 2319-7692, Special Issue-6, International Journal in Multidisciplinary and Pp.2667-2673. (2018).
8. Shyam Prakash Singh, 'Production Performance of Fresh Mango in India: A Growth and Variability Analysis' Int. J. Pure App. Biosci. 6 (2): 935-941 (2018), ISSN: 2320-7051.
9. Dr. S. Paulmurugan "A Study on Trend and Growth of Mango in Tamil Nadu" Psychology and Education (2021) 58(2): 6593-6600, ISSN: 00333077.

RESPONSIBLE TOURISM FOR SUSTAINABLE EMPOWERMENT OF WOMEN IN BACK WATER ECOSYSTEM: A PARTICIPATORY ASSESSMENT¹⁶

S. SOMA¹⁷ & R. SHANTHI¹⁸

Introduction

Responsible tourism is considered as one among the sustainable tourism concept which indicates the relationship between the actual tourist and the local persons or the localities. Responsible tourism has become a major economic force in the contemporary world. Being a major element of many regions it has the power to deliver significant international earnings that can be utilized for alleviating poverty.

Responsible tourism has, now, become Kerala's core competency sector creating employment, enhancing production, productivity and contributing significantly towards development of the state. But to encase the opportunity and to reap the benefit a conducive social atmosphere may be created to develop tourism as a viable sector which has greater potential for generating employment and alleviating poverty. Kerala developed with traditional sectors such as agriculture and manufacturing industries. Agriculture requires wider land resources, which are becoming scarce and industry cannot be flourished for the lack of favorable social atmosphere and also for the difficulty in the state where the density of population is high. In this backdrop Kerala can very well market the seeing of our scenic beauty, the flora and fauna, the art and culture, the backwaters, the lagoons, the traditional festivities, and the long lying beaches and the raining hills. Including all other things how the responsible tourism really helpful to the employment generation of the local people especially the women SHG members.

Back Water Ecosystem

Women in the back water ecosystem are represented as the economically backward as well as traditional knowledge in Kerala cuisines and culture residing the adjacent areas of inland water ways too. They need more help than in the women in the other areas for securing sustainable livelihoods. In the modern socio economic pattern women is considered as the head of the family, i.e. the after effects of economic recession, social renaissance, break up of joint family system, changing labour patterns, increasing the development needs. In most of the male headed families women are the major players of the household income. During the crisis period too, they have a bulk amount for their deficit purpose.

Objectives

1. To evaluate the diversified ideas of self-help group members, the various value addition mechanism as well as traditional Kerala cultural programmes they practiced,
2. To conduct the base line survey for assessing sustainability and socio economic status of women SHG members,

¹⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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3. To assess various entrepreneurial activities possess and build up microfinance or the manage using participatory tools.
4. To find out the relationship between the socio-cultural, economic variables and entrepreneurial skills of the women SHG members stayed nearby back waters; and evaluate the various constraints faced by the SHG members for fulfilling their entire entrepreneurial activity.

Methodology

For the assessment of Responsible Tourism for Sustainable Empowerment of Women in Back Water Ecosystem, a sample of being 300 women representing 20 SHGs from Kottayam and Alappuzha (parts of Kuttanadu) districts were selected for the Participatory Assessment. The present study to be identifying and documenting value based and purely sustainable livelihood initiatives required for the women self-help group members stay nearby areas of backwater. The data availability, accessibility near from back waters, canals, and roads etc., the needs of the respondents, channel networks, the resource availability, and sustainability issues of selected livelihood were assessed in participatory mode. This programme also aimed to evaluate their entrepreneurial skills for managing microenterprises using available participatory tools.

The primary data on the selected 20 socio-cultural and economic variables, the constraints in functioning as a group and suggestions to improve the performance of the women self-help groups were collected through interview method using well-structured questionnaires. Participatory Rural Appraisal (PRA) tools used for resource assessment of the locale are; transect walk map, mobility map and daily routine analysis.

Results and discussion

The need-based and sustainable livelihood initiatives required for the women SHG members are processing, food products, raw foods and different value added edible products for marketing in nearby retail markets, different marketing channels like resorts, relatives and other governmental agencies involved in this responsible tourism field. The maps also revealed the livelihood opportunities through the livestock resources such as cattle, goats and poultry as well as various bio resources. The infrastructural facilities of the locale are also depicted in the resource and transect maps.

The Socio-cultural and economic profile of the women SHG members revealed that the average age of the women was between 40 and 55 yrs. About 60 to 80 percentage of the respondents were possessing secondary level of education. The remaining 20 percentage out of which 15 percentage were possessing Higher secondary (Pre-degree), another 5 percentage were graduate. It was also observed that none of the respondents was illiterate. All the respondents were married. Study indicate there was a declining trend in the joint family or scattering of joint family system, almost all respondents belonged to nuclear families with an average family size of four or five members. The average annual family income was between Rs.1.75 to 2.50 lakh, with the self-income of about Rs.100,000/-. The mean value of assets was Rs.16.00 lakhs and the value of household articles was Rs.70,000/-. On an average, they were indebted to the tune of about Rs.2.75 lakhs.

100 percentage of the respondents reported that the 'decision making pattern' was both by men and women in the family. From their daily routine analysis, it could be understood that the respondents were spending about 8 hrs for their livelihood initiatives, and

about 6-9 hrs on household responsibilities. Almost 85-90 percentages of the respondents from all the villages from two sampling districts reported that extent of family support for involvement in SHG activities was excellent, out of which some of them faces certain problems from their own families. Resorts, houseboats agents were the major source of their livelihood purposes. Through the participatory assessment, 8 potential microenterprises suitable for women self-help groups were identified. Out of the 16 potential and sustainable livelihood needs assessed through participatory tools, considering the factors such as resources availability, marketing scope and the entrepreneurial skills, aqua tourism was found to be the most potential livelihood option for women in coastal eco-system, especially as a group activity for the women SHGs. cultural programme units, preparation of value added products like pickles and cutlets, fish molies, fish/prawn collection and collection of bi-valves such as oyster, clam, etc., ferti fish (fish fertilizer), fish amino acid etc. for agricultural fields, fish cleaning, were also found to be the most potential and sustainable livelihood need for the women SHGs in nearby areas of Vembanad Lake. Between 55 percentages to 65 percentages of the respondents preferred aquaculture prawn and bi-valves culture, tailoring and vegetable cultivation in backyards.

Conclusions

From the study findings, it could be understood that the group dynamism among the respondents was excellent with reference to the parameters viz., feelings (index ;77.5), team spirit (index: 76.58), mutual cooperation (79.17), sense of belongingness/mutual trust among the group members (79.75), group cohesion (78.50), adherence to the norms and values of the group (77.50), perceived significance of self-help (75.50), perceived importance of group activity (72.50), and accountability (80.00%). Out of the 30 parameters assessed for the sustainable livelihood entrepreneurial skills for managing the microenterprises, it could be found that the extent of entrepreneurial skills possessed by them were good with reference to the parameters such as; enthusiasm, economic and cultural motivation, planning, time keeping ,management, organizing, directing, controlling the risk variables, various motivation factors, quality consciousness, interpersonal skills, staffing, coordinating, stress management, commitment, and negotiation skills. Study indicates there are certain common characters for women self-help group members such as, decision making pattern, training exposure, educational qualification, occupational experience, information source, various motivational and managerial skills family support and job satisfaction acted as crucial ones in determining the entrepreneurial skills. Lack of access to institutional finance from bank or any other governmental agencies was reported as a major constraint, which trap the women micro entrepreneurs in the clutches of private money lenders.

In this particular study, we use “H” form for participatory monitoring evaluation tool. The various policies and approaches used together adequately generated as gender. Micro finance is observed as a promotional strategy for alleviating poverty as well as women empowerment. Policy development to support the women in that Kuttanadu ecosystem requires appropriate institutional arrangements and effective organizations and structures, which extends assistance in the areas of training, credit, technology and marketing through SHGs. Focus on the strengthening of cooperatives, including the promotion of those of women, making it necessary to link microfinance to appropriate technology development and transfer to women clients are crucial for the success of women's microenterprises. Technologies and practices to improve women's working and living conditions are required. They need to

be empowered with information, technology, and finance and marketing assistance to improve the quantity and quality of women's microenterprises. The quantitative and qualitative information obtained by participatory methodologies on an ongoing basis should be directly and immediately available to inform policy decisions and enable independent outsider research to be cost-effectively targeted to issues where it is really needed for policy development.

Peer Reviewed Journal

A REGRESSION ANALYSIS OF MINIMUM SUPPORT PRICE OF SELECTED AGRICULTURAL COMMODITIES IN INDIA SINCE LIBERALISATION¹⁹

Dr. V. VELUCHAMY²⁰ & Dr. V. MALLIKA²¹

Introduction

In an agricultural country like India, the price of agricultural commodities, especially of food grains, hold a key position in the price structure of the country. Any violent fluctuation in agricultural prices leads to a distortion in the whole price structure. Excessive fall in agricultural prices is dangerous as it leads to a great fall in the income of the farmers. In India, majority of the population depends on agriculture, a fall in agricultural prices means distress for a majority of the people and a large decline in government revenue. Besides, the farmers will lose incentive to increase production and thereby, cause fall in the supply of agricultural produce. Again, the fall in the supply of agricultural produce will reduce the purchasing power of rural people. This will lead to a fall in the demand for industrial products. Hence it becomes essential to guarantee a minimum price to agriculturists. Excessive rise in price is also equally dangerous and harmful to the economy. As we step up programmes for economic development with huge outlays, the money income of the people will increase, and consequently the demand for food will also increase. Due to the high income elasticity of demand for foodgrains in a developing economy, stepping up the rate of investment without adequate measure to increase food supply leads to a distortion of the price structure.

Rapid and violent fluctuations in agricultural price have many harmful consequences. The agricultural prices policy of the government should serve a dual purpose-not allowing the prices to rise inordinately and not allowing them to fall below a certain minimum level. Naturally, for this purpose it becomes necessary for the government to build up buffer stocks and sufficient storage capacity to hold these stocks. An extensive public distribution system is also required to distribute foodgrains and other agricultural commodities at fair prices and procurement prices, the government has also ensure that an, 'element of incentive' to producers remains, that is, the prices should be fixed at a level that encourages farmers to produce more. This is very important consideration from the point of view of developing countries where the object is not merely to ensure 'price and income stabilisation' in the agricultural sector but to use it as an 'instrument of growth' also.

Accordingly, the agricultural price policy in a developing country must have the following objectives, 1) to protect or insure the producer through guaranteed minimum support price, which as a stabilisation measure reduce the variability in product prices and therefore price risk of the farmers. The impact of the risk reduction is expected to induce farmers to undertake larger investments and to adopt improved production technology. 2) To induce the desired outputs of different crops according to growth targets. 3) To induce an increase in

¹⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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aggregate agricultural output through large input use adoption of high yielding seed, fertilizer and water responsive technology. 4) To induce farmers to part with a larger proportion of foodgrains production as a marketed surplus. 5) To protect the consumer against an excessive rise in price.

Objectives of the study

1. To analyse the trend of minimum support price for foodgrains and non-foodgrains in India during the post-reform regime (1991-92 to 2018-19).
2. To estimate the regression equation of procurement price and buffer stocks of Rice and Wheat in India from 1991-92 to 2018-19.
3. To compute compound growth rate of minimum support price and procurement price in India from the post liberalisation era.

Methodology

The present study was based on secondary information compiled from RBI annual report of Handbook of Statistics on Indian Economy 2018-19. Data on the important variables like, Minimum Support price of foodgrains and non foodgrains, procurement price and buffer stocks of Rice and Wheat. The collected data were analysed by using the Simple linear regression model and Semi-log linear model.

Estimated regression equation of Minimum Support Price for Selected Commodities

The foodgrains prices committee, 1964, recommended the setting up of an Agricultural Prices Commission. It stated that it was desirable that “the price policy of all agricultural commodities should come within the purview of the Agricultural Prices Commission, so that a balanced and integrated price structure could be evolved and the claims of competing crops on limited resources can be resolved in the perspective of the overall needs of the economy”. The government has accordingly been fixing the minimum prices for different agricultural commodities for the past several years. Minimum prices are in the nature of a long-term guarantee to the producers so that in the event of a glut, prices are not allowed to fall below these announced minimum prices. Procurement prices are fixed at a higher level as compared to the minimum support prices and are meant essentially for the purchase of quantities needed by the government for maintaining the public distribution system and for building up buffer stocks.

Table 1 Estimated Regression of Minimum support price for major food grains in India from 1991-92 to 2018-19 (per quintal)

Variables	α	β	Standard Error of β	t-Statistics of β	Sig-t/p-value	R ²	CGR
Paddy Common	21.35	52.57**	3.09	17.03	0.000	0.92	7.33
Coarse cereals	-20.28	50.73**	3.22	15.74	0.000	0.91	7.78
Wheat	75.48	56.36**	2.63	21.42	0.000	0.95	7.01
Gram	-186.51	139.92**	10.28	13.61	0.000	0.88	8.27
Arhar (Tur)	-481.87	188.40**	15.07	12.50	0.000	0.86	9.20
Moong	-623.81	209.76**	16.61	12.63	0.000	0.86	9.72
Urad	-467.30	190.93**	13.79	13.85	0.000	0.88	9.32

Source: Values Computed from Hand Book of Statistics on Indian Economy 2018-19.

** indicates that statistically significant at 5 per cent level. **CGR**-Compound Growth Rate.

The estimated regression results shows that, all the slope coefficients were statistically significant at 5 per cent level and 26 degrees of freedom. The slope co-efficient of Minimum support price of paddy (Common variety) was 52.57. This value indicates that minimum support price increases by one rupee, on an average, the production of paddy goes up by Rs.52.57 per quintal per year. Minimum support price for Wheat, the average increases per year was Rs.56.36 per quintal. The Price of wheat is higher than (Four rupees) as compared to Paddy. Both paddy and wheat are the most important food crops in India. Compound growth rate of paddy, Cereals and wheat was 7.3, 7.8 and 7 percent respectively. Minimum support price for pulses increases by one rupee, Gram, Arhar, Moong and Urad, on average increases by Rs.139.92, Rs.188.40, Rs.209.76 and Rs.190.93 per quintal per year respectively. The growth rate of pulses were increases to 9 percentages as compared to cereals. The co-efficient of determination (R^2) suggest that more than 90 and 80 percent of the variation in minimum support prices like Paddy, Wheat and Pulses is explained by the year.

Table 2 Estimated Regression of Minimum support price for major non-food grains in India from 1991-92 to 2018-19 (per quintal)

Variables	α	β	Standard Error of β	t-Statistics of β	Sig-t/p-value	R^2	CGR
Sugarcane	-17.33	8.69**	0.68	12.70	0.000	0.86	8.72
Cotton	390	144.20**	8.78	16.43	0.000	0.91	6.26
Jute	-243.97	109.68**	9.58	11.45	0.000	0.83	8.67
Groundnut (in shell)	-125.68	151.39**	11.97	12.64	0.000	0.86	7.73
Sunflower seed	-97.48	147.03**	12.45	11.81	0.000	0.84	7.48
Rapeseed/Mustard	110.91	121.98**	8.20	14.88	0.000	0.89	6.89

Source: Values Computed from Hand Book of Statistics on Indian Economy 2018-19.

** indicates that statistically significant at 5 per cent level. **CGR**-Compound Growth Rate.

Table 2 depicts that the estimated regression equation of minimum support price for the major non-food grains in India from 1991-92 to 2018-19. The slope coefficients of non-food grains are statistically significant at 5 per cent level. Minimum support price increases by one rupee, on average increases of production of sugarcane was increases to Rs.8.69 per quintal per year. The Price of cotton, an average increases per year was Rs.144.20 per quintal during the study period. Compound growth rates of Sugarcane and Jute was higher than as compared to the oil seeds. Minimum support price for Oil seeds like Groundnut, Sunflower and Rapeseed, on an average increases was Rs.151.39, Rs.147.03 and Rs.121.98 rupees per quintal respectively. The r^2 value of Sugar cane, Jute and Cotton about more than 80 and 90 percentage of the variation in the dependent variable that can be explained by the independent variable (X). Oilseeds explained by more than 80 percentage of the variation in the Groundnut, Sunflower and Rapeseed that can be explained by the year.

Table 3 Estimated Regression of Public distribution System of Procurement and Stock in India from 1991-92 to 2018-19 (lakh Tonnes)

Variables	α	β	Standard Error of β	t-Statistics of β	Sig-t/p-value	R^2	CGR
Procurement							
$Y_i = 133.08 + 20.72X_i + U_i$							
	S.E	(21.39)	(1.29)	$R^2 = 0.91$	$CGR = 5.31$		
Rice	82.67	11.37**	0.64	17.85	0.000	0.92	5.18
Wheat	50.43	9.35**	1.06	8.80	0.000	0.75	5.57

Variables	α	β	Standard Error of β	t-Statistics of β	Sig-t/p-value	R ²	CGR
Stocks							
$Y_i = 125.73 + 14.08X_i + U_i$							
	S.E	(43.79)	(2.64)	R ² = 0.52	CGR = 4.65		
Rice	81.80	8.56**	1.18	7.26	0.000	0.67	4.32
Wheat	43.70	5.39**	1.63	3.29	0.000	0.39	5.41

Source: Values Computed from Hand Book of Statistics on Indian Economy 2018-19.

** indicates that statistically significant at 5 per cent level. **CGR**-Compound Growth Rate.

As the above regression results shows that coefficients of all the variables are statistically significant at 5 per cent level and 26 degrees of freedom. The slope coefficient of procurement, on an average increases was 20.72 lakhs of tonnes and the stock, average increases was 14.08 lakhs of tonnes per year during the study periods from 1991-92 to 2018-19. Compound growth rate was high in procurement (5.31) as compared to the stock (4.65). The procurement of Rice and Wheat, an average increases per year was 11.37 lakhs of tonnes and 9.35 lakhs of tonnes over the period of study. The procurement of rice is higher than the procurement of Wheat. The compound growth rate of Rice and Wheat was 5.18 and 5.57 percentage respectively. The slope coefficient of stock of Wheat and Rice, the annual average increases was 8.56 lakhs of tonnes and 5.39 lakhs of tonnes during the post liberalisation era. The stock of Rice is more than the stock of Wheat. The coefficient of determination (R²) of public distribution of procurement shows that the 91 percentage of the variation in the dependent variable that can be explained by the independent variable and the stock was explained by 52 percentage of the total variation in 'Y' and can be attributed to the variations of the fitted value of Y.

Conclusion

Minimum support price is an important policy of the government of India and to determine the floor price of major agricultural produces every year for protecting the farmers from the middle man and fluctuating market conditions as it provides them as assured market in addition to a minimum assured return. The study concluded that the Minimum Support Price has succeeded in providing floor rate for major food grains like paddy, wheat and other produces such as non-food grains like sugarcane, jute, Cotton and oil seeds, and did not allow market prices to fall below the Minimum Support Price fixed for them.

References

1. Deshpande R S, "Impact of Minimum Support Prices on Agricultural Economy (Consolidated Report)", Agricultural Development and Rural Transformation Unit, Institute for Social and Economic Change, Bangalore, December 2003.
2. Deshpande R S and Raveendra Naika, "Impact of Minimum Support Prices on Agricultural Economy: A study in Karnataka", Agricultural Development and Rural Transformation Unit, Institute for Social and Economic Change, Bangalore, December 2002.
3. Elumalai Kannan and Sujata Sundaram (2011), "Analysis of trends in India's Agricultural Growth", Working paper, The Institute for Social and Economic Change, Bangalore.
4. Evaluation study on Efficacy of minimum Support prices on Farmers, Niti Aayog, Development and Monitoring and Evaluation Office, Government of India, January 2016.

5. Suvarna L. Mahalle, Anil Kumar Rohilla, Minimum Support Price to Farmers in India, Popular Kheti, Vol. 6, Issues 2, 2018.
6. Anil Sharma and Parmodkumar, "An Analysis of Price Behaviour of Selected Commodities", a Study for Planning Commission, National Council of applied Economic Research, 2001.
7. Understanding price variation in agricultural Commodities in India: Minimum Support Price, Government Procurement and Agricultural Markets, India Policy Forum, 2016.
8. Shweta Saini and Ashok Gulati (2017), "Price Distortions in Indian Agriculture", World Bank Report.

Peer Reviewed Journal

AN ECONOMIC STUDY ON WOMEN EMPOWERMENT CHALLENGES AND ISSUES IN INDIA²²

Dr. S. MEENAKSHI²³ & Dr. S.T. JACOB PONRAJ²⁴

Introduction

In order for individuals to effectively represent their interests and act (again) on their own authority, empowerment refers to policies and initiatives that promote people's autonomy and self-determination in their daily lives and in their communities. In order to overcome their sense of helplessness and lack of influence, and to understand and finally make use of their opportunities and resources, people need both professional support and the process of self-empowerment. Women or groups of women should be able to develop their full identity and strength in all sectors of life through the multifaceted process of empowerment (Surekharao and Rajamanamma, 1999). It entails giving people greater access to information and resources, more freedom in decision-making so they may better plan their life or exert more control over external factors influencing them, and freedom from shocks imposed on them by tradition, belief, and practise. Development that promotes justice is often believed to unleash the forces that elevate the status of diverse segments of the population in a nation, particularly women. "Women's organisations work to empower themselves by developing their own sense of independence. They are entitled to make their own decisions in life. Additionally, they aim to have power and access to resources.

Objectives of the Study

1. To analyze the factors that affect women's empowerment.
2. To identify the challenges in the path of women empowerment.

Research Methodology

Secondary information that is gathered from a variety of national and international agency reports, reliable websites, publications, and online content about women's empowerment are used in the analysis.

Issues and Problems faced by Women in India

Selective abortion and female infanticide Since years, it has been the most typical practise in India to abort a female foetus in the mother's womb following foetal sex determination and sex-selective abortion done by medical professionals.

Sexual harassment It is a method of sexual exploitation of a girl kid by family members, neighbours, friends, or other family members in the home, streets, public places, transportation, offices, etc..

Dowry and Bride Burning Another issue that typically affects women from lower- or middle-class families during or after marriage. Boys' parents expect a lot of money from the

²² Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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bride's family in order to become wealthy all at once. Brides are burned by the groom's family if the dowry demand is not met. Around 6787 dowry killing incidents were reported in India in 2005, according to the Indian National Crime Bureau reports.

Disparity in education The level of women education is less than men still in the modern age. Female illiteracy is higher in the rural areas. Where over 63% or more women remain unlettered.

Domestic violence According to the official for women and child development, it is similar to a common and endemic disease that affects over 70% of Indian women. The husband, a relative, or another member of the family handles it.

Child Marriages Parents of young girls marry them off early to avoid paying dowry. In rural India, it is very prevalent.

Inadequate Nutrition Women's later health is impacted by their childhood diet, particularly those from lower middle class and lower-income homes.

Low status in the family It is violence or abuse directed against women.

Women are considered as inferior to men so therefore, they are prohibited from enlisting in the military.

Status of widows is seen as worthless in Indian culture. They endure bad treatment and are made to wear white clothing.

Some of the major problems modern women are still facing mentioned below

Violence against women

Violence against women is affecting them virtually daily, which is upsetting society. As crimes against women rise, more and more women are becoming victims of violence (according to the report of Crime Record Bureau of the Central Home Ministry). Every 44 minutes a woman is kidnapped, every 47 minutes she is raped, 17 dowry deaths occur every day, etc. They may experience violence from both inside and beyond the family (such as dowry-related harassment, murder, marital rape, wife-battery, sexual abuse, deprivation of wholesome food, female genital mutilation, etc). (kidnapping, rape, murder, etc).

Gender discrimination

Women are given less prominence and are seen as the weaker segment of society than men. Children of girls are now becoming true victims of discrimination. The patriarchal framework of Indian households also results in inequality of power and employment for men and women. The fall of the female population, jobs, public life, health, education, and other areas are all impacted by gender discrimination for women.

Problems of female education

Because they are discouraged from pursuing higher education, such as professional and technical education, the percentage of women educated in India is low, particularly in rural areas.

Problems related to unemployment

Women are having more difficulty finding acceptable employment. They become more vulnerable to harassment and exploitation at work.

Boss Intentionally

Their supervisor deliberately gives them additional work and challenging assignments. Periodically, they must demonstrate their commitment, earnestness, and sincerity towards their work.

Unbearable Conditions

Women with less education are more likely to get divorced or have their spouses leave them at any point of their lives. They must endure living in constant fear of getting divorced. Some people are forced to end their lives due of intolerable circumstances.

Increasing

Another significant issue for women in society that is getting worse daily is the dowry system. Due to the lack of a dowry at the time of marriage, women experience violence, murder, and suicide in addition to being mistreated, manhandled, humiliated, and tortured. In large part, it degrades the position of women.

Social Empowerment of Women

Education It will be made sure that women and girls have equal access to education. To facilitate lifelong learning and the development of occupation/vocation/technical skills by women, special measures will be taken to eradicate discrimination, universalize education, eradicate illiteracy, create a gender-sensitive educational system, increase enrollment and retention rates of girls, and improve the quality of education. One area of attention would be closing the gender gap in secondary and higher education. With a special focus on girls and women, especially those from weaker sectors like the Scheduled Castes/Scheduled Tribes/Other Backward Classes/Minorities, existing policies' sectorial time targets would be met. At all levels of the educational system, gender-sensitive curricula would be created in order to address sex stereotyping as one of the reasons of gender discrimination.

Health The needs of women and girls at all phases of the life cycle will receive special attention as part of a holistic approach to women's health that incorporates both nutrition and healthcare services. A top aim is to lower baby and mother mortality rates because they are sensitive indicators of human development. The National Population Policy 2000's aims for maternal mortality rate (MMR) and infant mortality rate (IMR) are reiterated in this policy. Women should have access to thorough, reasonably priced, and high-quality medical treatment. Women's reproductive rights, their susceptibility to sexual and health issues, as well as endemic, infectious, and communicable diseases including malaria, TB, and water borne diseases, as well as hypertension and cardio-pulmonary disorders, will all be taken into account when measures are undertaken. From a gender perspective, the effects of HIV/AIDS and other STDs on social development, health, and wellness will be discussed.

Nutrition Focused emphasis will be given to addressing the nutritional needs of women at all stages of the life cycle due to the high risk of malnutrition and disease that women confront at each of the three important stages of development, including infancy and childhood, adolescence, and the reproductive phase. This is especially significant since there is a strong relationship between the health of early children and adolescents and the health of pregnant and breastfeeding mothers and adolescent females. The issue of macro and micronutrient deficiencies will receive specific attention because it disproportionately affects

pregnant and breastfeeding women and results in a number of illnesses and disabilities. We shall work to put an end to intra-household discrimination against girls and women in nutritional problems by using the proper tactics. To address the concerns of intra-household nutritional imbalances and the unique requirements of pregnant and nursing women, widespread nutrition education will be implemented. The involvement of women in the system's planning, supervision, and implementation will also be guaranteed.

Drinking Water and Sanitation The requirements of women shall receive special consideration when it comes to the provision of sewage disposal, toilet facilities, and sanitation within reach of homes, particularly in rural areas and urban slums. Women's participation in the development, provision, and upkeep of such services would be ensured.

Housing and Shelter The planning of housing colonies, housing laws, and the provision of shelter in both rural and urban locations will take into account the perspectives of women. The provision of appropriate and secure housing and lodging for women, particularly single women, heads of homes, working women, students, apprentices, and trainees, will get special consideration.

Environment Women will be included, and the policies and programmes for the environment, conservation, and restoration will represent their perspectives. Women's participation in environmental preservation and environmental degradation control will be ensured by taking into account the effects of environmental elements on their livelihoods. Most rural women still rely on locally accessible, non-commercial energy sources like animal manure, agricultural waste, and fuel wood. The Policy will strive to promote the programmes of non-conventional energy resources in order to ensure the effective use of these energy resources in an environmentally sustainable manner. Women will be involved in promoting the use of biogas, smokeless chulahs, solar energy, and other rural applications so that their effects on the environment and on rural women's lifestyles may be seen.

Science and Technology Programs will be strengthened to encourage more women to pursue careers in science and technology. These will include initiatives to encourage girls to pursue science and technology as majors in college and to make sure that women are adequately represented in development programmes that use scientific and technical input. The development of a scientific mindset and awareness will also receive more attention. Their education will receive special attention in fields like communication and information technology where they have unique skills. A special emphasis will also be placed on efforts to create technologies that are suitable for women's requirements and that lessen their labor-intensiveness.

Rights of the Girl Child The elimination of all forms of discrimination against girls and violations of their rights requires adopting significant preventive and corrective action both inside and outside the family. These would specifically apply to the stringent implementation of laws against prenatal sex selection and the acts of female feticide, female infanticide, child marriage, child abuse, and child prostitution, among other things. The promotion of a positive image of the female child and the elimination of discrimination in the treatment of the girl child both inside and outside the family will be aggressively encouraged. Special attention will be paid to the needs of girls, and significant investments will be made in fields including food and nutrition, health and education, and vocational training. A significant emphasis will be placed on girl children while developing programmes to end child labour.

Conclusion

When a woman is in charge of the family, progress is made in the community and the country. This is essential because of how their beliefs and moral code shape a good family, good society, and eventually a good country. Incorporating women into the mainstream of development is the best approach to give them more influence. Only when women are financially secure and able to stand on their own two feet and establish their identities in society will there be true and lasting female empowerment. One of the most pressing issues of the twenty-first century, both nationally and internationally, is the empowerment of women. Government programmes by themselves are insufficient to accomplish these objectives. Gender discrimination should not exist, and society should take the effort to establish such a climate where women have full access to self-determination and can participate equally in the social, political, and economic life of the nation.

References

1. Duflo, E. (2012). Women empowerment and economic development. *Journal of Economic literature*, 50(4), 1051-79.
2. Mandal, K. C. (2013, May). Concept and Types of Women Empowerment. In *International Forum of Teaching & Studies* (Vol. 9, No. 2).
3. Hazarika, D. (2011). Women empowerment in India: A brief discussion. *International Journal of Educational Planning & Administration*, 1(3), 199-202.
4. Nayak, P., & Mahanta, B. (2009). Women empowerment in India.
5. Sundaram, M. S., Sekar, M., & Subburaj, A. (2014). Women empowerment: role of education. *International Journal in Management & Social Science*, 2(12), 76-85.

LABOUR MARKET CHANGES IN PLANTATION: CONTEMPORARY ISSUES IN INDIA²⁵

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Introduction

The Indian labour market system has been moving forward from Industrial to contractual basis earnings in IT Sector through employment opportunities in Abroad countries, and paradigm shift to self-employment (Industrial services, education, medical, Real estate etc.,) from Agricultural sector in this decade. The nature and situation of agrarian works also jobs (drastically moving towards decent white collar jobs) in Industrial Urban areas, (Nashik, Kolapur, Ludhiana, Kanpur, Koragpur, Dhanbad, Tiruppur, Coimbatore, Erode) Metros (Mumbai, Chennai, Ahmedabad, Bangalore, Delhi, Kolkatta). It causes a large number of geographical areas where congested and it takes place for pollution. On contrary, the employment opportunity from abroad countries and inter –State migration (pull –factor) also increasing more earnings with social security's rather than local employment opportunity.

In India's oldest industry in the organized manufacturing sector and has retained its position as the single largest employer in plantation sector. Indian Labour Force is classified into two major sectors namely, organized and unorganized sectors. The organized sector enjoys the existing provisions made by the law, whereas the unorganized sector is not able to enjoy the benefits mentioned in the various Acts for the welfare of the labourers.

Review of Literature

Mahalakshmi (2012) described the socio-economic status of women employees in tea plantation industries and found that number of women workers are facing many problem in the tea plantation. Since women workers are engaged more than the male workers. The study was basically focus on their living condition, wages earning and socio-security benefit. The important factor for their development and the problem faced by the employees are also identified.

Statement of the Problem

Before 1991, the export and sales activities were favorable to owners. Plantation constituted about 17 per cent of total agricultural export. In this respect, business performance by planters, small growers sold their goods by way of auction, export (tea, coffee, cardamom, pepper). The tendency towards labour environment, labour practice, wage agreement, involvement of trade unionism (collective bargaining, tripartite resolution) planters association and their cordial relationship were flexible according to their expectation level. Business activity model were slightly changed under open market economy. Planters aim to produce larger quantities as compared to competitive countries like China, Kenya, Sri Lanka, Indonesia, Vietnam, Malaysia etc. This resulted in high cost of production mainly because of climatically and soil condition of our local (indigenous) plantation products, like tea, coffee, cardamom.

In this context, the liberalization policy had emerged a major changes of Plantation sector, especially the small growers and labourers. The exigency of business transaction of

²⁵ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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plantation sector had shifted to U.K and Vietnam buyers instead of Soviet Russia (Tea, Coffee). In the meanwhile, Indonesia & Kenya Tea, Brazil Coffee, Malaysian Rubber had entered into our country. Therefore, indigenous market had suffered loss, in the way of cost of production (maintaining for quality) protection of small growers. The large size estate owners who tried to drastically reduced the labourers provision (wage, additional work force). At the same time, they are unable to promote the local consumption of Tea, Coffee. Despite, the prevalence of PLA, the policy of globalization is not favorable to labourers, either directly or indirectly. How the workers who compensate their livelihood for current wage and working environment? What are the provisions and regulative measures to provide welfare for Plantation workers? Hence, paper makes an attempt to find out the solutions to these issues on Plantation workers in the current scenario.

Objectives

1. To study the socio-economic background of the Plantation workers in the study area.
2. To assess the working environment and wage provision, issues of Plantation workers.

Methodology

The primary data were collected from 70 workers from Coffee in Dindigul and Tea estate workers in Nilgiris District.

Results and Discussion

On the basis of the Data the workers are classified into resident labour with daily wage, the contract labour, daily wage worker and casual labour. The duration of work experience has also been taken up for analysis.

Table-1 Duration of work and Nature of workers

Work duration Nature of workers	Up to 3 years	4-5 years	6-10 years	Above 11 years	Total
Resident labour and daily wage	7 63.6%	4 36.4%	0 0.0%	0 0.0%	11 100.0%
Contract labour	8 29.6%	15 55.6%	0 0.0%	4 14.8%	27 100.0%
Daily wage	3 17.6%	10 58.8%	4 23.5%	0 0.0%	17 100.0%
Casual labour	0 0.0%	4 26.7%	7 46.7%	4 26.7%	15 100.0%
Total	18 25.7%	33 47.1%	11 15.7%	8 11.4%	70 100.0%

Source: Primary Data

The category of resident labour practices have been engaged by most of coffee and tea estates in the study areas who brought from Northern States (UP, Bihar). At present, it has almost stopped recruiting new labourers in the place of one who retire. The companies have seek extra task (output) from the existing labourers and resort to recruiting casual labourers (temporary regular wage labourers, whenever they engaged the work they can collect the full day wage from the Estate, their work environment is not count for the Estate). Therefore, the company does not have to take responsibilities such as PF, Gratuity, and medical allowance

and so on. The holidays and week days after extracting the legitimate amount of work, the labourers are shifted to other plantations of the same group of Company to work for an additional payment of Rs.10 per Kg of leaves plucked. Employment is shrinking in the estates. Where as in Coffee estates, if the laborer who plucked coffee berries which is fixed the actual target, (additional berries of 10 kgs), they (labour) paid additional amount of Rs.5. It has practiced only large size estate of coffee plantation in TN, Karnataka. Sometimes it is varied from estates where belong to the owners. Finally, the engagement of labour is only negotiable wage based, not for the norms of Plantation Labour Act. Moreover, In coffee plantation, the work is engaged for large number of seasonal workers during the harvesting of coffee nut. The remaining days the workers who engaged other horticulture and orchard farm worker. The maximum work is done at coffee plantation is only contract basis (Quantity of work produced and getting high remuneration work) when compare than daily wage, permanent work wage earning, if the work availability is properly. The involvement of Trade Union in Coffee Estate is not effective because of preferential engaged contractual work by the owners. Table shows that 63 % of the respondents (7 out of 18) are engaged resident labor upto 3 years. Next to, 55% of the respondents are belonged to contract labour up to 5 years.

Table-2 Availability of work with Age

Age Work Availability-Days	120 days	180 days	250 days	Entire days	Total
21-30	0 0.0%	12 66.7%	3 16.7%	3 16.7%	18 100.0%
31-40	0 0.0%	14 42.4%	16 48.5%	3 9.1%	33 100.0%
41-50	4 36.4%	3 27.3%	4 36.4%	0 0.0%	11 100.0%
Above 50	4 50.0%	0 0.0%	0 0.0%	4 50.0%	8 100.0%
Total	8 11.4%	29 41.4%	23 32.9%	10 14.3%	70 100.0%

Source: Primary Data

During peak season of coffee or Tea demand the owners who extract the work from labourer. But their (owner) point of view, maximization of profit is the major component of protecting and retaining strategies for global competition. On contrary, If the labour standard will go down, the maintenance of quality of product may affected. In Tea Plantation of Tamilnadu and Kerala, some of the North Eastern agricultural and Plantation Laborers who migrated and engaged the work at any amount would provide by the owners, because their local wage is very lower than TN and Kerala State. This much of issues are not covered in the terms of Plantation Labour Act 1951, and convention by ILO. Table shows that each 50 % of the workers are reported that from the category of 120 days availability of work and entire days of work availability of work were belonged to the age of above 50 years. Secondly, 66 (12 out of 29 persons) per cent of the workers from the age category of 21-30 years who reported that they were availed the employment upto 180 days only.

Labour standards by I L O Convention

At international exports now, most of the buying countries are expected the labour standards. Many big plantations are interested to implement the corporate social responsibility (CSR). Many international buyers are expected the code of conduct certificate like Ethical Trade Initiative, Fair Labour Organisation and SA 8000, these two are universally accepted popular code in tea industry. Many tea estates are got these certificates for the market promotion. The main aim of this code is developing the labour standard, but in practical these codes are not implemented in major plantation, but they are trying to get these certificates.

The main code of these certificate is Freedom from forced labour, No child labour, Freedom of association and right to collective bargaining, Freedom from discrimination

Wages, Health and safety, Working hours, Regular employment etc.

The above-mentioned wage agreement and code of conduct are implemented only in few plantations.

Conclusion

Plantation workers are unable to retain and continue to do work in plantations, where they are shifting to other type of work, like unskilled works in industrial areas. Automatically labour shortage is occurred in plantation. They approached to cheap labourer on the basis of migrant and vulnerable groups in Bihar, Madhya Pradesh, Tripura states through brokers. This can be done through indirect broker system of labour (cheap labour) supply. But they don't have proper wage system and welfare measures. Due to encourage of contract basis labour system in plantation, the provisions of labour law is tough task and safety needs of labourer is not concentrate.

In present scenario of Plantation sector labour's work environment is interchangeable. Initially it was the proper channel of labour market set up such as, Permanent, contract (only for provisionally marketing and processing pattern by large estates) and regular wage earners and seasonal workers. Due to the market fluctuation and imposed by open market economy the structure has been drastically changed, despite a number of provisions and scheme by Ministry of Labour and Plantation Labour Act. As a result, the cordial relationships by Trade Union and Planters and owners have away from the right pathway. Therefore, the system and pattern of work environment by Plantation is deviate. The changes on Grower's (Planter's cultivation practices, expected wages and conducive atmospheres are not properly engaged in this decade. Based on the data analysis young aged workers are mostly involved other informal sector works, instead of usual coffee plantation. They assigned only contractual as is of seasonal work. Therefore, regular wage system has not been practiced in the whole areas of Plantation Sector. This situation should me rejuvenate by the Ministry of Labour and Tripartiate association by Trade Union and Planters in India.

GROWTH AND EMPLOYMENT PERSPECTIVES OF MICRO SMALL MEDIUM ENTERPRISES SECTOR IN INDIA²⁸

Dr. M. SENTHIL KUMAR²⁹

Introduction

The economy's growth and development cannot be driven by metropolitan area expansion, large contributing industries, or multinational corporations (MNCs). It is vital to elevate all sectors of the economy, regardless of their economic contribution. As a result, one of the most critical initiatives to boost all sectors, regardless of size, was the Ministry of Micro, Small & Medium Enterprises (MSME). MSME sector of the Indian economy has emerged as a vital and dynamic industry. MSMEs play a crucial role in creating large numbers of jobs at a cheaper cost of capital than large enterprises. Still, they also aid in the industrialisation of rural and backward areas, reducing regional imbalances and ensuring a fairer distribution of national revenue and wealth. MSMEs serve as ancillary units to large enterprises, and this sector makes a significant contribution to the country's socio-economic development.

The MSME area represents 95% of the modern units and roughly half of the products. Plus, the area gives work to the right around 100 million individuals, making it the most significant wellspring of work after the agriculture area. Hence, the advancement of this area holds the key to comprehensive development and assumes an essential part in India's future.

Statement of the Problem

This exploration distinguishes the essential variables impacting the dangers looked at by the MSMEs and tries to give some solutions for those challenges. Further, the research additionally addresses the systems and ways taken on by the public authority and different foundations to battle against the difficulties looked by them in the development. MSME area has emerged as an outstandingly lively and dynamic space of the Indian economy. MSMEs do not simply accept a critical part in giving enormous work openings at correspondingly lower capital cost than tremendous endeavours, but what's more assistance in the industrialisation of rural and in switch locales, along these lines, decreasing commonplace abnormal nature, ensuring the more fair movement of public compensation and plenitude. MSMEs are compared to tremendous organisations as subordinate units, and this district contributes colossally to the country's money-related improvement.

Objective

1. To analyse the growth and performance of the MSME sector in India from 2010-11 to 2020-2021.

Methodology

The present study is based on secondary data, and the investigation is covered from 2010-11 to 2020-21. The data are collected from the Annual Report of MSME 2020-2021,

²⁸ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Ministry of Micro, Small and Medium Enterprises, Government of India. The compound annual growth rate was used to analyse the data.

Performance of MSME Sector in India

This section brings out the performance and contribution of micro, medium, small scale enterprises sectors in India, which covered from 2010-11 to 2020-21. Furthermore, this chapter examined the two sections. The first section analyses the growth and performance of the MSME sector, and the second section executes the contribution of MSME regarding manufacturing and service sectors in India.

Table 1 analyses the performance of total working enterprises comprised of micro, medium and small-scale enterprises during 2010-11 to 2020-21 in India. According to the total working, enterprises are measured in terms of lakhs in numbers. Moreover, the table working with statistical tools like Annual Growth Rate (AGR) is calculated in year-wise, and the Compound Annual Growth Rate (CAGR) is calculated between 2010-11 and 2020-21. The study results show that the maximum 24% is reached during 2015-16, followed by 19% in 2016-17 13% in 2019-20. It is disheartening to note that total working enterprises' growth has decreased from 13% to 3% during 2020-21. And the result of Compound Annual Growth Rate (CAGR) of total working experience of MSME sector is found that 9% between 2010-11 and 2020-21.

Table 1 Total Working Enterprises

Year	Total Working Enterprise (In lakh)	AGR
2010-11	428.73	
2011-12	447.64	4%
2012-13	447.64	0%
2013-14	488.46	9%
2014-15	510.57	5%
2015-16	633.88	24%
2016-17	753.35	19%
2017-18	792.32	5%
2018-19	856.25	8%
2019-20	964.2	13%
2020-21	992.51	3%
CAGR	9%	

SOURCE: Annual report, GOI, Ministry of MSME

Table 2 analyses the employment generation of MSME which has been covered from 2010-11 to 2020-21. Employment is measured in terms of lakhs. The annual growth rate and the compound annual growth rate have been calculated on this data. As the table shows, the employment growth rate is recorded at 5% during 2011-12, and the rate is constant until 2014-15. In the FY 2015 -16, employment has seen slow down, and the growth rate falls to -5%. Eventually, there was an increase in employment level, and the highest growth rate recorded was 8% during the year 2017-18. The compound annual growth rate of employment of MSME for the last decade is around 3%.

Table 2 Performance of MSME Sector in India for employment

Years	Employment (In lakh)	AGR
2010-11	9.6515	
2011-12	10.1169	5%
2012-13	10.614	5%
2013-14	11.1429	5%
2014-15	11.7132	5%
2015-16	11.0989	-5%
2016-17	11.5465	4%
2017-18	12.472	8%
2018-19	12.8602	3%
2019-20	12.9808	1%
2020-21	13.2092	2%
CAGR	3%	

SOURCE: Annual report, GOI, Ministry of MSME

Conclusion

Micro Small Medium Enterprises (MSMEs) have arisen as a vital fragment that is contributing fundamentally to work age, creation framework advancement, sends out, rustic industrialisation, GDP and comprehensive development of the Indian economy. MSMEs' share in public GDP is around 24%, and it is relied upon to develop by half in 2024. MSME area can make savvy items, and the government is likewise offering full help to support sufficient potential, conceivable outcomes a chance to have an economic and technological push.

In the new period, the MSMEs area has shown a higher development rate contrasted with India's, generally speaking, modern area. The development pace of the MSMEs area was enlisted 13% by and large. The realities show that the quantity of units has expanded, leading to speculation and business development. There are likewise many commodities, and both homegrown and global business sectors acknowledge MSME results.

The Government of India should go to different lengths to work on Indian MSMEs and accomplish the vision of Self-dependent India. Further, "Make in India and Digital India" will be empowering more E-market linkage for MSMEs ought to be advanced, and monetary improvement should increment for this area. One might say that the MSME region needs more thought like some other colossal current units. It would help India transform into an astonishing economy among all nations.

COST OF PRODUCTION OF SELECTED LARGE-SCALE INDUSTRIES IN INDIA³⁰

Dr. V. KASTHURI³¹ & Dr. S. SELVAKUMAR³²

Introduction

The need and the role of industrial sector have been fully recognized by the development thinkers all over the world. Some of the countries in the world had been the pioneers of the industrial revolution and thus have become developed countries. Establishment of industries alone can generate employment opportunity for in an accelerated rate. Modern development strategies attach more emphasis on wide spread of industrialization to faster growth and development.

Every country need exploring of coal, iron and steel, exploring of oil and its purification, heavy machineries, heavy electrical equipment, heavy chemicals, ships and aero planes, industries of heavy and basic industries for its development. All these industries help to develop agriculture, transport, communication facilities and other industries. It means development of large-scale industries is almost essential for the development of heavy and basic industries. In this paper taken into only three industries such as Steel, Textile and Cement industries. Iron ore and cost-effective labour are the main factors for the Indian steel sector. India's manufacturing sector major output comes from the steel sector. Steel industry contributes about 2% to India's GDP and employs 6 lakh people directly and 20 lakhs people indirectly. Indian government has move in the direction of several export promotion policies for the textiles sector. It has also allowed 100% FDI in the sector under the automatic route. Production Linked Incentive scheme is predictable to be a major booster for the textile manufacturers. India is the second largest producer of cement in the world. India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. The Cement industry plays a vital role in the economic growth of the country.

Objective

1. To study the structural composition, determinants of total cost of production and economies of scale in selected large-scale industries in India.

Methodology

The study is based on secondary data. The data used in this study are from an industry level data base of India's large-scale industries, compiled by the Centre for Monitoring the Indian Economy (CMIE). The size of the data varies year by year because companies enter / exit the data base. Some of the data were collected from websites.

Statistical techniques such as average, growth rates, coefficient of variation and Ordinary Least Square Method are used to analyse the data.

³⁰ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Structural Composition of Total Cost of Production

The proportionate contribution of some of the cost components in total cost of production, their mean values and coefficients of variation of selected large-scale industries from 2004-05 to 2018-19.

TABLE 1 STRUCTURAL COMPOSITION OF TOTAL COST OF PRODUCTION OF STEEL INDUSTRY IN INDIA
[2004-05 to 2018-19]

[%]

TOTAL COST OF PRODUCTION												
INDUSTRY	Share of Material Cost		Share of Wage Cost		Share of Energy Cost		Share of Interest Cost		Share of Cost of Repairs and Maintenance		Share of Depreciation Cost	
	$\bar{X}$	C.V.	$\bar{X}$	C.V.	$\bar{X}$	C.V.	$\bar{X}$	C.V.	$\bar{X}$	C.V.	$\bar{X}$	C.V.
STEEL	64.32	7.69	9.27	24.15	10.77	6.34	6.84	36.60	2.79	35.12	6.01	13.49
TEXTILES	67.73	4.62	7.98	10.81	9.37	10.47	7.24	22.28	2.00	52.95	5.67	6.08
CEMENT	30.72	5.88	8.52	6.73	39.34	7.59	7.49	53.17	3.55	16.41	10.38	9.39

Note: $\bar{X}$ = Mean Value, C.V. = Coefficient of Variation

Source: Computed

- The percentage share of material cost was the highest in all the selected large-scale industries except cement industry. Raw materials are crucial to determine the competitive growth of any industry. This is additional input-intensive extractive industry like steel. Requirement of major raw materials in the steel industry is determined not only by the market forces and rate of growth of output but also by the technology adopted for making the required steel.
- The percentage share of wage cost remained the highest in steel industry. Wage cost forms the important position in steel industry and was the lowest in textile industry.
- The percentage share of energy cost was maximum in the case of cement industry due to fact that use of energy i.e., fuel, power, light and lubricant was comparatively higher than other selected large-scale industries. It is to be pointed out that energy consumption per tonne of cement varies from technology to technology. The energy intensity of the all the dry process was the highest and it varies from 29 to 61 per cent. Cement units in India are generally less energy efficient using both thermals and electrical energy. This became the lowest in the case of textile industry.
- The percentage share of interest cost was the highest in cement industry and the lowest in steel industry.
- The share of repairs and maintenance cost and depreciation cost were higher in cement industry and lower in textile industry.

**TABLE 2 REGRESSION ESTIMATES OF LINEAR TOTAL COST FUNCTIONS OF
SELECTED LARGE SCALE INDUSTRIES IN INDIA [2004-05 to 2018-19]**

$$\text{Model 1 - Log TC} = b_0 + b_1 \text{ Log VQ} + u$$

INDUSTRY	Regression Constant	Co-efficient of VQ	R ²	F-Ratio	e _{TC}
STEEL	0.477 (0.59)	0.931* (13.71)	0.94	187.86*	0.96
TEXTILES	0.9275 (0.61)	0.905* (14.22)	0.94	189.86*	0.92
CEMENT	1.909 (3.87)	0.764* (16.43)	0.95	269.91*	0.81

Note: TC = Total Cost, VQ = Value of output e_{TC} = Output elasticity with respect to total cost
*Significant at 5% level. Figures in parentheses indicate 't' values

Source: Computed

LINEAR TOTAL COST FUNCTION

$$[\text{Log TC} = b_0 + b_1 \text{ Log VQ} + u]$$

The relationship between cost and output is examined by using linear regression model and the results are given in table 2. In the beta coefficient of the explanatory variable, value of output is positive and significant in all selected large-scale industries. It explains that there is a positive relationship between cost and output. However, the value of coefficient is less than one. Thus, there is a direct and less than proportionate increase in cost for a unit increase in output. The higher value of coefficient of determination (R²) is around 0.94 and it suggesting the fact that the output variable is fully accounted for changes in cost of production. Considering the F-value, the linear cost function model is the best fit for the selected large-scale industries.

The estimated coefficient of value of output used for calculating output elasticities with respect to total cost are found to be statistically significant in all selected industries. Output elasticity of total cost for textile and cement industries is 0.92 and 0.81 respectively which implies that there was a decreasing cost condition in these industries during the study period. The total cost increased at a diminishing rate lead to economies of scale. The output elasticity in steel industry is near the point of unity implying the constant cost conditions in these industries where proportionate changes in cost and output are equal. It is identified that this industry was working under constant returns to scale during study period.

**TABLE 3 REGRESSION ESTIMATES OF LINEAR MATERIAL COST FUNCTIONS
OF SELECTED LARGE-SCALE INDUSTRIES
IN INDIA [2004-05 to 2018-19]**

$$\text{Model 2 - Log MC} = b_0 + b_1 \text{ Log VQ} + u$$

INDUSTRY	Regression Constant	Co-efficient of VQ	R ²	F-Ratio	e _{MC}
STEEL	-1.54 (-1.73)	1.06* (14.30)	0.94	204.53*	1.14
TEXTILES	0.13 (0.27)	0.94* (22.06)	0.97	486.68*	0.99
CEMENT	0.65 (1.05)	0.77* (13.37)	0.93	178.73*	0.93

Note: MC = Material Cost, VQ = Value of output e_{MC} = Output elasticity with respect to Material cost
Figures in parentheses indicate 't' values *Significant at 5% level

Source: Computed

LINEAR MATERIAL COST FUNCTION

$$[\text{Log MC} = b_0 + b_1 \text{Log VQ} + u]$$

The results of linear material cost functions are presented in table 3. The table represents that value of output is positive and became significant in all selected industries. It explains that there is a positive relationship between cost and output. However, the value of coefficient is less than one in all selected large-scale industries except steel industry. It denotes that cost decreases less proportionately than increase in output. Hence it has the prevalence of economies of scale / decreasing cost condition. Thus, there is a direct and less than proportionate increase in cost. The R^2 values of estimated material cost function between 93 to 97 per cent of variation in material cost being brought about by the corresponding variations in value of output. The linear material cost model has best fit with high F – values. It is revealed that elasticity output of material cost for cement and textile industry is 0.93 and 0.99 respectively. So, it implies that there could be a less than proportionate increase in material cost with the increase in value of output. The output elasticity in textile industry is near the point of unity implying the constant cost conditions in these industries where proportionate changes in cost and output are equal. Output elasticity of material cost of steel industry is 1.14 that implies decreasing return to scale as a result of diseconomies scale in operations of materials.

**TABLE 4 REGRESSION ESTIMATES OF LINEAR WAGE COST FUNCTIONS OF
SELECTED LARGE-SCALE INDUSTRIES
IN INDIA [2004-05 to 2018-19]**

$$\text{Log WC} = b_0 + b_1 \text{Log VQ} + u$$

INDUSTRY	Regression Constant	Co-efficient of VQ	R^2	F-Ratio	e_{wc}
STEEL	1.25 (0.89)	0.67* (5.64)	0.71	31.83*	0.86
TEXTILES	1.62 (3.93)	0.62* (17.16)	0.96	294.58*	0.81
CEMENT	-1.00 (-1.49)	0.81* (12.75)	0.93	162.67*	1.13

Note: WC = Wage Cost, VQ = Value of output e_{wc} = Output elasticity with respect to Wage Cost

*Significant at 5% level

Figures in parentheses indicate 't' values

Source: Computed

LINEAR WAGE COST FUNCTION

$$[\text{Log WC} = b_0 + b_1 \text{Log VQ} + u]$$

The value of output is positive and has significance in all selected large-scale industries. The estimated value of R^2 i.e., from 71 to 96 per cent of R^2 is statistically significant for all industries. It suggests that variation in wage cost brought about the relative variations in value of output. It presents the fact that output variable is fully accounted for changes in cost of production. It is evident from the table that the coefficient of value of output possesses positive sign and has significant relation with wage cost which increased at a less than proportionate rate with increase in output since its coefficient is less than the unity. Estimated output elasticities of wage cost to reveals that there is less than the unit increase in total cost of the case of textile (0.81) and steel industries (0.86). The results have indicated

that all these industries were enjoying the economies of scale in wage cost of production except cement industry. The output elasticities of wage cost are more than unity in cement industry which implies the diseconomies of scale. Thus, wage cost is more elastic with respect to output in majority of the industry under the study.

With a view to understand the nature of the cost curve, a linear cost function is suitable for total cost, material cost and wage cost in selected large-scale industries.

Major Findings

Material and Wage cost was the highest in the steel industry. Energy and Repair and maintenance cost is highest in cement industry. Steel and textile industry changes in cost and output are equal. The output elasticity in textile industry is near the point of unity. It implying material cost and outputs are equal. Wage cost is reducing level compare to the output it implying economies scale enjoy the steel and textile industry.

Conclusion

The present study has brought out the various facts about the cost of production of selected large-scale industries in India. Large scale industries to reducing cost, suitable plant and rationalization of industry is need to get capacity utilization of labour efficiency these are the largely responsible for the present industry.

GARLIC PRODUCTION IN INDIA³³

I. RAMAKRISHNAN³⁴

Introduction

Garlic is one of the most popular spices in the world and it is extensively used in all the countries. Since ancient times garlic has been used as a good cure garlic in one of the most important crops grown and is used as a spice condiment not only in India but in every country in the world. Several advanced agricultural techniques have been used to increase the production and productivity of garlic. China, India, Republic of Korea, Russia and Egypt are major garlic producing countries in the world.

Nilgiris, Kodaikanal in Tamil Nadu, such mountain areas white garlic is production in 500 hectares. For some years, the white garlic in these mountain areas. Garlic producers are facing heavy loss. Garlic is most often planted in the between late September and November. In areas that get a hard frost, plant garlic 6 to 8 weeks before the first fall frost date, before the ground freezes. Garlic has a long growing season about 8 to 9 months for a small planted garlic to develop into a ready-to-harvest head of garlic. It means that it could grow like a whole human baby in the same amount of time it takes to grow a head of garlic. Different compounds in garlic are thought to reduce the risk for cardiovascular diseases, have anti-tumour and anti-microbial effects, and show benefit on high blood glucose concentration. However, the exact mechanism of all ingredients and their long-term effects are not fully understood. Further studies are needed to elucidate the path physiological mechanisms of action of garlic as well as its efficacy and safety in treatment of various diseases.

The major constraints in the production of the garlic were the fluctuations in the market price, the lack of storage facilities and the transportation. Also the lack of processing industries is one of the limiting factors in the production of garlic. The present investigation was carried out to workout break-even analysis and to identify the constraints in production and marketing of garlic.

Storing Garlic

The garlic production stored at room temperature of up to 8 months. Before storing it must be sun dried thoroughly so that no fungus develops during the storage period. Rajasthan the highest production of garlic across India in financial year 2018. The garlic production to over 582 thousand metric tons.

Table 1 Garlic production 2020-2021

State	Production (000Tonnes)	Share (%)
Rajasthan	582.08	52.87
Uttar Pradesh	188.61	17.13
Gujarat	151.01	13.72
Punjab	73.74	6.70

³³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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State	Production (000Tonnes)	Share (%)
Assam	61.61	5.60
Maharashtra	13.96	1.27
Himchal Pradesh	8.49	0.77
Karnataka	5.42	0.49
Tamil Nadu	3.46	0.31
Chhattisgarh	3.45	0.31

Source: National Horticulture Board (NHB)

Variety of Purple

These varieties with attractive purple in garlic production. It matures in 120-135 days and the average yield is 6-7 tons garlic production. Gujarat is the leading garlic producing State with production of 2.28 lakh tonnes 2018-19 accounting 26 per cent of total production and yield of 6.89 tons. Uttar Pradesh production of 1.89 and Madhya Pradesh 1.67. Punjab is the State with the highest yield at 14.73 tons.

Demand

The demand for garlic is rising in various industries, such as processing industries, where the sales of pickles and curry products are high. Garlic is also widely used in herbal products, including pastes and medicines. The vegetable is also famous for its use as a flavouring agent in various cuisines.

Supply

China the largest producer of garlic, producing over 75 percent of world tonnage Food and Agricultural Organization of the United Nations. In the United States, the majority of fresh and processing garlic production and acreage is concentrated in California. In 2004, U.S. area harvested, followed by Oregon with 14 percent and Nevada with 4 percent. The share of U.S. consumption produced domestically has continued to decrease, from 82 percent in to 56 percent in 2004. U.S. production of garlic has continued to increase throughout the last two and a half decades in response to higher demand. Prices have been highly variable over time, but have decreased continuously since the high of \$43.43 in 2000 dollars, falling to \$24.49 in 2004.

Imports

Garlic is the second most consumed plant of the Alliums genus worldwide. It is an important component in many cuisines, where it is used mostly as a spice but also as a fresh vegetable. It is produced all over the world, with approximately 2.5 million acres of land devoted to its production worldwide.

Exports

Garlic registered the biggest increase among the 19 varieties of spices exported from India. In 2021-22, India's garlic exports stood at 22,181 tonnes valued at Rs.186.19 crore. Though not on big scale, it is picking up in northern hills and Nilgiri hills in view of increasing demand in export market. India exported 21827.16tonnes. Production of bigger-cloved garlic is though not on big scale, it is picking up in northern hills and Nilgiri hills in view of increasing demand in export market. India exported 21827.16 tonnes of garlic in 2010-11.

Table 2 World Production 2020

Rank	Country	Production in 2020 (tonnes)
1	China	20,604,480
2	India	2,910,000
3	Bangladesh	466,389
4	South Korea	387,671

Source: National Statistic Board (NSB)

- ❖ Worldwide 26,639,081 tonnes of garlic is produced per year.
- ❖ China is the largest garlic producer in the world with 21,263,237 tonnes production volume per year.
- ❖ India comes second with 1,400,000 tonnes yearly production.

Conclusion

Garlic is one of the most popular spices in the world and it is extensively used in all the countries. Garlic is not only an agricultural plant but also consider medicinal herbal. Therefore the demand for garlic is increasing every year. The supply of garlic is sluggish in the world market. If government of India support the farmer to produces garlic, helpful to increase the land under cultivation. This will not only increase the total production of garlic but also earn foreign exchange.

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ARTIFICIAL INTELLIGENCE AND BIG DATA: A STUDY ON PREDICTIVE ANALYTICS IN FINANCIAL SECTOR¹

Dr. C. CHANDRASEKAR² & Dr. V. MOHANASUNDARAM³

Introduction

Artificial intelligence has become a real game changer inside the planet of finance. AI system can examine millions and billions of data points, and spot patterns and trends that people may miss, and even predict future patterns. Computing, in conjunction with tongue method, can even be accustomed to turn out as conversational trees that enable customers' converse and perform specific actions, whether by chat or by voice application. The foremost unremarkably used AI technologies are: robotic technique automation for structured operational tasks (36%); virtual assistants or conversational interfaces for customer service divisions (32%); and machine learning techniques to watch fraud and support underwriting and risk management (25%) and other segments (7%). The AI used in the financial services include Credit Choices, Risk Management, Fraud Bar, Customised Banking, and Automation etc.

Predictive Analytics to Prescriptive Analytics

Both predictive and prescriptive analytics are advanced forms of analytics that have a role to play in business intelligence. When the two are combined with machine learning, data mining and modelling, a company can make game-changing decisions. Both are equally and independently important to achieve better business outcomes. **Predictive analytics** is applied to a wide range of business strategies and continues to play a vital role in advertising and marketing recommendation engines. These insights provide business executives and managers with the decision-making tools they need to achieve different goals like manufacturing optimization, revenue forecasting, cross-selling and up-selling opportunities. **Prescriptive analytics** eliminates the immediate uncertainty that comes with changing conditions. That's why it's utilized to increase efficiency, improve productivity, mitigate risk and enhance customer loyalty

Review of Literature

Kanjal (2018) analysed on the development and implications of AI in financial world and found that AI involves two basic ideas; studying the thought process of human beings, and dealing with representing those process via machines. By the use of AI in different sectors it has been predicted that AI has greatest impact by 2020, both in banking and financial sectors.

Minzhen (2019) found that man-made consciousness innovation carries gigantic change to the whole monetary industry, which makes a progression of inventive monetary administrations such as wise expert, clever loaning, observing and cautioning, and insightful client support as times required. Similarly, **Ana** (2019) assessed Artificial Insight in monetary administrations and stated that man-made consciousness instruments have heightened of late

¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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in all areas of the economy owing, among different variables, to the developing volume of advanced information and higher computational limit.

Haitian (2020) studied the applications of man-made brainpower in monetary administration choices and asserted that Artificial Intelligence (AI), beyond a couple of years, made numerous, indications of progress and have empowered the production of expert financing applications, which would, maybe, upset the money business.

Rafee and Arif (2020) focused on the impact of intelligence techniques in banks at Bangalore. To measure the impact, the study took top 10 leading banks in Bangalore and found that private banks are using various artificial intelligence services for the customer benefit and the result from the study also suggested that customers expected more commitment from representatives towards the banks.

Vivek and Prafulla (2021) observed that Artificial Intelligence has carried an extraordinary change to the monetary area by giving different freedoms to customised administrations by decreasing expenses and growing new models of business. The gigantic changes have been gotten monetary area through innovation of man-made reasoning that made a scope of creative monetary administrations such as savvy advisor, keen loaning, checking, and cautioning, just as insightful client administration.

According to **Carlo** (2021) artificial intelligence will help financial services by improving efficiency, new data information advisory, management services, risk mitigation and many private firms are spending on research and development to launch AI in every sector of financial market.

Statement of the Research Problem

By implementing AI techniques in behavioural economics, economists are able to more precisely estimate the impact of human perceptions and behaviour on the actual state of affairs. The use of predictive analytics combines classical statistical analysis and the new world of AI. In the realm of financial analytics, the intrusion of AI has a high potential because all connected devices are pumping out oceans of data about real-time economic activities. Properly harnessed, that data could mimic the efficacy of predictive analytics in finance. Hence, the present study

Objective

1. To find out the factors determining the growth of financial technologies (FINTECH)

Methodology

The study is based on secondary data collected from World Bank and OECD Reports, RBI Bulletin and statista. The period of study is 10 years i.e. from 2010-11 to 2019-2020. The collected data were analysed by using trend analysis and a regression model.

Predictive Econometric Model

A predictive model that employed to find out the determinants of growth of fintech

$$Y_{t-1} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + u$$

Y_{t-1} = Growth rate of Fintech

β_0 = Intercept

$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients

X_1 = Cash flow

- X_2 = Remittances
 X_3 = Venture Capital in AI
 X_4 = R&D Expenditure on AI
 u = Error term

Results and Discussion

The data taken from the World Bank Global Development report a table has been prepared to highlight the amount spent on the selected parameters (Table 1). It was found that the growth rate of inflow was negative for three years (2015, 2016, and 2020). The growth in international remittances, together with those to developing countries, sharply decreased in 2015 and 2016 because of weak economic process in Europe, deterioration of the Russian economy and also the depreciation of the monetary unit, Ruble.

Table 1 Financial Inflows and FINTECH Funding Amount

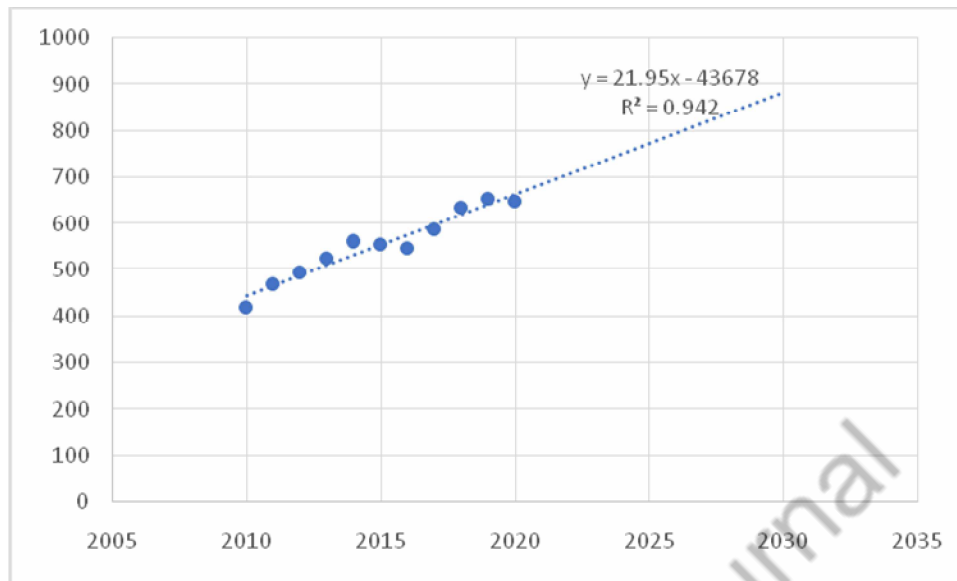
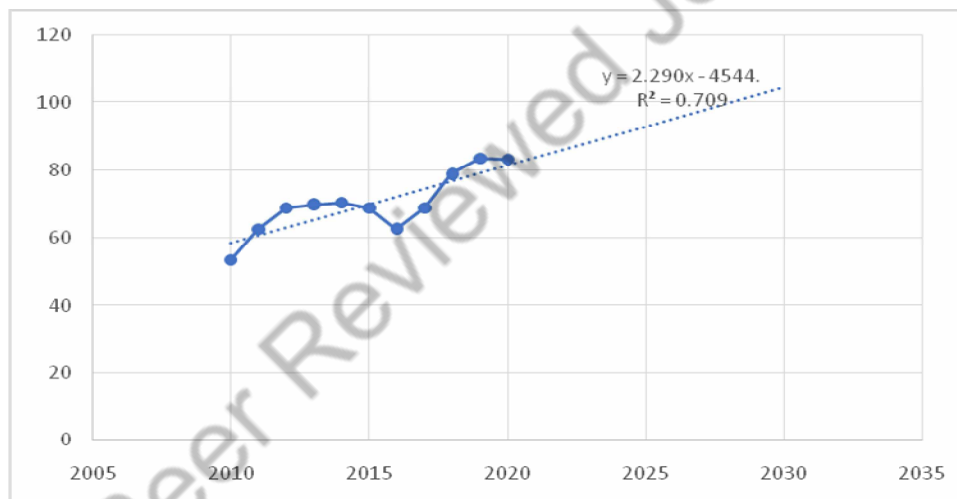
Year	Inflows (billion \$)	Inflow of Remittance	Venture Capital Investment in AI	R&D Expenditure on AI	FINTECH Funding amount (billion \$)
2010	420.1	53.48	0.42	280	5
2011	469.9 (10.59)	62.499 (14.43)	0.35 (8.70)	300 (6.67)	4.39 (-13.90)
2012	494.2 (4.92)	68.82 (9.18)	1.5 (69.33)	600 (50.00)	4.62 (4.98)
2013	524.1 (5.72)	69.97 (1.64)	5 (70.00)	900 (33.33)	12.4 (62.74)
2014	562 (6.73)	70.389 (.60)	13 (61.54)	1000 (10.00)	16.8 (26.19)
2015	555.9 (-1.1)	68.91 (-2.15)	25 (48.00)	1100 (9.09)	42.4 (60.38)
2016	547.1 (-1.61)	62.744 (-9.83)	45 (44.44)	1600 (31.25)	37 (-14.59)
2017	588.6 (7.06)	68.967 (9.02)	73 (38.36)	1870 (14.44)	39 (5.13)
2018	634.5 (7.23)	78.79 (12.47)	235 (68.94)	1800 (-3.89)	73.3 (46.79)
2019	654.2 (3.01)	83.332 (5.45)	270 (12.96)	2950 (38.98)	78.3 (6.39)
2020	648.6 (-0.86)	83.149 (-0.22)	175 (-54.29)	3100 (4.84)	22 (-255.91)

Source: World Bank, Global Development Data (2020)

Note: Figures in Parenthesis are Annual Growth Rate (AGR)

Predicted Growth of Financial Services

Trend line analysis is used in order to predict the inflow of remittances in 2030, and it was found that the growth of remittance is likely to increase to \$883.83 billion. The linear upward sloping trend line implies a positive growth in financial services. This, therefore, reveals that in future the world economy grows and financial inclusion improves due to increase in inflow by 26.61% in 2030.

Figure 1 Trend Line of Predicted Growth of Financial Inflows**Figure 2 Trend Line of Predicted Growth of Remittances****Expected Inflow of Remittances**

From the trend analysis it has been found that the growth of remittances is likely to increase to \$104.4504 billion in 2030. The linear upward sloping trend line reveals that there will be an increase in future inflow. It is disclosed that in future the world economy grows and financial inclusion improves due to increase in inflow by 20.39%. Financial services remittances are the flagship products, attracting and incentivizing a wider customer base to use other financial services, therefore, improvement in remittance inflow leads to growth and development of financial services.

Research and Development Expenditure on AI

Artificial intelligence is a general-purpose technology that is seeing uptake in many industries such as finance and insurance. India is spending on researching on AI in financial services before implementing further in order to make the process more efficient and

accurate. AI related technological development represents an emerging growth and in this field of financial services they research on discovery of new technology, on Patents and Trademarks. It is found that the expenditure tends to increase until 2017 to \$1870 million, but by 2018 the expenditure reduced on research study in India by \$1800 million.

The Result of Predictive Analytics

The results of the predictive model are given below.

Model 1: OLS, using observations 2010-2020 (T = 11)

Dependent variable: FINTECH Funding

	Coefficient	Std. Error	t-ratio	p-value
const	-63.0735	62.1469	-1.015	0.3493
Financial Inflows (X ₁)	0.510005	0.175949	2.899	0.0274
Remittance (X ₂)	-2.56446	1.07068	-2.395	0.0536
Venture Capital Investment (X ₃)	0.250543	0.0748768	3.346	0.0155
RD Expenditure (X ₄)	0.0203582	0.0103958	1.958	0.0179

Mean dependent var	30.47364	S.D. dependent var	26.38577
Sum squared resid	820.9144	S.E. of regression	11.69697
R-square	0.882088	Adjusted R-square	0.803480
F(4, 6)	11.22134	P-value(F)	0.005978
Log-likelihood	-39.32720	Akaike criterion	88.65441
Schwarz criterion	90.64388	Hannan-Quinn	87.40032
rho	-0.609422	Durbin-Watson	2.732215

Out of the four variables selected, it was found that three variables namely financial inflow (X₁), Venture Capital Investment (X₃) and R&D Expenditure (X₄) significantly determined the FINTECH funding.

Conclusion

The results of predictive econometric model clearly revealed the influence of R&D expenditure on the application of AI in financial services. In the current scenario, the challenging task is the decipher of big data and applying the results in the spheres of decision making. Further, both predictive analytics and prescriptive analytics should be employed to get insights as well as to optimise the decision-making power. Hence, FINTECH funding assumes greater significance and the efforts, both by the State and by the Private sector, should be channelised towards this to not only reap the benefits of application of AI but also to be future ready.

References

1. Ana Fernandez (2021), "Theory and Applications of Artificial Intelligence in Financial Industry", *Economic Bulletin*, 2, pp.3-8.
2. Bonnie G Buchanan (2019), "Regulating Artificial Intelligence in Financial Services", *Sydney Law School*, 43(1).
3. Carlo (2021), "Implications of Artificial Intelligence techniques in Financial Markets", *Wiley Strategic Change*, 30(3), pp.189-209.

4. Deepak Jha (2021), "Integration of Artificial Intelligence in Financial Services", Outlook money magazine, pp.7-12.
5. Haitiam Nobanee (2020), "Applications of Artificial Intelligence in Financial Management Decision", Consumer Financial Fraud ejournal, pp. 24-28.
6. Rafee and Arif (2020), "Impact of AI in Financial Services of Private Banks", IOSR Journal of Business and Management, 11(4), pp.34-36.
7. Vivek Joshi and Prafulla Ranjan (2021), "Importance and value of Artificial Intelligence in Financial Sector", International Journal for Modern Trends Science and Technology 7, pp. 6-11.

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AN ECONOMICS ANALYSIS OF FINANCIAL PERFORMANCE OF SELECTED PUBLIC SECTOR BANKS⁴

Dr. P. MOHAMMED HITHER ALI⁵

Introduction

One of the most effective engines of economic growth in India is now the banking sector. In spite of the recent global financial crisis, India's banking system has made significant strides. Over the past 20 years, India's globalization and financial market liberalization have revolutionized the Indian banking sector. Indian banking is currently experiencing an unimaginable upheaval, by experiencing substantial growth and investment in recent years.

The outcomes of this research will add to the body of knowledge in the banking sector, and the data will be accessible to other students and researchers on a local and international level for use as academic literature. Information will be available to policymakers to help them create laws affecting the banking sector. The general public will also be made aware of the various factors that go into the study of banks' financial performance, and Future investors trading on the NSE will also find this information useful. The findings of this study will be very helpful to bank owners as they will have a deeper comprehension of the internal factors influencing them and create strategic plans for enhancing their performance and competitiveness in both their industry and the larger economy.

Review of Literature

Sarkar & Rakshit (2021) has conducted a study on "Factors influencing the performance of commercial banks: a Dynamic panel study on India". The objective of the study is to identify performance in India from 2000 to 2017, with a particular emphasis on macroeconomic concerns. Based on their performance metrics for Return On Assets (ROA), Return On equity (ROE), and Net Interest Margin (NIM), we selected a panel of public and private sector commercial banks in our country. The effect of macroeconomic conditions on the performance of commercial banks was investigated using the first difference Generalized Method of Moments (GMM) technique. Along with other bank-specific and macroeconomic control factors, the main explanatory variables included GDP, inflation, and lending interest rate. No matter how the control variables are incorporated, external influences have a significant impact on the performance of commercial banks. This study is for bankers, planners, and politicians to create appropriate commercial bank policy decisions.

Khan et al., (2021) have under taken a study on "Systemic Risk Assessment: Aggregated and Disaggregated Analysis on Selected Indian Banks". The objective of the study is to analysis financial system's vulnerability to the Global Financial Crisis which drew attention to the study of risk and spill over. The pattern of systemic risk and its enormous impact on the Indian banking sector is examined in this article. Based on market capitalization, three banks from the public sector and three from the private sector were picked and the dates were analyzed from 2007 through 2020. The study employs the TENET (Tail-Event-Driven Network) and quantile-CoVaR (Conditional Value at Risk) measurements. The profitability

⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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of Indian banks is negatively impacted by national factors including the volatility of the Indian market and worldwide risk management policies. A crucial element in how private banks operate is liquidity risk. Public banks enjoy widespread trust, even in trying times but biggest systemic risk contributors are big banks like HDFC and SBI. Private banks now play a bigger part in spreading systemic risk than they did in 2015. Smaller banks such as PNB and BOB, have developed into substantial risk receivers and transmitters.

Objectives of the Study

1. To understand the financial performance of public sector banks.
2. To discuss the significant difference between the selected public sector banks.
3. To know about the impacts of monetary policies and international events on banking performance.

Research Methodology

The financial ratios and balance sheets of a few public sector banks serve as the source of secondary data for this study and five years' worth of the company's annual reports from 2018 to 2022 was collected. The study used secondary data that was available on the moneycontrol.com website for the public sector banks like State Bank of India (SBI), Punjab National Bank, Union Bank of India, Canara Bank, and Bank of Baroda collected for the financial years 2018 to 2022 in order to analyse the financial performance of the public sector banks.

Analysis and Interpretation of Results

Table 1 Public Sector Banks - Return On Assets (%)

Public Sector Banks	2022	2021	2020	2019	2018	Mean
State Bank of India (SBI)	0.45	0.38	0.02	-0.19	0.41	0.091
Punjab National Bank	0.16	0.04	-1.28	-1.6	0.18	-0.500
Union Bank of India	0.27	-0.52	-0.59	-1.07	0.12	-0.358
Canara Bank	0.22	-0.3	0.04	-0.68	0.19	-0.106
Bank of Baroda	0.07	0.04	0.05	-0.33	0.19	0.004

Source: Compiled from financial ratios available in Reserve bank of India Website.

The ROA of the State Bank of India decreased after it merged with other banks, however it quickly rebounded and surpassed it in 2018. When compared to other public sector banks, Bank of Baroda had the weakest performance, with ROA of 0.07% in 2022 as opposed to 0.19% in 2018. However, when looking at the past five years, SBI leads with a mean ROA of 0.091, while PNB has the worst mean ROA (-0.50). The PNB scam of 2019 is to blame for the PNB's dramatic decline in the 2019 and 2020.

Table 2 Public Sector Banks - Roe / Net Worth (%)

Public Sector Banks	2022	2021	2020	2019	2018	Mean
State Bank of India (SBI)	8.86	6.95	0.39	-3.37	6.69	3.904
Punjab National Bank	2.41	0.58	-24.2	-32.85	3.47	-10.118
Union Bank of India	4.87	-9.46	-12.15	-20.9	2.36	-7.056
Canara Bank	5.05	-6.78	1.16	-14.51	3.96	-2.224
Bank of Baroda	1.07	0.76	0.94	-5.6	3.43	0.12

Source: Compiled from financial ratios available in Reserve bank of India Website.

Similar to Return on Assets, SBI saw a decline in ROI following mergers, but it quickly rebounded to outperform its prior results, with a ROE/Net worth ratio of 8.86 in 2022 as opposed to 6.69 in 2018. With a mean of -10.118 for the five years, PNB once again had the worst performance, followed by Canara Bank (-2.224) and Union Bank of India (-7.056).

Table 3 Public Sector Banks - Earnings Per Share In Rs.

Public Sector Banks	2022	2021	2020	2019	2018	Mean
State Bank of India (SBI)	22.87	16.23	0.97	-7.67	13.43	9.166
Punjab National Bank	2.08	0.62	-30.94	-55.39	6.45	-15.436
Union Bank of India	4.54	-12.49	-25.08	-69.45	8.08	-18.88
Canara Bank	16.91	-26.5	4.71	-70.47	20.63	-10.944
Bank of Baroda	1.78	1.36	1.64	-10.53	6	0.05

Source: Compiled from financial ratios available in Reserve bank of India Website.

The State Bank of India achieved the highest EPS in 2022 at 22.87 INR, followed by Canara Bank at 16.91 INR. SBI recorded the greatest mean value throughout the assessment period of 9.166 INR, and UBI recorded the lowest mean value of -18.88. This is related to UBI non-performing assets and loan fraud. PNB, UBI, and Canara bank all produced negative EPS figures.

Table 4 Public Sector Banks - Operating Expenses (in Rs. Cr.)

Public Sector Banks	2022	2021	2020	2019	2018	Mean
State Bank of India (SBI)	82,652.22	75,173.69	69,687.74	59,943.45	46,472.77	66,785.97
Punjab National Bank	20,308.75	11,973.37	11,538.47	13,509.07	9,379.38	13,341.81
Union Bank of India	16,765.99	7,516.41	7,167.63	6,754.96	6,437.84	8,928.57
Canara Bank	19,338.18	11,577.23	10,462.21	9,557.94	8,512.28	11,889.57
Bank of Baroda	20,543.66	18,077.19	11,287.98	10,173.37	9,296.40	13,875.72

Source: Compiled from financial ratios available in Reserve bank of India Website.

The largest bank in India, State Bank of India, has the highest operational costs, which no other bank can match. Bank of Baroda comes in second with an operating expense of only Rs.13,875.72 crores, well behind SBI's highest mean operating expense of Rs.66,785.97 crores. For banks to operate more effectively, costs must be reduced. This explains why, despite being India's largest banking institution, the State Bank of India has a significantly lower return on assets than banks in the private sector. With an operating expense of only Rs.8,928.57 crores, Union Bank of India has a far smaller managerial structure than SBI.

Finding of the study

- ❖ When compared to other public sector banks, Bank of Baroda had the weakest performance, with ROA of 0.07% in 2022 as opposed to 0.19% in 2018. However, when looking at the past five years, SBI leads with a mean ROA of 0.091, while PNB has the worst mean ROA (-0.50). The PNB scam of 2019 is to blame for the PNB's dramatic decline in the 2019 and 2020.
- ❖ SBI saw a decline in ROI following mergers, but it quickly rebounded to outperform its prior results, with a ROE/Net worth ratio of 8.86 in 2022 as opposed to 6.69 in 2018. With a mean of -10.118 for the five years, PNB once again had the worst performance, followed by Canara Bank (-2.224) and Union Bank of India (-7.056).

- ❖ The State Bank of India achieved the highest EPS in 2022 at 22.87 INR, followed by Canara Bank at 16.91 INR. SBI recorded the greatest mean value throughout the assessment period of 9.166 INR, and UBI recorded the lowest mean value of -18.88. This is related to UBI non-performing assets and loan fraud. PNB, UBI, and Canara bank all produced negative EPS figures.
- ❖ The largest bank in India, State Bank of India, has the highest operational costs, which no other bank can match. Bank of Baroda comes in second with an operating expense of only Rs.13,875.72 crores, well behind SBI's highest mean operating expense of Rs.66,785.97 crores. For banks to operate more effectively, costs must be reduced. This explains why, despite being India's largest banking institution, the State Bank of India has a significantly lower return on assets than banks in the private sector.

Conclusion

Banking systems is essential for mobilizing investments and economic development. The implementation of modern technology and computerization of public sector banks in India has been increasing after the post financial reform period. At present, the public sector banks provide various facilities and services to their customers. The profitability is an important aspect of performance appraisal, which indicates the ability to perform different undertakings in the most effective way. Public sector banks have already contributed great deal of their profits for achievement of social benefits, because of recent challenges and technology, the improvement in productivity and profitability a basic need in a globalised economy.

Reserve Bank of India has been taking many measures to improve the facilities for the benefit of the customers. Almost all banking transactions have been computerized. E-transaction helps all segments of the people to grow their business or occupation further. The Union Government has decided to introduce digital currency from this year to aid this development. On the whole during the pre reform period, the customers, entrepreneurs, Business people and common man have been highly benefited but new almost all transactions are being done online. Therefore, it can be concluded that the future India is definitely a Digital India especially with the growth and development and improvisation of the Public Sector Banks.

References

1. Sarkar, S., & Rakshit, D. (2021). Factors Influencing the Performance of Commercial Banks: A Dynamic Panel Study on India. FIIB Business Review, 231971452110215. <https://doi.org/10.1177/23197145211021564>
2. Khan, M. A., Roy, P., Siddiqui, S., & Alakkas, A. A. (2021). Systemic Risk Assessment: Aggregated and Disaggregated Analysis on Selected Indian Banks. Complexity, 2021, 1–14. <https://doi.org/10.1155/2021/8360778>
3. Tamilarasu S, and Srinivasan, "A Study on Financial Performance Analysis of Selected Public and Private Sector Banks", IJCRT2204543 International Journal of Creative Research Thoughts (IJCRT) 2022 IJCRT, Volume 10, Issue 4 April 2022, ISSN: 2320-2882, pp-720-727. www.ijcrt.org.

LIQUIDITY IN DEBT MARKET AND INTEREST RATE DERIVATIVES IN INDIA: ISSUES AND CHALLENGES⁶

Dr. R. RAJESH KANNA⁷ & A. SIVAPRAKASAM⁸

Introduction

Financial Markets are undoubtedly the engines of development and economic growth. In a fast growing economy like ours, it is imperative to have healthy and robust financial markets to cater to our capital requirements. India has been successful in developing a vibrant capital market. However, development in capital market has been growing in the equity segment only. The debt market in India is less than 30% of the capital market; whereas a good capital market requires that the ratio be reverse i.e. 70%. Further, the government securities market has made some inroads, but the corporate debt market and bond market are still in their infant stage. The corporate bond market is only around 3-5% of the market for government securities in India. In developed countries the average size of bond market size is around 20%.

Debt Markets in India were earlier characterized by controls on pricing of assets, segmentation of markets and barriers to entry, low levels of liquidity, limited number of players, near lack of transparency, and high transactions cost. Financial reforms have significantly changed the Indian Debt markets for the better. Most debt instruments are now priced freely on the markets; trading mechanisms have been altered to provide for higher levels of transparency, higher liquidity, and lower transactions costs; new participants have entered the markets, broad basing the types of players in the markets; methods of security issuance, and innovation in the structure of instruments have taken place; and there has been a significant improvement in the dissemination of market information.

Indian debt market

Indian Debt market now offers the comfort to the investors in terms of ease of transaction making financial instruments attractive investments. Further, a Debt financial market facilitates the use of indirect monetary instruments by the Central Bank and is also critical for the effectiveness of the monetary transmission mechanism. Debt markets generally have low transaction costs (bid-ask spread), have efficient trading, clearing and settlement systems, are broad (abundant orders for buy/sell above and below the traded price), deep (minimal impact cost for executing large orders) and resilient (ability of the market itself to quickly correct any deviation of prices from their fundamental value).

⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Table 1 Debt Markets - Products

Issuer	Instrument	Maturity	Investors
Central Government	Dated Securities	2-30years	RBI, Banks, Insurance Companies, Provident Funds, Mutual Funds, PDs, Individuals
Central Government	T-Bills	91/182/364 Days	RBI, Banks, Insurance Companies, Provident Funds, PDs, Mutual Funds, Individuals
State Government	Dated Securities	5-13 years	Banks, Insurance Companies, Provident Funds, RBI, Mutual Funds, Individuals, PDs.
PSUs	Bonds, Structured Obligations	5-10 years	Banks, Insurance Companies, Corporate, Provident Funds, Mutual Funds, Individuals
Corporates	Debentures	1-12 years	Banks, Mutual Funds, Corporates, Individuals
Corporates, PDs	Commercial Paper	7 days to 1 Year	Banks, Corporate, Financial institutions, Mutual Funds, Individuals, FIIs
Scheduled Commercial Banks	Certificates of Deposit (CDs)	7 days to 1 Year	Banks, Corporations, Individuals, Companies, Trusts, Funds, Associations, FIs, NRIs
Financial Institutions		1 year to 3 Years	
Scheduled Commercial Banks	Bank Bonds	1-10 years	Corporations, Individual Companies, Trusts, Funds, Associations, FIs, NRIs
Municipal Corporation	Municipal Bonds	0-7 years	Banks, Corporations, Individuals, Companies, Trusts, Funds, Associations, FIs, NRIs

Table 2 A Snapshot

Description	2005	2012
Outstanding stock (crore)	7,58,995	25,93,328
Outstanding stock as ratio of GDP (per cent)	23.41	28.88
Weighted average cost of the securities issued during the year (Per cent)	6.11	8.52
Min. and max. maturities of stock issued during the year (Years)	5-30	5-30
Average maturity of the securities issued during the year (Years)	14.13	12.66
Secondary market volume (crore)	8,62,820	30,99,107
Volume / GDP (per cent)	26.61	34.51
Volume / Outstanding Stock (per cent)	113	120

Source: RBI Working Group Committee report May 2012.

Debt Market – challenges

The major problems with the debt market is its inability to tap the corporate bond market, Private Placements is seen as the preferred route for raising debt, small size of issue, low demand for corporate debt, wholesale trade market being fully over-the-counter, lack of lending and borrowing mechanism in the bond market, etc are the main challenges.

Infusing liquidity by relaxing exchange controls on bonds investment by FIIs and broadening domestic investor base would go a long way in developing the bond market. The significant high stamp duty and no volume discount is also a significant barrier to the development of both the corporate bond and securitization markets.

Liquidity Measures: Suggested to the Debt Market

- Utilize the services and resources of the large Post Offices Network in the country as a distribution channel to tap the G-Sec market.
- Create Online Electronic Distribution channels for Retail / Individual /Corporate clients.
- Design User friendly, Simplify access for HNI, Investors like Trusts, Corporate to the G-Sec market.
- GOI can consider issuing inflation-indexed bonds for Retail, Individual investor's .Post Offices, Electronic distribution channels can be utilized to reach retail clients effectively.
- Encourage long-term gilt funds with Tax-breaks.
- Banks should review their portfolio (Held till maturity) at quarterly intervals to assess the need, rationale and cost-benefit in maintaining G-Sec maturity portfolio
- Investment limit for FIIs in G-Sec may be increased in gradual steps. The increase in the investment limit can be reviewed on a regular basis keeping in view the country's overall external debt position, Size of GOI borrowing, Current account deficit, etc.
- The issue of withholding tax for FIIs can be reviewed by the GOI.
- RBI, in consultation with SEBI can consider amending the related guidelines/notification prescribing transactions of FIIs in G-Sec only through exchange brokers.
- Suitable IT-based solution can be designed to overcome the operational problem of continuing with the current 'Interim Subsidiary General Ledger account' structure such that securities and funds follow the Delivery versus Payment (DVP) principle.
- Consider an appropriate technological solution, such that short sale transactions could be undertaken in the OTC market.
- Consider reissuance of T-Bills/Cash Management Bills having identical maturity dates in the trading and settlement systems. Consider changing the settlement cycle of the primary auction in T-Bills to T+1. State Governments may consider reissuance of existing securities to increase the outstanding stock of these securities, subject to acceptable rollover risk and redemption pressure.
- STRIPS (Separate Trading of Registered Interest and Principal of Securities) may be made tradable on the Negotiated Dealer system (Order matching).
- Simplify operational procedures for seamless movement of securities from SGL form to Demat form and vice versa.
- Examine the possibility of having a centralized market maker for retail participants in G-Sec in the long-term who would quote two-way prices of G-Sec for retail investors.

CONCLUSION

Despite the fact that the Indian debt market is faced with complexities and inherent challenges, the market offers enormous opportunities for the market participants in general and Individual / Retail clients in particular. There is a definite need to do away with the practices that are not Market, Participant friendly. In order to develop a deep and liquid G-Sec market, there has to be continuous coordination, cooperation between Regulators and market participants.

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AN ECONOMICS STUDY ON JASMINE CULTIVATION IN CHECKANURANI VILLAGE IN MADURAI DISTRICT¹

Dr. S. KARTHIKEYAN² & Dr. S. SENTHILKUMAR³

Introduction

The term “Floriculture” is very popular in the discipline of horticulture. It is the art and knowledge of growing flowers to excellence, Floriculture includes the cultivation of flowering and ornamental plants for sales or use as raw material in cosmetic, perfume industry and pharmaceutical sector, the flower cultivation today has grown too much large proportions and offers a wide scope of growth with profits. The person associates with this field is called floriculturist. It also includes production of planting materials through seeds, cuttings, budding, grafting and marketing of flowers for flower produce.

The flower cultivation in India has huge, potential for generating income, employment and enhancing export earnings. Flowers occupy a significant place on the social culture of our country. Jasmine cultivation is increasingly regarded as viable diversification from the traditional field crops due to higher returns per unit and the increasing of ‘saying it with flowers’ during all the occasions. The flower is used for various purposes like making garlands, decorating hair of women, religious offering and so on. It is also used for production of jasmine concrete which is used in cosmetic and perfumery industries. More than 80 species are found in India, of which only three species are used for commercial cultivation.

Jasmine is known in India as the “Queen of the Night” because of its intoxicating perfume that is released at night. Jasmine symbolizes purity, beauty, love, passion and tranquillity. Although flowers are mute beauties, they convey best message love, joy and affection conveys purity, fancy thoughts and narcissus egoism. They are highly esteemed for the holiness. Even the birth and death of a human being is associated with flowers. The steam of jasmine is the reproduced parts of jasmine plants.

The jasmines are highly prized for their fragrant flowers which are used for the preparation of perfume. They are grown commercially in our country for the extraction of the essential oil for perfume and cut flowers which are commonly used to make garlands and veni, the latter being used for adornment of hair by women, particularly in the southern parts of the country. In the states of Tamil Nadu, Karnataka, Maharashtra and Andhra Pradesh, jasmine is cultivated as an economic crop for cut flowers. In the garden the jasmine is raised as a dwarf- growing shrub and a few species are grown as climbers. In the home garden, they are generally planted near the house, particularly adjoining the bedroom and along paths. So that the fragrance of their flowers may be best enjoyed from close quarters.

Jasmine cultivation in Tamil Nadu

Jasmine cultivation, Tamilnadu ranks first in India .jasmine flower cultivation is very popular in Tamil Nadu. Majority of small and medium farmers dependent on the jasmine

¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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cultivation. In Tamil Nadu, jasmine is produced mainly in Madurai District and is transported to Mumbai for export to other countries. The Madurai is called “Malligai Managar” that is city of jasmine. Jasmine cultivation has provided good employment opportunity throughout year. Madurai is the second largest city in Tamil Nadu is mainly famous for Temples and Madurai Malli. The price of Madurai Malligai will be higher between the Tamil Months of Chithirai and Aadi.

The harvesting of the flower has required labour for everyday and required labour services only to 2-3 hours per day in the early morning. Mostly women were required for harvesting. The marketing of jasmine flower has the special type and have the highly perishable in nature, so it needs the quick marketing. The price of jasmine was fluctuating day by day and even hour to hour. The farmers were not directly sold to consumer and they highly depend on the commission agents cum wholesaler. Even some farmers get advance money from the commission agents. Tamil Nadu is the leading producer for jasmine in the country with an annual production of 77247 ton from the cultivated area HA.

Objective

1. To analyse the cost of cultivation and net income from jasmine cultivations in Checkanurani village in Madurai district.

Methodology

Checkanurani village is selected at random and 40 farmers selected by adopting sample random sampling method. The necessary data were collected through interview schedule.

Results and discussion

Table 1 Types of flower cultivation in Checkanurani village

S. No.	Flower	Number of Respondents	Percentage
1	Jasmine	29	72.50
2	Ixora	4	10.00
3	Rose	5	12.50
4	Chrysanthemum	2	5.00
	Total	40	100.00

Sources: Primary data

The above table reveals that 72.50 per cent of the sample respondents are cultivating jasmine flower. It is identified that 10 per cent of the sample respondents are chosen Ixora flower; rose flower 12.50 per cent and 5.00 per cent Chrysanthemum flower.

Table 2 Net income from jasmine cultivation in Checkanurani village

S. No.	Types of Flower	Total revenue	Total cost	Net income
1	Jasmine	19,884,800	3,076,880	16,807,920
2	Ixora	1,232,800	348,240	8,84,560
3	Rose	2,052,000	541,440	1,510,560
4	Chrysanthemum	766,000	371,680	3,94,320

Sources: Primary data

The given the table the net income from jasmine cultivation was Rs.16,807,920 – in Checkanurani village and the net income from Ixora, Rose and Chrysanthemum was

Rs.884,560/- Rs.1,510,560 and 394,320/- respectively. So in the study are net income from jasmine cultivators was very high when compared with other flowers.

Table 3 Production of Jasmine in Checkanurani village

S. No.	Land (in acre)	Total production in tonnes	Percentage
1	0.25	13360	6
2	0.50	86240	38
3	0.75	30080	13
4	1.00	82720	36
5	1.50	16000	7

Sources: Primary data

Conclusion

Jasmine cultivation has given profitable income to the flower cultivators. The cultivators spend less cost for production and earn more income in jasmine cultivation. They are producing more production also. Most of the cultivators are cultivate high level of jasmine cultivation than compare to other flowers, because people need jasmine for many purposes by using jasmine flower like adornment of hair for women, various occasions, and festivals and so on. Finally the cultivators are selected the jasmine for cultivation in the study area.

SUBSCRIBERS OPINION ON CASHLESS TRANSACTIONS IN TAMIL NADU⁴

Dr. K. RAJA⁵ & P. MAGESH⁶

Introduction

After demonetization initiatives, most of the people in India started electronic payments for their transactions. Everyone from the small merchant to neighboring vegetable vendor is embracing digital payment solutions. Slowly India is moving from cash to cashless economy. A cashless economy is one in which all the transactions are done using cards or digital means. The circulation of physical currency is minimal in cashless economy. The benefits of Cashless economy are many. An increased use of credit and debit cards instead of cash enable a more detailed record of all the transactions which take place in the society, allowing more transparency in business operations and money transfers. The increased use of credit cards will definitely reduce the amount of cash that people have to carry which reduces the risk and the cost associated with that. In this paper an attempt is made to examine the Public perception in India towards cashless transactions and the attempt is also made to identify the challenges faced by them during their transactions. The general objective of the study is to study Public Perception on Cashless Transactions in India. The specific objectives are the following: transaction related factors including convenience, security, costs, incentives, technical and procedures on factors, impact merchant and customer and impact of bank related factors including financial limits and delayed reimbursements on cashless transactions in India.

Methodology

The study is mainly based upon primary data. Primary data was collected through survey method. Questionnaire was used for collecting data. Questionnaire was developed based on past experience of the researchers and review of literature on the topic done by the researchers. Questionnaire consists of total sixteen questions out of which four questions related to profile of respondents. Five level Likert scale was used in questionnaire. Population of the study consists of savings account holders of various banks in India. Stratified random sampling technique is used for selecting respondents for the sample. Sample size is 195. Total population was divided into 36 strata depending upon the total number of states and union territories in India. Out of 195 respondents, 174 are from 29 states in India selected at the rate of six each, and 21 are from 7 union territories of India taken at the rate of 3 each. For selecting respondents from strata simple random sampling technique is used using random number tables. Collected data is analyzed by calculating percentages. Chi-square test is used for testing the hypotheses.

Analysis and Discussion of Results

Out of 195 respondents surveyed, 58.98 percent are male and 41.02 percent respondents are female.

⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Out of 195 respondents surveyed, 17.94 percent respondents' age is below 30 years, 42.57 percent respondents' age is in between 31-40 years, 33.33 percent respondents' age group is in between 41-50 years and remaining 6.16 percent respondents' age is above 50 years.

Out of 195 respondents surveyed, 5.13 percent respondents are farmers, 59.49 percent are employees, 14.36 percent are self employed/business holders and remaining 21.02 percent are others.

From the data, it is clear that 12.82 percent of respondents' salary is less than Rs.20, 000, 26.67 percent of respondents' salary range between Rs.20, 000 and Rs.40, 000, 32.31 percent of respondents' salary range between 40,000 and 60,000 and remaining 27.56 percent respondents' salary is above 60,000.

Around 23 percent of respondents strongly agree, 49.74 percent of respondents agree, 6.15 percent of respondents are neutral, 15.9 percent of respondents disagree and remaining 5.13 percent of respondents strongly disagree about convenience in transaction is the reason for cashless payments in India. It is concluded that Majority of the public (72.82%) felt that transaction convenience is there as on for cashless payments in India.

χ^2 -test

H_0 : Convenience in transaction has no influence on cashless payments in India

H_1 : Convenience in transaction has an influence on cashless payments in India

Calculated value of $\chi^2 = 129.08$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $129.08 > 9.488$, Hence, H_0 is rejected.

Table 1 Responses on Security in Transaction is the Main Concern in Cashless Payments

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	51	26.15
2	Agree	87	44.62
3	Neutral	13	6.67
4	Disagree	32	16.41
5	Strongly Disagree	12	6.15
Total		195	100

Source: Primary Data

The data in the above table indicates that, 26.15 percent of respondents strongly agree, 44.62 percent of respondents agree, 6.67 percent of respondents are neutral, 16.41 percent of respondents disagree and remaining 6.15 percent of respondents strongly disagree about security in transaction is the main concern in cashless payments. It is concluded that Majority of the public (70.77%) felt that security in transaction is the main concern in cashless payments

χ^2 -test

H_0 : Security in transaction has no influence on cashless payments in India.

H_1 : Security in transaction has an influence on cashless payments in India.

Calculated value of $\chi^2 = 100.05$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $100.05 > 9.488$. Hence, H_0 is rejected.

Table 2 Responses on Transaction Costs Discourage Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	35	17.95
2	Agree	68	34.87
3	Neutral	22	11.28
4	Disagree	55	28.21
5	Strongly Disagree	15	7.69
Total		195	100

Source: Primary Data

The data in the above table indicates that, 17.95 percent of respondents strongly agree, 34.87 percent of respondents agree, 11.28 percent of respondents are neutral, 28.21 percent of respondents disagree and remaining 7.69 percent of respondents strongly disagree about transaction costs discourage cashless transactions. It is concluded that Majority of the public (52.82%) transaction costs discourage cashless payments.

χ^2 -test

H_0 : Transaction procedures have no influence on cashless payments in India.

H_1 : Transaction procedures have an influence on cashless payments in India.

Calculated value of $\chi^2 = 50.71$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $50.71.05 > 9.488$. Hence, H_0 is rejected.

Table 3 Responses on Incentives Encourage People to Avail Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	43	22.05
2	Agree	83	42.56
3	Neutral	11	5.64
4	Disagree	41	21.03
5	Strongly Disagree	17	8.72
Total		195	100

Source: Primary Data

The data in the above table indicates that, 22.05 percent of respondents strongly agree, 42.56 percent of respondents agree, 5.64 percent of respondents are neutral, 21.03 percent of respondents disagree and remaining 8.72 percent of respondents strongly disagree about incentives encourage people to avail cashless transactions. It is concluded that Majority of the public (64.61%) felt that incentives encourage people to avail cashless transactions.

χ^2 -test

H_0 : Incentives have no influence on cashless payments in India.

H_1 : Incentives have an influence on cashless payments in India.

Calculated value of $\chi^2 = 82.63$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $82.63 > 9.488$. Hence, H_0 is rejected.

Table 4 Responses on Transaction Procedures Complicate Cashless Payments

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	64	32.82
2	Agree	52	26.67
3	Neutral	26	13.33
4	Disagree	35	17.95
5	Strongly Disagree	18	9.23
Total		195	100

Source: Primary Data

The data in the above table indicates that, 32.82 percent of respondents strongly agree, 26.67 percent of respondents agree, 13.33 percent of respondents are neutral, 17.95 percent of respondents disagree and remaining 9.23 percent of respondents strongly disagree about transaction procedures complicate cashless payments. It is concluded that Majority of the public (59.49%) felt that transaction procedures complicate cashless payments.

χ^2 -test

H_0 : Transaction procedures have no influence on cashless payments in India

H_1 : Transaction procedures have an influence on cashless payments in India

Calculated value of $\chi^2 = 36.39$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $36.39 > 9.488$. Hence, H_0 is rejected.

Table 5 Responses on Poor Internet Connectivity is the Obstacle for Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	43	22.05
2	Agree	92	47.18
3	Neutral	22	11.28
4	Disagree	28	14.36
5	Strongly Disagree	10	5.13
Total		195	100

Source: Primary Data

The data in the above table indicates that, 22.05 percent of respondents strongly agree, 47.18 percent of respondents agree, 11.28 percent of respondents are neutral, 14.36 percent of respondents disagree and remaining 5.13 percent of respondents strongly disagree about poor internet connectivity is the obstacle for cashless transactions. It is concluded that Majority of the public (69.23%) felt that poor internet connectivity is the obstacle for cashless transactions.

χ^2 -test

H_0 : Poor internet connectivity has no influence on cashless payments in India.

H_1 : Poor internet connectivity has an influence on cashless payments in India.

Calculated value of $\chi^2 = 104.5$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $104.5 > 9.488$. Hence, H_0 is rejected.

Table 6 Responses on Defunct POS Machines Complicate Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	33	16.92
2	Agree	67	34.36
3	Neutral	23	11.79
4	Disagree	48	24.62
5	Strongly Disagree	24	12.31
Total		195	100

Source: Primary Data

The data in the above table indicates that, 16.92 percent of respondents strongly agree, 34.36 percent of respondents agree, 11.79 percent of respondents are neutral, 24.62 percent of respondents disagree and remaining 12.31 percent of respondents strongly disagree about defunct Pos machines complicate cashless transactions. It is concluded that Majority of the public (51.28%) felt that defunct Pos machines complicate cashless transaction.

χ^2 -test

H_0 : Defunct POS machines have no influence on cashless payments in India

H_1 : Defunct POS machines have an influence on cashless payments in India

Calculated value of $\chi^2 = 35.42$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $35.42 > 9.488$. Hence, H_0 is rejected.

Table 7 Responses on Lack of Enthusiasm on Merchant is the Barrier for Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	35	17.95
2	Agree	71	36.41
3	Neutral	26	13.33
4	Disagree	43	22.05
5	Strongly Disagree	20	10.26
Total		195	100

Source: Primary Data

The data in the above table indicates that, 17.95 percent of respondents strongly agree, 36.41 percent of respondents agree, 13.33 percent of respondents are neutral, 22.05 percent of respondents disagree and remaining 10.26 percent of respondents strongly disagree about lack of enthusiasm on merchant is the barrier for cashless transactions. It is concluded that Majority of the public (54.36%) felt that lack of enthusiasm on merchant is the barrier for cashless transactions.

χ^2 -test

H_0 : Lack of enthusiasm on merchant has no influence on cashless payments in India

H_1 : Lack of enthusiasm on merchant has an influence on cashless payments in India

Calculated value of $\chi^2 = 40.67$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $40.67 > 9.488$. Hence, H_0 is rejected.

Table 8 Responses on Lack of Technical Knowledge is the Obstruction for Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	39	20
2	Agree	65	33.33
3	Neutral	15	7.69
4	Disagree	44	22.57
5	Strongly Disagree	32	16.41
	Total	195	100

Source: Primary Data

The data in the above table indicates that, 20 percent of respondents strongly agree, 33.33 percent of respondents agree, 7.69 percent of respondents are neutral, 22.57 percent of respondents disagree and remaining 16.41 percent of respondents strongly disagree about lack of technical knowledge is the obstruction for cashless transactions. It is concluded that Majority of the public (53.33%) felt that lack of technical knowledge is the obstruction for cashless transactions.

χ^2 -test

H_0 : Technical Knowledge has no influence on cashless payments in India

H_1 : Technical Knowledge has an influence on cashless payments in India

Calculated value of $\chi^2 = 34$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $34 > 9.488$. Hence, H_0 is rejected.

Table 9 Responses on Reluctance to Disclose Financial Information Hinders Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	38	19.49
2	Agree	58	29.74
3	Neutral	25	12.82
4	Disagree	52	26.67
5	Strongly Disagree	22	11.28
	Total	195	100

Source: Primary Data

The data in the above table indicates that, 19.49 percent of respondents strongly agree, 29.74 percent of respondents agree, 12.82 percent of respondents are neutral, 26.67 percent of respondents disagree and remaining 11.28 percent of respondents strongly disagree about people reluctance to disclose financial information hinders cashless transactions. It is concluded that Majority of the public (49.23%) felt that people reluctance to disclose financial information hinders cashless transactions.

χ^2 -test

H₀: Reluctance to disclose financial information has no influence on cashless payments in India

H₁: Reluctance to disclose financial information has an influence on cashless payments in India

Calculated value of $\chi^2 = 26.04$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $26.04 > 9.488$. Hence, H₀ is rejected.

Table 10 Responses on Financial Limits Impediment Cashless Transactions

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	35	17.95
2	Agree	67	34.36
3	Neutral	28	14.36
4	Disagree	35	17.95
5	Strongly Disagree	30	15.38
Total		195	100

Source: Primary Data

The data in the above table indicates that, 17.95 percent of respondents strongly agree, 34.36 percent of respondents agree, 14.36 percent of respondents are neutral, 17.95 percent of respondents disagree and remaining 15.38 percent of respondents strongly disagree about financial limits impediment cashless transactions. It is concluded that Majority of the public (52.31%) felt that financial limits impediment cashless transactions.

 χ^2 -test

H₀: Financial limits have no influence on cashless payments in India

H₁: Financial limits have an influence on cashless payments in India

Calculated value of $\chi^2 = 26.09$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $26.09 > 9.488$. Hence, H₀ is rejected.

Table 11 Responses on Delayed Reimbursement in Case of Failed Transaction Obstructs Cashless Payments

Sl. No.	Opinion	Number of Respondents	Percentage
1	Strongly Agree	37	18.97
2	Agree	62	31.80
3	Neutral	16	8.21
4	Disagree	58	29.74
5	Strongly Disagree	22	11.28
Total		195	100

Source: Primary Data

The data in the above table indicates that, 18.97 percent of respondents strongly agree, 31.80 percent of respondents agree, 8.21 percent of respondents are neutral, 29.74 percent of respondents disagree and remaining 11.28 percent of respondents strongly disagree about delayed reimbursement in case of failed transactions obstructs cashless payments. It is concluded that Majority of the public (50.77%) felt that delayed reimbursement in case of failed transaction obstructs cashless payments.

χ^2 -test

H₀: Delayed reimbursement in case of failed transaction has no influence on cashless payments in India

H₁: Delayed reimbursement in case of failed transaction has an influence on cashless payments in India

Calculated value of $\chi^2 = 54.4$. The Critical value of χ^2 at 4 degrees of freedom at 5% level of Significance is 9.488. Calculated value is greater than Critical Value i.e., $54.4 > 9.488$. Hence, H₀ is rejected.

Conclusion

The findings reveal that while people are getting comfortable with cashless payments, some kind of negative perceptions are holding back many from adopting the new system. The negative perceptions are like security problems, poor network coverage, and lack of merchant willingness, high transactional costs, lack of users' knowledge on technology, defunct POS machines, delayed reimbursement in case of failed transactions, procedures and financial limits. Convenience in use of cashless transactions and incentive system are the positive signs for the progress of cashless payments in India. Finally the study concludes that India may not become a cashless economy unless the perception of the people will be rightly addressed by the government and the banking institutions. They should pave the way for the safe and secure mean to cashless transactions.

References

1. Hirschman, E.C. (1979). Differences in Consumer Purchase Behaviour by Credit Card Payment System. *Journal of Consumer Research*, 6(55): 58-66.
2. Avery, R.B., et al. (1986). The Use of Cash and Transaction Accounts by American Families. *Federal Reserve Bulletin*, 72(2): 87-108.
3. Natarajan and Manohar (1993). Credit Cards – An Analysis, *Financial Express*, 14 April.
4. George, P. (1995). The Card Major Lead the Way, *Business World*, pp.116.
5. Worthington S. (1995). The Cashless Society, *Internal Journal of Retail and Distribution Management*, 23(7): 31-40.
6. Radhakrishnan, R. (1996). Debit Cards. *PNB Monthly Review*. June: 309-317.
7. Klee, Elizabeth, (2005), Paper or plastic? The Effect of Time on Check and Debit Card Use at Grocery Stores, *Federal Reserve System*, January.
8. Jain, P.M. (2006). E-payments and E-Banking. *Indian Banker*, March: 108-113.
9. Mandeep Kaur (2011). Perception of card users and member establishments towards plastic money in India, *Doctoral Thesis*, Guru Nanak Dev University, Department of Commerce and Business Management.

URBAN INFORMAL WOMEN ENTREPRENEURIAL PERFORMANCE AND PROFIT ANALYSIS OF AVADI CITY IN TAMIL NADU⁷

R. DEEPA⁸ & Dr. K. RAJA⁹

Introduction

Women entrepreneurs are increasingly being considered to be an important catalyst for economic development. Not only do they contribute to employment creation and economic growth through their increasing numbers, but they also make a contribution to the diversity of entrepreneurship in the economic process (Verheul and Thurik, 2001). For women, entrepreneurship is essentially a journey out of poverty and towards equality and equity. Most importantly, their journey mirrors the transformation of nations from being under-developed or developing to developed ones. India's first Prime Minister, Pandit Jawahar Lal Nehru, realizing the situation of women, stated, "In order to awaken the people, it is the woman who has to be awakened. Once she is on the move, the household moves, the village moves, the country moves and thus, we build the India of tomorrow".

Women and informal sector

Although women are under enumerated in the official statistical system because of their casual nature of job, they play a crucial role. Thus, the actual economic participation of women in developing countries is much higher than reported through the official statistical system. While the macro-level secondary data reveal low female participation rates, micro-level studies exhibited that women, particularly in low income households participate in the workforce to a greater extent.

Moreover, in these countries a higher percentage of Urban women labourers are employed in the informal sector who are invisible, scattered, and under-enumerated. Informal sector consists of unregistered economic activities in both urban and rural areas. These economic activities vary from household manufacturing to agricultural processing to confectionery, transport, trade and other kinds of services in urban areas. The majority of women are engaged or employed in various categories of work in informal sector. It is more so in the petty trade in the urban areas.

Research issue

Petty trading has been one of the most rapidly growing economic activities in India urban economy during the last two decades. This is neither unexpected nor surprising for it is a trend observed in nearly all major third world cities in the post independence period. The growth of such small scale activities in these cities is generally attributed to the dynamism of the urban centres and its ability to attract capital and labour. While the capital funds lucrative working capital in capital intensive activities the excess labour moves to labour intensive low productivity and low income activities like petty trade or business.

⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Petty trade consists of many activities like vegetable vending, fruit vending, fish vending, sweets shops, pan shops, laundries, flower vending, food vending and plastic wear shops etc. this petty trade includes pavement vendors. Until very recent times, there was no information about the women petty trade with respect to its origin. Generally the studies on petty trade are very few and especially studies relating to the economic aspects of these petty entrepreneurs, particularly with respect to their socio-economic conditions and performance are very scanty. Therefore, there is a need to conduct the research into the socio-economic conditions problems and performance of petty women entrepreneurs.

A study with primary level field survey will be better suited in order to assess conditions of them. Hence the present study aims at analyzing petty women entrepreneurs belonging to five different types of vendors such as vegetables, flower, fish, fruits and food. The present paper is to study the level and determinants of profits for women petty entrepreneurs in the urban informal sector in Avadi City of Tamil Nadu.

Objective

1. To study the level and determinants of profit of selected women entrepreneurs of urban informal sector.

Methodology

The study area is Avadi city, near Chennai in Tamil Nadu. In Avadi urban informal sector, five different types of vending namely, vegetable, flower, fish, fruits and food are taken into account. From each group 25 women vendors are taken as sample and accordingly the total sample came to 125. By conducting personal interviews, the required data and information are collected. Mean, percentage and regression are used to analyses the data.

Results and discussion

Profit of Women Vendors

In general, profit from any trade is the difference between the revenue and cost. In case of vending activity, it is the difference between the total expenses incurred by the vendors for purchasing the goods as well as bringing them to the market and the total amount they earned by selling the goods. Therefore, the purchasing expenses depends on the quantity they purchase, it influence the margin of profits. The per day profit was calculated, season wise. On an average, the per day profit varied from Rs.81 (food items) to Rs. 161 (fruits).

Table 1 Average Profit per Day of the Petty Women Entrepreneurs

S. No.	Name of the product	Season (Value in Rs.)			
		April-July	Aug-Nov	Dec-March	Annual average
1.	Vegetable	200.23	150.12	141.65	164
2.	Flower	72.35	55.23	50.15	59.24
3.	Fish	172.41	120.12	140.16	144.23
4.	Food	76.16	65.25	100.65	80.69
5.	Fruit	142.52	180.16	160.75	161.14

Working capital

But the working capital requirement of these vendors is limited by the storage capability and the mode of operation of vending venture.

The present study analysed the average working capital of the selected women petty entrepreneurs during the three seasons as well as for the financial year. The influence of working capital on profits across various seasons is also analysed with the help of simple regression model.

Table 2 Average Working Capital of Petty Women Entrepreneurs

S. No.	Name of the product	Seasons (Value in Rs. per day)			
		April - July	Aug-Nov	Dec-March	Annual average
1.	Vegetable	350.45	230.48	225.45	284.64
2.	Flower	260.75	160.17	135.46	185.46
3.	Fish	420.15	310.65	315.61	348.80
4.	Food	220.45	160.20	120.36	167.08
5.	Fruit	175.35	206.95	220.15	200.82

It could be observed from the table that the average working capital ranges from a maximum of Rs.285.43 to Rs.120.36.

The influence of working capital is assessed with help of simple regression technique and the results showed that increase in the working capital by one rupee per day will yield a profit of 35 paise per day during 1st season 43 paise per day during 2nd season, 39 paise per day during 3rd season, and 39 paise, an average during the year. The 't' test reveals that all these estimated values are significant at 1% level.

It could be inferred that an increase in the working capital by one rupee per day will yield a profit of 44 paise by vegetable vendors, 18 paise by flower vendors, 40 paise by Fish vendors, 21 paise by food vendors and 38 paise by fruits vendors.

Results of Multiple Regression

Multiple regression is used to estimate the profits earned by selected women entrepreneurs by taking the age, education, marital status, experience and working capital as independent variables.

In the case of women who sell vegetables, the working capital influenced significantly the profit. In the case of fish vendors except marital status, all other five variables found as significant. Results of the estimated regression equation of the petty women fruit vendors showed that only working capital significantly influenced their profit. The profit of those women selling food items was found influenced by working capital and marital status.

Conclusion

The emergence of women on the economical scene as entrepreneur is a significant development in the emancipation of women and securing them a place in the society, which they have all along deserved. The hidden entrepreneurial potentials of women have gradually been changing with the growing sensitivity to the role and economic status in the society. Women are increasingly becoming conscious of their existence, their rights and their work situations. Today women entrepreneurs represent a group of exploring new avenue of economic participation. Among the reasons for women to run organized enterprises are their skill and knowledge, their talents and abilities in business and a completing desire of wanting to do something positive. What makes their arrival as well as achievement even more significant and commendable are the struggles they have to put up, frustrations they have to

emerge as entrepreneurs at the early stage and subsequently achieving. Success in business at the stage of managing their enterprises, it is hoped that the participation of women in economic activities would usher in an era of clean business ethics.

References

1. Arnachalam, J. and Azad, N. (1985), "Role of Women and Children in the Informal Sector", *Productivity*, Vol. 26, No.3.
2. Aychat, A. (1978), "Bidi Workers of Nipani", *Economic and Political Weekly*, Vol. 13, No. 30.
3. Banerjee, N. (ed.) (1991), *Indian Women in a Changing Scenario*, Sage Publications, New Delhi.
4. Banerjee, N. (1985), *Women Workers in the Unorganised Sector*, Sangam Books, Hyderabad.
5. Been, C. and B. Sushma (2003): 'Women Entrepreneurs Managing a Petty Business: A study from Motivational Perspective', *Southern Economist*, May 15, pp.5-8.
6. Rustogi, P. (1997), "Women Employment in the Unorganised Sector-Some Issues", *Social Action*, Vol. 47.
7. Saberwal, Satish (1976), *Mobile Men; Limits to Social Change in Urban Punjab*, Delhi, Vikas.
8. Samantray, K. and Pathak, S.c. (2001), "An Overview of Women in the Indian Fisheries Sector and Suggestions for Improvement of their Socio-economic Status", [www.worldfishcenter.org/Pubs/Wif/wifasia/N4-1 O-Samantray.pdf](http://www.worldfishcenter.org/Pubs/Wif/wifasia/N4-1/O-Samantray.pdf)

URBAN INFORMAL WOMEN ENTREPRENEURIAL PERFORMANCE AND PROFIT ANALYSIS IN TAMIL NADU¹⁰

R. DEEPA¹¹ & Dr. K. RAJA¹²

Women entrepreneurs are increasingly being considered to be an important catalyst for economic development. Not only do they contribute to employment creation and economic growth through their increasing numbers, but they also make a contribution to the diversity of entrepreneurship in the economic process (Verheul and Thurik, 2001). For women, entrepreneurship is essentially a journey out of poverty and towards equality and equity. Most importantly, their journey mirrors the transformation of nations from being under-developed or developing to developed ones. India's first Prime Minister, Pandit Jawahar Lal Nehru, realizing the situation of women, stated, "In order to awaken the people, it is the woman who has to be awakened. Once she is on the move, the household moves, the village moves, the country moves and thus, we build the India of tomorrow".

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Although women are under enumerated in the official statistical system because of their casual nature of job, they play a crucial role. Thus, the actual economic participation of women in developing countries is much higher than reported through the official statistical system. While the macro-level secondary data reveal low female participation rates, micro-level studies exhibited that women, particularly in low income households participate in the workforce to a greater extent.

Moreover, in these countries a higher percentage of Urban women labourers are employed in the informal sector who are invisible, scattered, and under-enumerated. Informal sector consists of unregistered economic activities in both urban and rural areas. These economic activities vary from household manufacturing to agricultural processing to construction, transport, trade and other kinds of services in urban areas. The majority of women are engaged or employed in various categories of work in informal sector. It is more so in the petty trade in the urban areas.

Petty trading has been one of the most rapidly growing economic activities in India urban economy during the last two decades. This is neither unexpected nor surprising for it is a trend observed in nearly all major third world cities in the post independence period. The growth of such small scale activist in these cities is generally attributed to the dynamism of the urban centres and its ability to attract capital and labour. While the capital funds Lucreative working capital in capital intensive activities the excess labour moves it labour intensive low productivity and low income activities like petty trade or business.

Petty trade consists of many activities like vegetable vending, fruit vending, fish vending, sweets shops, pan shops, laundries, flower vending, food vending and plastic wear shops etc. this petty trade includes pavement vendors. Until very recent times, there was no information about the women petty trade with respect to its origin. Generally the studies on

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petty trade are very few and especially studies relating to the economic aspects of these petty entrepreneurs, particularly with respect to their socio-economic conditions and performance are very scanty. Therefore, there is a rational to conduct the research into the socio-economic conditions problems and their performance of petty women entrepreneurs.

A study with primary level field survey will be better suited in order to assess conditions of them. Hence the present study aims at analyzing petty women entrepreneurs belonging to five different types of vendors such as vegetables, flower, fish, fruits and food. The present paper is to study the level and determinants of profits for women petty entrepreneurs in the urban informal sector in Avadi City of Tamil Nadu.

Profit of Women Vendors

In general, profit from any trade is the difference between the revenue and cost. In case of vending activity, it is the difference between the total expenses incurred by the vendors for purchasing the goods as well as bringing them to the market value, and the total amount they earned by selling the goods. Therefore, the purchasing expenses depends on the quantity they purchase, it influence the margin of profits. But the working capital requirement of these vendors is limited by the storage capability and the mode of operation of vending venture.

Table 1: Average Profit Per Day of the Petty Women Entrepreneurs

S. No.	Name of the vendor	Season (Value in Rs.)			
		April-July	Aug-Nov	Dec-March	Total Period
1.	Vegetable vendors	200.23	150.12	141.65	164
2.	Flower vendors	72.35	55.23	50.15	59.24
3.	Fish vendors	172.41	120.12	140.16	144.23
4.	Food vendors	76.16	65.25	100.65	80.69
5.	Fruit vendors	142.52	180.16	160.75	161.14
	Total	132.73	114.18	118.67	121.86

The present study analyses the average working capital of the women petty entrepreneurs during the three seasons as well as for the financial year by various categories of women entrepreneurs belonging to vegetable, flower, Fish, food and fruit vending. The influence of working capital on profits across various seasons is also analysed with the help of simple regression model.

Table 2: Average Working Capital of Petty Women Entrepreneurs

S. No.	Name of Women vendor	Seasons (Value in Rs. per day)			
		April - July	Aug-Nov	Dec-March	Total
1.	Vegetable vendors	350.45	230.48	225.45	284.64
2.	Flower vendors	260.75	160.17	135.46	185.46
3.	Fish vendors	420.15	310.65	315.61	348.80
4.	Food vendors	220.45	160.20	120.36	167.08
5.	Fruit vendors	175.35	206.95	220.15	200.82
	Total	285.43	213.69	203.41	237.36

The average working capital of the petty women entrepreneurs invested by the total women petty vendors as well as the five categories of vendors for the three seasons and for the financial year is presented in table 2. It could be observed from the table that the average working capital ranges from a maximum of Rs.285.43 to Rs.120.36. It could be observed that the working capital invested is highest during 1st season by Fish vendors [Rs.420.15] and lowest during 3rd seasons by food vendors. Intra category analysis shows that working capital of fish vendors is the highest and working capital of the food vendors is the lowest. Inter category analysis shows that generally during 3rd season working capital is low, except for fish vendors.

Estimated Regression Equations on Profits Vs Working Capital of Petty Women Entrepreneurs

The influence of working capital is assessed with help of simple regression technique for the three seasons and five category of petty women entrepreneurs belonging to five entrepreneurs separately.

Table 3: Estimated Regression Equation on Profits Vs Working Capital of Petty Women Entrepreneurs

Season	Dependent	Constant	Working capital	R ²	F	N
April-July	Profit	32.41	0.35 (1.54)	0.37	2.37	125
Aug-Nov	Profit	16.41	0.43 (1.47)	0.35	2.15	125
Dec-Mar	Profit	38.73	0.39 (1.98)	0.49	3.9	125
Total Period	Profit	29.48	0.39 (1.56)	0.38	2.44	125

Table 3, depicts the results of the regression analysis for the total petty women entrepreneurs. The co-efficient of variances is positive but the R-square value is less than fifty. It indicates that working capital could able to explain less than 50 percent variations in the profits of the petty women entrepreneurs. The F-ratios is also significant and the variable also significant at 1% level. An increase in the working capital by one rupee per day will yield a profit of 35 paise per day during 1st season 43 paise per day during 2nd season, 39 paise per day during 3rd season, and 39 paise, an average during the year. The 't' test reveals that all these estimated values are significant at 1% level.

Table 4: Estimated Regression of Seasonal Variation in Profit of the Petty Women Entrepreneurs

Entrepreneurs	Dependent variable	Constant	Working capital	R ²	F	N
Vegetables	Profit	44.80	0.44 (8.34)	0.97	69.49	25
Flower	Profit	26.75	0.18 (42.99)	1.00	1848.26	25
Fish	Profit	4.42	0.40 (3.88)	0.88	15.06	25

Entrepreneurs	Dependent variable	Constant	Working capital	R ²	F	N
Food	Profit	115.81	0.21 (-1.02)	0.34	1.04	25
Fruits	Profit	77.99	0.38 (1.81)	0.62	3.27	25
Total	Profit	74.13	0.20 (3.85)	0.88	14.83	125

The regression results of the petty women entrepreneurs are presented in Table 4. The R-square value is about 1.00. It indicates that working capital could able to explain about 100 percent variation in the profits of the flower petty women entrepreneurs. The F-ratios is also significant. It could be inferred that an increase in the working capital by one rupee per day will yield of 44 paise by vegetable vendors, 18 paise by flower vendors, 40 paise by Fish vendors, 21 paise by food vendors ad 38 paise by fruits vendors. The 't' test express that all these estimated values are significant at 1% level.

Multiple Regression

Multiple regression is used to estimated the profits earned by Petty, women entrepreneurs by employing the age, education, martial status, experience and working capital.

Results of the Estimated Regression of Petty Women Vegetable Entrepreneurs

The results of the estimated regression function for the women vegetable petty entrepreneurs are presented in table 5. R-bar square value is 0.661, which can be treated as good fit. The co-efficient of variables working capital are statistically significant in determining the profits. The coefficient of age and level of experience are significant variable influencing the profits of the women entrepreneurs in the second season. The co-efficient of working capital is 0.20 implies that an one rupee increase in working capital increases profits by 20 paise.

Table 5: Results of the Estimated Regression Equations - Vegetable Vendors

	Constant	Working capital	Literacy Level	Age Group	Marital status	Level of experience	Investment	R Square	Adjusted R square	N
April-July	95.3828* (7.2799)	0.2797* (16.6054)	0.0071 (0.0020)	-0.0387 (-0.0142)	-0.0085 (-0.0024)	-0.0277 (-0.0100)	-0.0185 (-0.0070)	0.9955	0.9940	125
Aug-Nov	336.2828* (17.9017)	-0.5321* (-4.9543)	4.0310 (0.4382)	-20.1677* (-3.6057)	-4.0360 (-0.4387)	-13.4449*** (-2.0689)	-9.4109 (-1.4395)	0.9730	0.9640	125
Dec-Mar	100.1317* (8.9498)	0.3177* (3.4971)	1.4264 (0.1799)	-7.1487 (-1.1778)	-1.4330 (-0.1807)	-4.7658 (-0.7810)	-3.3354 (-0.5680)	0.7987	0.7316	125
Total Period	162.3501* (6.0389)	0.2023* (10.2815)	3.9308 (0.1600)	-19.6640 (-1.8931)	-3.9348 (-0.1601)	-13.1098 (-0.8265_)	-9.1763 (-0.5467)	0.6616	0.6318	125

* significant at 1 % level, ** significant at 5% level, **** significant at 10% level

Estimated Regression Equations of Petty Women Fish Entrepreneurs

The estimated regression equation for the petty women Fish entrepreneurs in table 6, reveals that the R square value is 0.7742, which can be treated as good fit. The co-efficient of variables literacy, age, experience and initial investment are statistically significant in determining the profits The sign of the marital status is negative that marital women are getting higher profit.

The results shows that working capital are the significant variable influencing the profits of the women vendors in all seasons. The co-efficient of working capital 0.049 implies that a one rupee increase in the working capital results in 49 paise per day increase in profits.

Table 6: Results of the Estimated Regression Equations – Fish Vendors

	Constant	Working capital	Literacy Level	Age Group	Marital Status	Level of Experience	Investment	R Square	Adjusted R square	N
April-July	23.8373*** (1.9050)	0.3640* (14.4372)	0.8067 (0.7351)	-0.8067 (-0.8299)	-0.3227 (-0.2815)	-0.5658 (-0.5850)	-0.6454 (-0.6144)	0.9959	0.9945	125
Aug-Nov	-214.8456* (-116.2206)	1.0809* (222.4348)	0.1540 (0.7907)	-0.1540 (-0.8932)	-0.0616 (-0.3023)	-0.1123 (-0.6534)	-0.1232 (-0.6605)	1.0000	1.0000	125
Dec-Mar	-442.2893* (-14.7453)	1.8781* (21.9868)	2.3258 (1.2120)	-2.3258 (-1.3780)	-0.9303 (-0.4545)	-1.6321 (-0.9563)	-1.8606 (-1.0056)	0.9980	0.9973	125
Total Period	185.1693* (12.6642)	0.0492 (1.5508)	19.7363** (2.5922)	-19.7363* (-3.1688)	-7.8945 (-0.8225)	-13.8169*** (-1.8818)	-15.7891** (-2.0109)	0.7742	0.7543	125

* significant at 1 % level, ** significant at 5% level, **** significant at 10% level

Estimated Regression Equation of the Petty Women Flower Entrepreneurs

The results of the estimated regression equation function for the women petty power entrepreneurs in table 7. The estimated function for the financial year has R-square value is 0.73, which can be treated as good fit. The co-efficient variables age, experience level of investment and working capital are statistically significant in determining the profits. The estimated equation for the seasons reveals that only working capital is statistically significant in determining profits. It shows that are other variable are not influencing to determine profits of the petty women flower entrepreneurs.

Table 7: Results of the Estimated Regression Equations - Fish Vendors

	Constant	Working Capital	Literacy Level	Age Group	Marital Status	Level of Experience	Investment	R Square	Adjusted R square	N
April-July	-1.17869* (-3.54007)	0.28155* (265.95536)	0.01915 (0.74611)	0.01087 (0.42429)	0.01777 (0.64976)	0.01381 (0.61390)	0.56311 (0.67326)	0.99998	0.99997	125
Aug-Nov	-110.09171* (-312.92051)	1.03321* (641.26638)	-0.02515 (-0.60091)	-0.01349 (-0.32360)	-0.02398 (-0.53809)	-0.02099 (-0.57247)	0.456831 (0.53212)	1.0000	1.0000	125
Dec-Mar	-85.01529* (-60.02445)	1.00372* (134.47608)	-0.13280 (-0.72792)	-0.07150 (-0.39260)	-0.12257 (-0.63033)	-0.10214 (-0.63868)	0.53832 (0.75296)	0.99991	0.99989	125
Total Period	103.11130* (19.59616)	-0.00255 (-0.13030)	-13.36670* (-3.82628)	-7.19802 (-1.62724)	-12.34004* (-3.00721)	-10.28403* (-3.06906)	-0.32567 (4.56723)	0.73151	0.7453	125

* significant at 1 % level, ** significant at 5% level, **** significant at 10% level

Results of the estimated regression equation of the petty women fruit entrepreneurs.

The results of the estimated regression function for the petty women fruit entrepreneurs are presented in table 8. R-Square value is 0.601, which can be treated as good fit. The coefficient of variable working capital is only statistically significant in determining profits. It could be observed from the other equation that except working capital no other variable is significant in season two and marital status in the season three. The signs of the regression coefficient of all the variables are positive which implies that marital women petty fruit entrepreneurs are getting more profits. Whereas the influence of working capital is very low.

Table 8: Results of the Estimated Regression Equations - Fruit Vendors

	Constant	Working Capital	Literacy Level	Age Group	Marital Status	Level of Experience	Investment	R Square	Adjusted R square	N
April-July	98.19528 (1.32994)	0.17259 (0.51356)	0.15337 (0.01694)	-0.15337 (-0.01694)	10.58840 (1.64656)	-0.13125 (-0.01467)	3.91619 (0.43906)	0.22516	-0.03312	125
Aug-Nov	-105.63889* (-10.36723)	1.25462* (29.58420)	0.63935 (0.68979)	-0.63935 (-0.68979)	-0.56888 (-0.86762)	-0.56924 (-0.62065)	-0.35619 (-0.38800)	0.99869	0.99825	125
Dec-Mar	78.66064 (1.03296)	0.41511 (1.72326)	0.19768 (0.01433)	-0.19768 (-0.01433)	-20.47980*** (-2.08903)	-0.17218 (-0.01263)	11.36179 (0.83544)	0.75500	0.67334	125
Total Period	65.74159* (3.71092)	0.44371* (8.12038)	1.46403 (0.14844)	-1.46403 (-0.14844)	-4.49405 (-0.68175)	-1.29777 (-0.13065)	4.34507 (0.41895)	0.60131	0.56613	125

* significant at 1 % level, ** significant at 5% level, **** significant at 10% level

Results of the Estimated Regression Equation of the Petty Women Food Entrepreneurs

The results of the estimated function for the petty women food entrepreneurs are presented in table 9. The estimated regression equation for the financial year reveals that R-Square value is 0.22621, which can be treated as good fit. The coefficients of variables working capital and age group are statistically significant in determining the profits. The sign of the regression coefficients of all the variables are positive implies that middle aged women petty food entrepreneurs are getting more profits, and is more experience than women petty food entrepreneurs, higher will be the profits.

The estimated equation for the I season reveals that the co-efficient variables are negative sign whereas for the 2nd season reveals that working capital and marital status are statistically significant in determining the profit. But the 3rd season indicates that only the initial investment is statistically significant in determining the profits during 3rd season.

The results of the multiple regression coefficients reveals that working along with working capital, married women are earning more profits than unmarried women entrepreneurs. Above middle aged and 5-10 years experience are negatively influencing their profits.

In the case of vegetable and fruit, working capital only decide the profits of the petty women entrepreneurs whereas fish and flower; literacy, age, experience and investment are determining the profits. In the case of food entrepreneurs working capital and middle age are important determinants in getting more profits.

Table 9 : Results of the Estimated Regression Equation – Food Vendors

	Constant	Working Capital	Literacy Level	Age Group	Marital Status	Level of Experience	Investment	R Square	Adjusted R square	N
April-July	29.29732 (0.55982)	0.15944 (1.33462)	1.79100 (0.11733)	-4.17790 (-0.34285)	12.48614 (1.03324)	-1.19315 (-0.07542)	5.96303 (0.46875)	0.49576	0.32768	125
Aug-Nov	-217.57114*** (-1.88139)	1.21624** (2.79960)	-3.31255 (-0.11715)	7.72949 (0.034427)	50.39965** (2.25344)	2.20837 (0.07533)	25.02213 (1.06191)	0.62548	0.50064	125
Dec-Mar	-85.92392 (-0.47852)	0.82356 (1.58608)	-30.76656 (-0.46126)	-12.05976 (-0.22653)	-41.96130 (0.79471)	-3.45202 (0.04994)	152.27439** (2.73955)	0.52158	0.36211	125
Total Period	198.64482* (3.55465)	-0.23515** (-2.04853)	11.24779 (0.30772)	-54.19312** (-2.38805)	-1870320 (-0.66718)	-15.48475 (-0.40266)	42.74518 (1.40334)	0.22621	0.15793	125

* significant at 1 % level, ** significant at 5% level, **** significant at 10% level

Position than their male counterparts. In out sample also, 77 respondents (61.6% of total) cited the problem of lack of occupational mobility. Table 9 depicts the reasons cited by these respondents for their lack of occupation mobility.

CONCLUSION

The emergence of women on the economical scene as entrepreneur is a significant development in the emancipation of women and securing them a place in the society, which they have all along deserved. The hidden entrepreneurial potentials of women have gradually been changing with the growing sensitivity to the role and economic status in the society. Women are increasingly becoming conscious of their existence, their rights and their work situations. Today women entrepreneurs represent a group of exploring new avenue of economic participation. Among the reasons for women to run organized enterprises are their skill and knowledge, their talents and abilities in business and a completing desire of wanting to do something positive. What makes their arrival as well as achievement even more significant and commendable are the struggles they have to put up, frustrations they have to emerge as entrepreneurs at the early stage and subsequently achieving. Success in business at he stage of managing their enterprises, it is hoped that the participation of women in economic activities would usher in an era of clean business ethics.

References

1. Arnachalam, J. and Azad, N. (1985), "Role of Women and Children in the Informal Sector", *Productivity*, Vol. 26, No.3.
2. Aychat, A. (1978), "Bidi Workers of Nipani", *Economic and Political Weekly*, Vol. 13, No. 30.

INCREASING LEVEL OF LITERACY RATE AND FALLING WORK PARTICIPATION RATE IN INDIA: AN EMPIRICAL STUDY¹³

P. MAGESH¹⁴

Introduction

According to census 2011 the total literacy rate in India is about 72.98 per cent compared to 64.84 per cent in 2001. The total literacy rate in India range between 61.80 per cent in Bihar to 94 per cent in Kerala. Total male literacy rate in India is 75.26 per cent in 2001 and it increased to 80.88 per cent in 2011. The total female literacy gained a considerable improvement from 53.67 per cent in 2001 to 64.63 per cent in 2011. The rural literacy rate in India is 58.74 per cent in 2001 and it increased to 67.77 per cent in 2011 of about 9.02 per cent. Rural male literacy rate is 70.7 per cent in 2001 and it increased to 77.15 per cent in 2011. The rural female literacy rate also increased from 46.13 per cent in 2001 to 57.93 per cent in 2011. The urban literacy rate in India has been increased at the rate of 4.19 per cent i.e. from 79.92 per cent in 2001 to 84.11 per cent in 2011. Urban male literacy rate has been increased from 86.27 per cent in 2001 to 88.76 per cent in 2011. Urban female literacy rate has also shown an improvement from 72.86 per cent to 79.11 per cent during the year 2001 to 2011.

According to census 2001 the total Work Participation Rate in India was about 39.1 per cent and in the year 2011 there has been no improvement on the Work Participation Rate and it remains almost the same with 39.8 per cent. The WPR for male in India range between 51.68 per cent to 53.28 per cent during the period of 2001 and 2011. And for females are in the range of 25.63 per cent to 25.52 per cent. The rural WPR shows a meagre increase from 41.75 to 41.83 per cent during the year 2001 and 2011. The male rural literacy rate has increased by almost 0.92 per cent during the year 2001 and 2011. In case of female rural literacy, it has decreased from 30.79 per cent in 2001 to 30.03 per cent in 2011. The urban WPR has surged forward from 32.25 per cent in 2001 to 35.31 per cent in 2011 showing an increase of 3.06 per cent. The WPR for males and females works out to 53.76 per cent and 15.44 per cent respectively the increase in urban WPR in males and females during 2001-2011 is in the order of 3.16 and 3.56 per cent respectively.

Review of literature

Jameela Vadakarasseril Anandan and Anjali Anchayil (2010) have conducted a study and their analysis revealed that there has been significant decline in workforce participation among women in spite of increasing literacy rate. They explained the situation mainly in terms of the dominant position of the male in the work force. They also examined the issue of gender disparity in Kerala in work force participation. They further argue that Faulty education system in the state of Kerala, is the reason behind low work participation of women.

Luis A Andres et al. (2017) found that female labour force participation in India has dropped by 19.6 million women from 2004-2005 to 2011-2012. Participation declined by 11.4

¹³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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per cent from 42.6 per cent to 31.2 per cent during the period 1993-94 to 2011-12 in their working paper "Precarious Drop Reassessing Patterns of Female Labour Force Participation in India", published by the World Bank in April 2017. Studies have also highlighted those factors such as educational attainment, socio economic status and household composition largely contributed to the drop. The study also mentioned that conventional approaches to increasing female labour force participation (such as education and skills and legal provisions) are insufficient.

Statement of research problem

From the above literature surveys, it is clear that there is a declining trend in the work participation rate in India in spite of increase in the literacy rate of the country. This has a significant implication on overall development of a country. However there is not much studies carried out in the Indian context. Therefore the present study attempts to examine the trends and pattern of work participation rate and literacy rate in India. It also examines the relationship between Adult WPR and Adult literacy rate among the states and the percentage of Adult literate among non-workers in India during 2001 to 2011.

Objectives

1. To find out the relationship between work participation rate and literacy rate among the states in India.
2. To identify the states which shows the increasing level of adult literacy rate and falling adult work participation rate in India.

Methodology

This study is mainly based on secondary data obtained from published sources. Census data for the year of 2001 and 2011 has been used to find out the trends and pattern of Literacy rate, WPR and Literate Non-workers participation rate in India. This study concentrates only the adult population in India where states and union territories are included.

Results and discussion

The literacy profile in India has grown through severe change since independence. In 1947, countries literates constitute only 16 per cent of total population. The 2001 census reported 64.84 per cent literacy rate and further it increases to 72.98 per cent in 2011.

As per census 2011 the literacy rate of India has shown an improvement of almost 8.15 per cent. It has gone up to 72.98 per cent in 2011 from 64.84 per cent in 2001. India suffered from wide gender gap in literacy rate with a literacy rate of 80.88 per cent for men and 64.63 per cent for women. But the country shows an improvement in female literacy from 53.67 per cent in 2001 to 64.63 per cent in 2011 of almost 10.96 per cent. The state of Kerala has the highest literacy rate of 94 per cent in India and Tripura are the consistent forerunners in literacy rate. Bihar with a figure of 61.80 per cent has the lowest literacy rate in India. Bihar (14.80), Tripura (14.02), Nagaland (12.96), Jharkhand (12.85), Meghalaya (11.87), Jammu & Kashmir (11.64) Uttar Pradesh (11.42), and Arunachal Pradesh (11.04) shows an improvement by more than 10 per cent.

The total Work participation rate in 2001 was 39.1 per cent and it slightly increased to 39.8 per cent in the year 2011. In India WPR is low compared to developed countries. The rural WPR is greater in India than urban WPR as almost all members of rural household participate in agriculture activities where due to social beliefs many women in urban area do

not work. In urban area people have some kind of inhibition to part of small work. This resulted in lower WPR. Another important fact is that in India, WPR are quite different. A wide variation in WPR in India has been recorded in 2011 ranging from 29.09 per cent in Lakshadweep to 51.85 per cent in Himachal Pradesh.

Total WPR among males increased marginally from 51.68 percent in 2001 to 53.26 per cent in 2011 and that among females it decline from 25.63 per cent in 2001 to 25.52 per cent in 2011.

A considerable increase in WPR i.e. at the rate of more than 5 per cent has been recorded in Nagaland (6.63 per cent from 42.6 per cent in 2001 to 49.24 per cent in 2011). A moderate increase in WPR (3 to 5 per cent) has been recorded and Orissa (3 per cent).

Table 1 States Showing declining rate of Work Participation in India

States	2001			2011			Variation		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
India	39.10	51.68	25.63	39.80	53.26	25.52	0.69	1.58	-0.11
Mizoram	52.57	57.29	47.54	44.36	52.35	36.16	-8.22	-4.93	-11.37
Dadra & Nagar Haveli	51.76	62.33	38.74	45.73	61.57	25.25	-6.03	-0.76	-13.49
Haryana	39.62	50.30	27.22	35.17	50.44	17.79	-4.45	0.14	-9.42
Jammu & Kashmir	37.01	49.99	22.45	34.47	48.11	19.11	-2.54	-1.88	-3.34
Meghalaya	41.84	48.34	35.15	39.96	47.17	32.67	-1.88	-1.17	-2.48
Punjab	37.47	53.60	19.05	35.67	55.15	13.91	-1.80	1.55	-5.14
Arunachal Pradesh	43.98	50.63	36.54	42.47	49.06	35.44	-1.51	-1.56	-1.10
Gujarat	41.95	54.87	27.91	40.98	57.16	23.38	-0.97	2.29	-4.54
Bihar	33.70	47.37	18.84	33.36	46.47	19.07	-0.35	-0.90	0.23

Source: Census of India 2001 & 2011

WPR in many states shows is considerable fall i.e. at the rate of more than 5 per cent has been recorded in Mizoram (-8.22 per cent), A moderate decrease in WPR (less than 5) has been recorded in Haryana (-4.45 per cent), Jammu & Kashmir (-2.54 per cent), Meghalaya (-1.88 per cent), Punjab (-1.80 per cent) Arunachal Pradesh (-1.51), Gujarat (-0.97) and Bihar (-0.35 per cent).

Adult Literacy Rate

As per Census 2011 the adult literacy rate in India has shown an improvement of almost 8.30 per cent. It has gone up to 69.28 per cent in 2011 from 60.97 per cent in 2001. The literacy rate shows a high gender disparity with a literacy rate 78.84 per cent for men and 59.26 per cent for women. But the country is showing an improvement in women literacy rate of almost 11.44 per cent from 47.82 per cent in 2001 to 59.26 per cent in 2011. But for men the literacy rate has improved only 5.49 per cent which is less than female literacy improvement.

Table 2 States showing high level of improvement in Adult Literacy in India

States	2001			2011			Variation		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
India	60.97	73.35	47.82	69.28	78.84	59.26	8.30	5.49	11.44
Dadra & Nagar Haveli	53.62	68.82	33.11	72.04	83.07	56.66	18.42	14.25	23.54
Tripura	70.38	79.93	60.24	85.77	90.91	80.42	15.39	10.97	20.18
Nagaland	65.08	70.80	58.57	78.87	82.94	74.49	13.79	12.13	15.92
Sikkim	65.99	75.29	54.76	78.99	85.37	71.60	13.00	10.07	16.84

States	2001			2011			Variation		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
Jammu & Kashmir	51.31	64.21	36.43	62.72	74.30	49.75	11.41	10.09	13.32
Uttar Pradesh	51.07	66.19	34.28	62.44	74.60	49.23	11.37	8.41	14.95
Bihar	44.16	59.03	28.15	55.41	67.45	42.24	11.25	8.42	14.09
Jharkhand	49.75	65.94	32.49	60.37	73.57	46.46	10.63	7.62	13.97
Daman & Diu	75.52	85.75	59.59	86.06	91.21	76.78	10.55	5.45	17.19
Karnataka	61.62	72.92	49.97	71.88	80.22	63.39	10.25	7.29	13.42
Arunachal Pradesh	51.92	63.45	38.35	62.04	70.97	52.32	10.13	7.52	13.97

Source: Census of India 2001 & 2011

The state of Kerala has the highest adult literacy rate of 93.46 per cent. Mizoram and Goa stand next to Kerala with literacy rate of 91.61 per cent, 91.32 per cent and 87.72 per cent respectively. Bihar with a figure of 55.41 per cent has the lowest Adult Literacy rate in India as per 2011. Table 4 depicts States showing high level of improvement in adult literacy rate (more than 10 per cent). Tripura (15.39), Nagaland (13.79), Sikkim (13), Jammu Kashmir (11.41), Uttar Pradesh (11.37), Bihar (11.25), Jharkhand (10.63), Karnataka (10.25) and Arunachal Pradesh (10.13) shows an improvement by more than 10 per cent.

Adult Work Participation Rate

According to census 2011, the Adult Work Participation Rate in India is 56.27 per cent which is declined from 58.58 per cent in 2001. The state of Nagaland has highest adult WPR of about 70.05 per cent which increased from 63.15 per cent in 2001. A wide variation in Adult WPR among various states of India has been recorded in 2011 ranging from 38.89 per cent in Lakshadweep to 70.05 per cent in Nagaland. The India also suffers from a wide gender gap in adult WPR with a rate of 76.08 per cent for men and 35.52 per cent for women according to 2011 census.

Table 3 States showing negative variation in adult work Participation Rate in India

States	2001			2011			Variation		
	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females
India	58.58	78.27	37.65	56.27	76.08	35.52	-2.31	-2.19	-2.13
Haryana	63.68	80.89	43.60	49.34	71.89	24.37	-14.33	-9.00	-19.23
Mizoram	78.37	84.77	71.36	64.61	76.63	52.35	-13.75	-8.14	-19.01
Dadra & Nagar Haveli	79.05	91.80	61.23	65.75	86.08	37.39	-13.30	-5.72	-23.84
Punjab	56.42	81.10	28.66	47.05	74.12	17.74	-9.36	-6.98	-10.92
Gujarat	64.27	84.18	42.56	56.53	79.88	31.58	-7.74	-4.30	-10.98
Arunachal Pradesh	71.80	81.27	60.64	64.09	73.63	53.69	-7.71	-7.63	-6.95
Andhra Pradesh	67.86	83.46	51.89	61.71	76.32	47.25	-6.14	-7.13	-4.64
Jammu & Kashmir	56.40	75.58	34.33	50.69	71.46	27.43	-5.71	-4.12	-6.90
Madhya Pradesh	69.56	83.35	54.33	63.89	79.13	47.57	-5.67	-4.22	-6.76
Maharashtra	64.59	80.41	46.93	59.06	75.86	41.22	-5.53	-4.54	-5.71
Meghalaya	69.19	79.77	58.30	63.79	75.92	51.64	-5.40	-3.85	-6.65
Karnataka	66.20	83.73	47.80	60.91	79.35	42.14	-5.29	-4.37	-5.67
Chhattisgarh	73.95	83.73	63.97	68.67	80.71	56.64	-5.28	-3.03	-7.33
Rajasthan	69.97	83.73	54.99	64.78	77.82	51.04	-5.19	-5.91	-3.95

Source: Census of India 2001 & 2011

The states of Nagaland (6.90), Kerala (1.68), Tripura (1.22), Orissa (1.06) and Manipur (0.13) show an improvement in adult work participation rate contrary to national average.

Only the state of Nagaland showing a considerable increase in adult work participation rate among the states of India. Haryana (-14.33) Mizoram (-13.75) and Dadra & Nagar Haveli (-13.30) shows a negative trend. These states show a considerable fall in adult work participation rate i.e. at the rate of more than 10 per cent. Punjab (-9.36), Gujarat (-7.74), Arunachal Pradesh (-7.71), Andhra Pradesh (-6.14), Jammu and Kashmir (-5.71), Madhya Pradesh (-5.67), Maharashtra (-5.53), Meghalaya (-5.40), Karnataka (-5.29), Chhattisgarh (-5.28), Rajasthan (-5.19) also has been recorded decrease in adult WPR of about more than 5 per cent (Table 5).

Relationship between Adult Literacy Rate and Adult Work Participation Rate

The trends and pattern of states in India that shows increasing adult literacy rate and falling adult work participation rate over the period 2001 to 2011, has been observed. States of Kerala, Lakshadweep, Mizoram, Goa, Daman & Diu and Tripura has less number of performers in terms of the participation of adult in workforce. On the other hand the same states display a good performance with respect to adult literacy rate.

For example, the state of Kerala shows an improvement of 3.61 per cent in adult literacy rate from 89.65 per cent in 2001 to 93.46 per cent in 2011. At the same period the state shows a fall in adult work participation rate of about -1.76 per cent from 47.02 per cent in 2001 to 45.25 per cent in 2011. This has become a huge problem in Kerala during the last decades. It also clear that the state of Mizoram is also facing the same problem for the last few decades where the state is showing a high rate in adult literacy rate of about 91.32 per cent in 2011 and at the same period with respect to adult work participation rate the state is showing a rate of 64.61 per cent in 2011 from 78.37 per cent in 2001. A huge decline in adult work participation rate of about -13.75 per cent. Similarly, as per 2011 census adult literacy rate in Lakshadweep has shown an improvement of almost 6.26 per cent. It has gone up to 91.61 per cent in 2011 from 85.35 per cent in 2001. During the same period the adult work participation rate has declined of about -1.67 per cent. The rate not only declined, but also turned out to be much lower than the national average of about 38.89 per cent in 2011 from 40.56 per cent in 2001.

Hence, on the basis of above statistics we can say that there is a negative relationship between adult work participation rate and adult literacy rate in India.

Adult Literate Non-Workers in India

The study has witnessed a declining trend in work participation rate in India in spite of increasing literacy rate of the country. This has a serious implication on development of a country where unemployment among educated population is high. The percentage of educated persons who are unemployed is about 83.16 in 2011. The adult literate non-workers in India has gone up to 83.16 in 2011 from 82.39 per cent in 2001 of about 0.76 per cent. It is evident that 92.27 per cent of the educated adult males and 77.17 of educated adult females are unemployed based on current status.

The percentage of adult literate non-workers in Kerala, Mizoram, Lakshadweep, Goa, Andaman Nicobar Island, and Nagaland is higher than the National average. The state of Kerala has the highest adult literate non-workers of about 98.37 per cent in 2011 and which is increasing every year. Mizoram (97.60), Lakshadweep (96.96), Puducherry (94.85), Goa (94.62), Andaman and Nicobar Island (94.27), Nagaland (94.10) stands next to Kerala respectively.

If we analyse this situation in India we can find that these states shows a high rate in adult literacy rate with a falling rate of adult work participation.

Bihar with a figure of 69.274 per cent has the lowest adult literate non-workers in India as per 2011. Uttar Pradesh, Jammu & Kashmir, Jharkhand and Rajasthan stands next to Bihar with 75.02, 75.82, 75.85, 76.76 and 79.16 per cent respectively. This shows that these states are providing employment opportunities for the literates.

Conclusion

The paper analysed three important aspects i.e., Trends and pattern of work participation rate and literacy rate in India and their relationship and has highlighted the relationship between adult literacy rate and adult work participation rate in India. The study has drawn on secondary data for explaining these. On the basis of this it reached the conclusion that work participation rate is declining even though there is an increase in the literacy rate. This study shows that generalizations regarding the literacy attainment of adult population fail to capture the employment in India.

References

1. Andres, Luis A.; Dasgupta, Basab; Joseph, George; Abraham, Vinoj; Correia, Maria. (2017). Precarious Drop: Reassessing Patterns of Female Labor Force Participation in India. Policy Research Working Paper; No. 8024. World Bank, Washington, DC.
2. Vadakarasseril, Jameela Anandan & Anjali Anchayil (2010). Increasing level of Education and Falling Labour Force Participation of Women in the context of Kerala, India.
3. Dinabandhu, Mahata., Amit Kumar, & Ambarish Kumar (2017). Rai Female Work Force Participation and Women Empowerment in Haryana. World Academy of Science, Engineering and Technology International Journal of Humanities and Social Sciences Vol: 11(4).

STATUS, PROSPECTS AND PROBLEMS OF ORGANIC FARMING IN TAMIL NADU¹⁵

S. UDHAYA¹⁶ & Dr. S. SENTHAMARAI¹⁷

Introduction

The continuous growth of world's population, urbanization, industrialization and global warming executes an additional burden on agricultural enterprises. As per world bank authorities' prediction, the demand for agricultural products will upsurge twice by 2030. Therefore, countries that are major in agricultural production should upsurge their productivity to satisfy future excess demand, taking into account the accessibility of less land and water resources in the future. The importance of agricultural sector for originating and sustaining economic growth in developing countries is a well-recognised fact. In developing countries with limited cultivable land, growing population pressure and diminishing returns in agriculture, exploring the possibilities for achieving significant land-augmenting technical progress offered by the 'organic farming' is of utmost importance.

Worldwide 1.8 million farmers in 162 countries grow organically on more than 37 million hectares of agricultural land. One third of all global organic agricultural land is in Oceania (33 per cent), followed by Europe (29 per cent) and Latin America (18 per cent). Australia is the country with largest share of organic agricultural area (12 million hectares) followed by Argentina (3.8 million hectares) and the United States of America (1.9 million hectares). The countries with the largest share of organic agriculture land of all farm land are the Falkland Islands (36 per cent), followed by Liechtenstein (29 per cent). In India organic agricultural land is 0.50 million hectares.

India has progressed a rich history of agricultural practices and continues to adapt technologies like bio-dynamic and other systems into its organic practises. India's organic farmers have been at the forefront in developing field-based technologies ranging from vermi-compost to integrated livestock practises that facilitate their ability to improve soil fertility even in semi- arid or barren areas.

Organising farming

As per the definition of the USDA study 'organic farming is a system which avoids or largely excludes the use of synthetic inputs (such as fertilizers, pesticides, hormones, feed additives etc) and to the maximum extent feasible rely upon crop rotations, crop residues, animal manures, off farm organic waste, mineral grade rock additives and biological system of nutrient mobilization and plant protection'. In another definition FAO suggested that 'organic agriculture is a unique production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological and mechanical methods in exclusion of all synthetic off-farm inputs. Organic farming will progress tremendously in

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India, especially in dryland regions of the country, taking advantage of the diverse soil and climatic condition.

The most popularly accepted definition of organic farming is 'organic agriculture is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles, and soil biological activity.

Organising farming in India

The 10th five-year plan encouraged the promotion of organic farming using organic wastes, and integrated pest management (IPM) and integrated nutrient management (INM) practices. Even the 9th five-year plan had emphasized the promotion of organic produce in plantation crops, spices and condiments using organic and bio-inputs for the protection of environment and promotion of sustainable agriculture. Presently many states and private agencies are involved in the promotion of organic farming in India, these also include several ministries and government departments at both central and state levels.

Currently, India ranks 10th among the top ten countries in terms of cultivable land under organic certification and 88th in agricultural land under organic crops to total farming area. States like Rajasthan, Tamil Nādu, Kerala, Madhya Pradesh, Himachal Pradesh and Gujarat are promoting organic farming vigorously. OA is an alternative production system that avoids the use of synthetic pesticides and fertilizers, relies on biological pest control, and relies on crop rotation, green manure, compost and other recycled wastes to maintain soil fertility. OA is a holistic production management system which promotes and enhances agro-ecosystem health, including biodiversity, biological cycles and soil biological activity.

Demand for organic products

A growing demand for organically produced food in industrialized countries has the potential of providing access to premium prices and hence higher income. Adoption of OA in developing countries may provide economic, social and cultural benefits. Organic farming is now practised in about 160 countries and worldwide sales of organic products is about US\$60 billion per annum. Organic agriculture is developing rapidly and today at least 141 countries produce organic food commercially. Among the countries involved in organic farming, about 65 per cent are developing countries. The regions with the largest areas of organically managed agricultural land are: Oceania, Europe and Latin America, Australia, Argentina and Brazil are the countries with the largest organically managed land areas. About the one third of the world's organically managed land – almost 11mha is located in the developing countries. Most of the land is in Latin American countries, while Asia and Africa take the second and third places, respectively. India has traditionally practised organic agriculture, but the process of modernization, particularly the green revolution technologies, has led to the increased use of chemicals. The Indian organic products duly certified by the accredited certification bodies of India are accepted by the importing countries.

Review of literature

Ramesh, P., et al. (2005) made an observation that organic agriculture in developing countries is growing because it requires less financial input and places more reliance on the natural and human resource available. Organic agriculture does not need costly investments in irrigation energy and external inputs, but rather organic agricultural policies have the potential to improve local food security, especially in marginal areas. The study conclude that organic

manure is an alternative renewable source of nutrient supply. Organic farming systems can deliver agronomic and environmental benefits both through structural changes and tactical management of farming systems. Organic foods are proved superior in terms of health and safety, but there is no scientific evidence to prove their superiority in terms of taste and nutrition.

Ramesh, P., et al. (2010) found out from their study that the cost of organic products is higher in developed countries. Organic farming required labour intensive and labour is costly in developed countries. In a country like India, where labour is abundant and is relatively cheap, organic farming is good cost-effective solution to the increasing costs involved chemical farming. The increasing demand for organic food products in the developed countries and the extensive support by the Indian government copied with its focus on Agri-exports are the drivers for the Indian organic food industry.

Reddy, B.S. (2010) the study concluded there is a strong view against organic farming mainly on the grounds of practicability of feeding a billion people, its financial and economic viability, availability of organic inputs and dissemination of know-how. Many studies revealed that organic agriculture is productive and sustainable. Presently there is lack of government support and subsidies for organic farms. But there are no empirical studies available in the Indian context comparing economical and ecological of organic farming vis conventional farming. Organic agriculture is neglected in the government policy and less government assistance for the promotion of organic agriculture. organic farming will progress tremendously in the dryland region, taking advantage of the climatic condition.

Khadda, B.S. (2021) made on observation India is bestowed with a lot of potential to produce all varieties of organic due to its various agro climatic region and traditional knowledge. The export market potential is also increasing. But there are many constraints for organic production in a country like India. depending upon organic farming to meet food security needs will not be sufficient to meet food needs of more than one billion people. To combine a sustainable production system to meet food security needs of India with a healthy environment an integrated approach that combines organic and inorganic methods of crop production is recommended.

Objectives

1. To understand the status of organic farming in Tamil Nadu.
2. To study the problems and issues faced by farmers in the adoption of organic farming in Tamil Nadu.

Methodology

This study is based on the secondary data published by APEDA and Agri-farming 2019.

Status of organic farming in Tamil Nadu

Conventional agriculture is environmentally unsustainable. And, it is a misnomer that organic farming is economically unviable. India holds a unique position among 172 countries practising organic agriculture: it has 6,50,000 organic producers, 699 processors, 669 exporters and 7,20,000 hectares under cultivation. But, with merely 0.4 per cent of total agricultural land under organic cultivation, the industry has a long journey ahead.

The Indian organic export and domestic market grew by 30 and 40 per cent respectively, and will sustain primarily due to an increasing number of affluent and health-

conscious consumers. There has been a contentious debate on the sustainability of organic farming. Though there is lower yield, these farms are more profitable and environmentally friendly, provide several ecosystem services, numerous social benefit and nutritious foods with relatively less pesticide residues compared to conventional farming. Organic farming is not feasible as an alternative to conventional farming under all circumstances in the Indian context.

1. Organic farming in Tamil Nādu is gaining increasing attention among farmers, producers, processors, traders, exporters and consumers. The growing awareness of the health risks due to the possible contamination of agricultural products by the use of chemical fertilizers has played a significant role in the restoration of this form.
2. Organic farming creates an ecosystem that can achieve sustainable production without the use of artificial external inputs. This is the key to sound development for a healthy environment.
3. In Tamil Nadu, there is a separate movement among farmers, agronomist, and scientist in favour of organic farming. NGOs, the state department of agriculture, Tamil Nadu agricultural university and other public and private agencies have started advocating for organic farming in major crops.
4. In Tamil Nadu, 12,675 hectares of land is certified under organic farming. Currently, 10,000 organic farmers practice organic farming. Many of them are working without certification.

One of the important inputs required for organic farming is good quality organic seeds. Only chemically grown and treated seeds are available to farmers. Through, it is proposed to develop organic seeds involving farmers so that farmers have access to good quality organic seeds. In Tamil Nadu, organic seeds were produced on 175.38 acres in Ramanathapuram, Kancheepuram, Dindigul and Nagapattinam districts. Certified organic seeds and truthfully labelled seeds (TFL) were developed in Tamil Nadu under this component of organic seeds production.

Organic crops cultivated in Tamil Nadu

Coconut, cashew, coffee, Tea, rubber, Areca nut, bamboo and cocoa are the major plantation crops are the major plantation crops cultivated in Tamil Nadu.

Table 1 Crops recommended for organic farming in Tamil Nadu

Crop classification	Crops
Cereals and millets	Paddy, sorghum, maize and minor millets
Pulses	Pigeon pea, green gram, black gram
Oilseeds	Groundnut, castor, sunflower, sesame
Commercial crops	Cotton sugarcane
Plantation crops	Tea, coffee, cashew, coconut, arecanut
Spices	Chillies, turmeric, pepper, cardamon, coriander
Fruits	Mango, banana, guava, sapota and amla
Vegetables	Tapioca, tomato, brinjal, curcurbits, onion, cole crops, and leafy vegetables
Medicinal crops	Senna, Coleus, and Gloriosa

(Source: Agri-farming-2019)

Table 2 Potential areas for organic cultivation of fruit crops in Tamil Nadu

Crops	Potential districts in Tamil Nadu
Banana	Tiruchirapalli, Erode, Tirunelveli, Pudukottai, Thoothukudi, Thanjavur.
Mango	Krishnagiri, Vellore, Dindigul, Theni, Dharamapuri, Madhurai
Sapota	Tirunelveli, Erode, Karur, Dindigul
Grapes	Theni, Coimbatore
Guava	Madhurai, Dindigul, Vellore, Virudhunagar.
Anola	Tirunelveli, Sivagangai, Thoothukudi, Coimbatore, Dindigul, Erode

(Source: Agri-farming-2019)

The five largest organic vegetables growing districts in Tamil Nadu include Nilgiris (1,287 hectares), Coimbatore (77 hectares), Dindigul (55 hectares), Namakkal (49 hectares), Tiruppur (47 hectares).

Table 3 Potential areas for organic cultivation of vegetable crops in Tamil Nadu

Crops	Potential districts in Tamil Nadu
Tapioca	Namakkal, Salem, Dharmapuri
Drumstick	Thoothukudi, Dindigul, Karur
Tomato	Coimbatore, Dharmapuri, Salem, Krishnagiri
Onion	Perambalur, Tiruchirapalli, Namakkal, Dindigul.
Brinjal	Vellore, Kanchipuram, Theni, Coimbatore
Cabbage	Nilgiris, Krishnagiri, Dindigul
Potato	Nilgiris, Dindigul
Bhendi	Kanchipuram, Vellore, Dindigul

(Source: Agri-farming-2019)

Organic farming demonstration fields in Tamil Nadu

In Tamil Nadu, organic farming demonstration fields were set up in 24 acres of land in Kancheepuram, Dindigul, Nagapattinam and Ramanathapuram districts. It aims to bring a variety of organic farming in and around the beneficial villages. Demonstrate various organic farming technologies such as preparation and application of plant growth regulators, preparation of vermicomposting and compost, cultivation of Azolla, and use of cow urine, irrigation use of farm ponds etc., were done.

Organic farming policy of Tamil Nadu

Department of sustainable organic agriculture, Tamil Nadu Agricultural University (TNAU), said that it would be more than sufficient if the government fully implemented the existing organic farming policy. In Tamil Nadu, about 5000 individual farmers mostly small and backward farmers are engaged in organic farming. Only a few of them have organic certification agencies in the state.

The Erode district of Tamil Nadu was purposively selected as it is part of the 65% organic turmeric and cotton growing area of Tamil Nadu.

As per international resource data from Research Institute of organic Agriculture (FIBL) and the international federation of organic agriculture (IFOAM) statistics 2020, India stands at 9th position in terms of certified agricultural land with 1.94million hectare (2018-2019).

Table 4 Extent of organic farming in selected countries

Sr. No.	Country	Position	Area under organic certification (in million ha.)
1	China	3 rd	3.14
2	USA	7 th	2.02
3	India	9 th	1.94
4	Brazil	12 th	1.18

Source: APEDA-2019-2020

Organic farming is a new phase in India. According to the union Ministry of agriculture and farmers welfare (2020) approximately 78 million hectares of farms have been under organic farming in the country which is 2% of the 140.1 million hectares of net sown area.

Challenges for organic farming in Tamil Nadu

Key issues emerging in organic farming include low yields, increased soil fertility, and livestock integration, certification constraints, environmental factors, producer marketing, and policy support. It has been argued that organic farming is productive and sustainable, but that increasing scientific production requires strong support in the form of government subsidies, agricultural extension services, and research. However, organic farming has overcome many challenges, including.

Shortage of biomass

Many experts and well-informed farmers are not sure whether all the nutrients with the required quantities can be made available by the organic materials. Even if this problem can be surmounted, they are of the view that the available organic matter is not simply enough to meet the requirement.

Time

Organic farming requires greater interaction between a farmer and his crop for observation, timely intervention and weed control for instance. It is inherently more labour intensive than chemical/mechanical agriculture so that, naturally, a single farmer can produce more crops using industrial methods than he/she could by solely organic methods.

Lack of infrastructure

Most large organic farms still operate in an industrialized agriculture style, including industrial transportation of the food from field to plate. Unfortunately, this involves the adoption of the same environmentally harmful practices as those of factory farms which are however hidden under the cover of being organic.

Output marketing problems

It is found that before the beginning of the cultivation of organic crops, their marketability and that too at a premium over the conventional produce has to be assured. Inability to obtain a premium price, at least during the period required to achieve the productivity levels of the conventional crop will be a setback.

High input costs

The small and marginal farmers in India have been practicing a sort of organic farming in the form of the traditional farming system. They use local or own farm renewable

resources and carry on the agricultural practices in an ecologically friendly environment. The costs of the organic inputs are higher than those of industrially produced chemical fertilizers and pesticides including other inputs used in the conventional farming system.

Limited supply of organic foods

The production yields of organic farming are lower compared to conventionally grown food. The lower production is mainly due to not using industrial fertilizers, herbicides, and pesticides. Organic agriculture also requires more land to meet the previous production levels.

Conclusion

Organic food production costs are higher in the developed countries as organic farming is labour intensive and labour is costly in these countries. However, in a country like India, where labour is abundant and is relatively cheap, organic farming is seen as a good cost involved in chemical farming. The increasing demand for organic food products in the developed countries and the extensive by the Indian government coupled with its focus on agri-exports are the drivers for the Indian organic food industry. It is important to have a sustainable method of farming to meet the future food demand and at the same time be safe to the environment.

References

1. Ramesh, P., Panwar, N.R., Singh, A.B., Ramana, S., Yadav, S.K., Shrivastava, R., & Rao, A.S. (2010). Status of organic farming in India. *Current Sciences*, 1190-1194.
2. Ramesh, P., Singh, M., & Rao, A.S. (2005). Organic farming: its relevance to the Indian context. *Current Sciences*, 88(4), 561-568.
3. Reddy, B.S. (2010). Organic farming: status, issues and prospects- a review. *Agricultural Economic Research Review*, 23(347-2016-16927), 343-358.

HEALTH SEEKING BEHAVIOR OF TRIBAL POPULATION IN KALRAYAN HILLS, TAMILNADU (INDIA)¹⁸

Dr. R. ANNADURAI¹⁹ & Dr. L. SUMATHY²⁰

Introduction

Today, the uncontrolled way of life is the root cause of all sorts of miseries and many ill-fated diseases to human being. One percent of adivasis's health condition is very critical due to lack of proper health services. Malnutrition is one of the most important reason that the cause of death of community members, particularly women and children. Even after 68 years of Independence, various challenges faced by the health sector such as lack of education, absence of minimum health care and food insecurity are continuing major problems for the indigenous tribal people in India. Although, only availability of healthcare facility indicates a good health of the people of that particular area, whether, the people do not utilize this facility it create major problem in health issues in particular areas. Many studies have concluded that utilization of modern healthcare facilities is very poor among tribal population and they have far worse health indicators than general population. Commonly the indigenous communities are live in remote rural hamlets in hilly, forested and desert areas where illiteracy, trying physical environments, malnutrition, inadequate access to potable water, and lack of both personal and environmental hygiene and sanitation make them more vulnerable to disease. In other hand, tribal people have more vulnerable disease due to lack of awareness among these populations about the measures needed to protect their health, their distance from medical facilities, the lack of all-weather roads and affordable transportation, insensitive and discriminatory behavior by staff at medical facilities, financial constraints and so on. The majorities of tribals/adivasis in India have malnourished; know little about sanitation and have limited or no access to hospitals.

Review of Literature

Duggal et al. (1995) concluded that the burden of health care was inversely related to economic status of the household. Further their study found that the poorer households are found to be victims of inefficient health care system. The study revealed that health expenditure by household showed that about 6% of household income is being spent on curative care which amounts to rupees 250 per capita per annum.

Baily (1991) said that Indigenous people may be everywhere consider ritual remedies for diseases and they thought that the diseases are caused by supernatural agents, and counter magic for those caused by witchcraft and sorcery practices.

Basu (2000) has reported several reasons for the ill health condition of tribes in India. The study was listed the main causal factors for prevalence of health problems among tribes are unsanitary conditions, ignorance, lack of personal hygiene and health education.

Sha PK. (2003) found that in his study, in tribal areas the government has provided for the establishment of primary health centers for every 20,000 population and sub-centers

¹⁸ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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for every 3000 population, even though health care is not available to the majority of the tribals. This is for several reasons such as lack of accessibility to health facilities, non-availability of health staff in the health centers, quality of services, traditional practices and superstitions.

Ballabh and Chaurasia (2007) studied the Botto People of Ladakh in relation to the traditional medicine used in cold cough and fever found that fifty-six different species of plants are being used for the treatment of cold, cough and fever. The result found that the healthcare system of Botto people is based on Amchi system; a Tibetan system of medicine and health. It was further reported that thirty-four different combinations with minerals or rock salts are used for treatment. Various parts of the plants are being used in the treatment of the illness.

According to **Balgir (2011)** studied on the diverse factors of health problems among the tribes. The result itemized the factors that main contributing factors to poor health condition and prevalence of high morbidity are poor sanitation and hygiene, poverty, perception about the diseases, health-seeking behavior, hostile environment and blind beliefs.

A study in Rajasthan by **Sachdev (2012)** studied on the more or less similar kind of causal factors for the poor health condition of the tribes. The study highlighted that the ignorance, unawareness resulting in malnutrition, lack of nearby government hospitals, scarcity of safe drinking water and electricity are the main reasons for the poor health status of tribes of the state.

Kumar (2017) opined that Irula people suffered from both short and long-term diseases. The Irula people in the study area are believed that short-term disease is caused by some physical factors such as rain and climate, whereas the long-term illness is caused by the supernatural powers due to unavailability of road. They used to visit the local or traditional healers for treatment of diseases which is done by giving some herbs and observing some devotional pujas and rituals.

Statement of the Problem

A number of studies addressed health seeking behaviour among tribes in India. Only few studies have addressed on the health seeking behaviour of primitive tribes. Comparison of health seeking behaviour in tribes between diseases can bring into light whether home or heterogeneous health seeking behaviour exists among them anthropologists in contrast to other biomedical researchers are better equipped in highlighting the cultural, and social and contrast to other biomedical researchers are better equipped in highlighting the cultural, social, and life science dimension of health-seeking behaviour by non-participation observational tool. There are number of studies that persisted in tribal health particularly within the case of Kalrayan hills. The present paper give more emphasis on health aspects of the tribal in Kalrayan hills of Salem district.

Research questions

1. What is the health status of Tribes in Kalrayan hills of Pethanaickenpalayam block of Salem district in Tamil Nadu?
2. How does the effectiveness of healthcare programmes perceived by tribes in Kalrayan hills area?

Objectives

1. To examine the health seeking behaviour of tribes in Kalrayan hills.
2. To analyse the health seeking behaviour of tribal households in Kalrayan hills.

Hypothesis

- There is no significant difference between health seeking behaviour and health care services among the tribal households in the study area.

Research Methodology

The present study collected data from 140 household respondents from three panchayat viz Kurumandurai (49), Pagudupattu (51) and Kariyakovil (40) in Pethanaickenpalayam block of Kalrayan hills, Salem district.

Analysis and Discussion

Table 1 Family Size of Tribal respondents

Sl. No.	Panchayat	Family Size			Total
		Less than 4	5-6	7 and above	
1	Kurumandurai	23	20	6	49
2	Pagudupattu	21	26	4	51
3	Kariyakovil	19	18	3	40
		63	64	13	140

The analysis revealed that the 63 (45%) out of size of the family members are below 4.46 percent of the sample tribal's family has above 5-6 members and nine percent of family has more than 7 members in the family. In the present study areas most of them have large family size. The average size of family size of the tribal's family was six. A family which is longer in size with less income cannot lead a happy life. They cannot able to spent more money on their health care. As a result, the members in the family have welfare and opportunities to be developed in a healthy family atmosphere. On the other side, a family, that which is limited in size and is well planned, assumes all possible development opportunities to its members and helps them to protect themselves from insecurities of life.

Table 2 Annual Expenditure on Health

Annual Expenditure on Health						
Sl. No.	Income group	Less than Rs.2000	Rs.2000- Rs.3000	Rs.3001- Rs.4000	Rs.4001 and Above	Total
1	Low	77	21	14	---	105
2	Middle	10	7	4	---	21
3	High	---	---	11	4	14
		87	27	29	4	140

Source: Computed

The expenditure on health is an important factor, which influences the demand for healthcare services. The pattern of expenditure on health by the various income groups of respondents is presented in table. Of the total, 87 (62 per cent) had spent less than 2000, followed by 29 subjects (21 per cent) had spent Rs.3001-4000 annually, between Rs.2,001 to 3,000 spent by 27 subjects (19 per cent) had spent. Only 4 subjects (3 per cent) had spent above 4000. Among the respondents most of them were able to spent low amount on health i.e., less than Rs.2000 per annum. Among the middle income group subjects had spent between Rs.2000 to 4000. In the case of the high income group had able to spent Rs.3001-4000 on their health. It indicates that most of the tribal households had able to spent less expenditure

on health and. Duggal et al. (1995) concluded that the burden of health care was inversely related to economic status of the household. Further their study found that the poorer households are found to be victims of inefficient health care system. This result was supported by this present study.

Table 3 Care Seeking behaviour and Perception on Care seeking behavior

		Nil Cost		Cost Incurred		Total Cost	
		No	%	No	%	No	%
Care Seeking behaviour	No action	63	53	Nil	-	63	45
	Government	49	41	16	80	65	46
	Private	8	6	4	20	12	9
Perception on Care Seeking behaviour	HF is long distance	15	14	7	21	23	16
	Lack of Transport	25	26	8	24	33	24
	Difficult to reach HF	36	34	10	29	48	34
	Lack of Money	29	28	9	26	38	27

Source: Computed

The above analysis reveals that care seeking behaviour and perception on care seeking behaviour of tribals in three panchayat viz Kurumandurai, Pagudupattu and Kariyakovil in Pethanaickenpalayam block, Kalrayan hills. Salem District. 45% of households' cases in this community didn't take any action for their symptoms. Remaining 46% approached government health facilities and 9% approached local healers. The patient's perception about the health facility access was also measured. It was found that majority (34%) found difficult to reach health facilities and 27% felt lack of money to approach health facility for diagnosis. Sha PK. (2003) pointed that health care is not available to the majority of the tribals for several reasons such as lack of accessibility to health facilities, non-availability of health staff in the health centers, quality of services, traditional practices and superstitions. The present study confirmed similar results of the earlier studies towards Perception on Care Seeking behaviour.

Conclusion

Tribal health care is one of the most important of all human endeavours to improve the quality of tribal health must meet the need of the people. Therefore, we need more attention on tribal education, health, and environmental conditions through create awareness with the help of media, internet, Information technology, etc.

References

1. Balgir, R.S. (2011). Genetic Disease Burden, Nutrition and Determinants of Tribal Health Care in Chattisgarh State of Central-East India: A Status Paper. *Online Journal of Health and Althlied Sciences*. 10(1).1-7.
2. Ballabh, B. and Chaurasia, O.P. (2007). Traditional Medicinal Plants of Cold Desert Ladakh-Used in Treatment of-of Cold, Cough and Fever, *Journal of Ethnopharmacology*, 112.341-349.
3. Bhat R. The Private/Public Mix in Health Care in India. *Health Policy and Planning* 1993; 8(1): 43-56.

4. Duggal R, Nandraj S, Vadai A. (1995) Health Expenditure across States: Part-I, *Economic and Political Weekly* 1995; 30(1): 834-44.
5. Kumar N. (2017). A Study on Health Status and Perception of Illness among Irulas: Tribal People of Niligiri District Tamil Nadu. *Imperial Journal of Interdisciplinary Research*. 3(3). 1208-1212.
6. Sachdev, B. (2012). Perspective on Health, Health Needs and Health Care Services among Select Nomad Tribal Population of Rajasthan, India. Antrocom Online. *Journal of Anthropology* 8(1). 73-81.
7. Sha PK. (2003), The status of family welfare services in tribal areas: Highlights of the evaluation process, *Indian J Community Med*. 2003; 28.

Peer Reviewed Journal

ECONOMICS STUDY ON AREA AND PRODUCTION OF OIL SEEDS IN TAMIL NADU WITH SPECIAL REFERENCE TO TIRUCHIRAPPALLI DISTRICT²¹

Dr. C. SELVARAJ²² & Mr. A. MUNUSAMY²³

Introduction

Agriculture is the backbone of Indian economy and it is the largest industry in India, contributing for the growth of other sectors also. Even today, in spite of tremendous growth in industrial sector, nearly 70% of the people depend on agriculture. Oil seeds play a significant role in the day-to-day life of the people. It is impossible to imagine a human diet without edible oil. India is one of the leading oil seed producing countries in the world occupying 19% of the world's area and 10% of world's production. In the domestic agricultural sector, oil seeds occupy a distinct position after cereals, sharing 14% of the country's gross cropped area and accounting for nearly 6% of the Gross National Product and 10% of all agricultural products.² India is blessed with diverse agro-ecological conditions ideally suited for growing nine annual oil seed crops viz., groundnut, rapeseed/mustard, sun flower, sesame, soyabean, safflower, castor, linseed and niger, two perennial oil seed crops viz., coconut and oil palm. These oil seeds being raised mostly under rainfed conditions which are important for the livelihood of small and marginal farmers in the arid and semi arid eco systems of the country. Oil seeds constitute the principal commercial crop of India.

In India, the share of oil palm in the global consumption increased from 13 percent during 2007 to 15 percent during 2012. The growth trend is significant. Nearly 90 percent is imported from foreign countries. It is used for domestic food consumption. Palm oil is main among the vegetable oils. The change in consumption pattern, availability, pricing and policy changes of imports is the main determining factor for the economy. The oil is consumed in the country in refined form in the food industry. During 2019, India imported 83,42,285 million tonnes of palm oil. The total demand for edible vegetable oils is 17.5 million metric tonnes in 2018-19. It is estimated to increase at the rate of 3 to 4 percent per annum to 26.78 million metric tonnes in 2025. We are mainly depending upon the imports of edible and palm oil to meet domestic demand. Andhra Pradesh is leading in contribution of palm oil production in India. It accounts for 86 percent and Kerala, Karnataka contributes 10 percent, 2 percent, respectively. Some of the States such as Orissa, Tamil Nadu, Goa and Gujarat also contribute at a meagre level. The Department of Agriculture, Government of Tamil Nadu introduced oil palm crop as alternative crop during 1993-94. The interested farmers got involved in the oil palm cultivation. The farmers were seeking profits from the alternative crops. In Tamil Nadu, the plantation process started in Thanjavur district during 1997. Large size of plantations of oil palm was done at Aduthurai and Sirugamani Research Station of the Tamil Nadu Agricultural University. The Government of Tamil Nadu has identified 10 districts as potential for commercial cultivation of oil palm. Tamil Nadu Government has contracted with

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companies such as Ruchi Soya Industries (Chennai), Foods and Fats (Hyderabad), Vaidehi Properties (Kolkata), Godrej Agrovat (Mumbai) and Cauvery Oil Palm (Trichy). These companies were establishing the contract farming with the farmers for cultivation of oil palm. The cultivation of oil palm under this scheme was 45,000 ha up to 12th Five Year Plan Period.

Statement of the Problem

Even during Green Revolution, Government gave importance only to food grains. But, in later part of eighties, Government took several measures including the establishment of Technology Mission on Oil seeds (TMO) to increase the production of oil seeds. Due to this measure, there is a breakthrough in the production and yield of oil seeds, India has become an oil exporting country. In spite of the efforts and measures taken by the Government, there is instability in acreage, production and yield of oil seeds. Especially after the removal of restrictions on import of edible oils and the provisions of WTO agreement, the acreage under oil seeds is decreasing and magnitude of instability in yield and production of oil seeds are increasing. When there is an increase in consumption of edible oils in the country, stability in supply and price is necessary for the development of oil seed sector particularly in Tamilnadu. Therefore, there is a need to increase the area under oil seeds cultivation and to improve productivity to make self sufficiency in oil sector. To reach the target of stable growth and self sufficiency in oil seeds production and oils, it is essential to study the oil seeds and edible oil economy particularly in Tiruchirappalli district because this district is the leading producer and marketing centre for edible oils. In the present study, an attempt has been made to study the area and production of oil seeds in Tamil Nadu with special reference to Tiruchirappalli district. The study shows the opinions of the consumers towards the various marketing strategies adopted by the marketers of edible oil.

Objectives of the Study

1. To Study the area and production of oil seeds in Tamil Nadu and district level.
2. To study the factors influencing the production of oil seeds and marketing strategies adopted for sale of oil seeds in Tiruchirappalli district.

Analysis and discussion

Oils seeds Production in Tamil Nadu

The distribution of planting material is one of the subsidies provided by the Government. The Govt. of Tamil Nadu is providing 85 percent subsidy for cultivating the oil palm. In terms of rupees it is Rs.10,000 per ha During the first year, the government is providing 50 percent (Rs.6000/ha) subsidy for assistance of cost of cultivation during gestation period. During second year, they also provide maintenance cost at 50 percent (Rs.3500/ha). Under the scheme, the farmers are providing 50 percent subsidy for irrigation uses. And they are get Rs.15,000/ha at maximum. They are provided with 50 percent subsidy for inter-cropping inputs in oil palm fields with a maximum of Rs.10, 000/ha The scheme is being implemented in districts such as Cuddalore, Villupuram, Vellore, Tiruchirappalli, Karur, Perambalur, Ariyalur, Thanjavur, Tiruvarur, Nagapattinam, Theni and Tirunelveli. During 2014-15, oil palm cultivation was taken up in an area of 398 hectares besides providing maintenance support for older plantations. Planting material for intercropping in oil palm fields was provided at subsidized cost. All these activities were carried out at a cost of Rs.1.62

crore. During the year 2017-18 the scheme was proposed to be implemented with the outlay of Rs.4.40 crore (Policy Note 2017-18, Government of Tamil Nadu). With these in view, the study was conducted to analyse the growth trends in oil palm in Tamil Nadu during 2018-19.

Oilseed crops are the second most important determinant of agricultural economy, next only to cereals within the segment of field crops. The self-sufficiency in oilseeds attained through “Yellow Revolution” during early 1990’s, could not be sustained beyond a short period. Despite being the fifth largest oilseed crop producing country in the world, India is also one of the largest importers of vegetable oils today. There is a spurt in the vegetable oil consumption in recent years in respect of both edible as well as industrial usages. Tamil Nadu ranks first in the productivity of oilseeds in the country. Oilseeds occupy 7.7 percent of the gross area sown. Major oilseeds grown in Tamil Nadu are groundnut, gingelly, sunflower and castor. The normal area under oilseeds was 5.56 L.

Tamil Nadu wins Krishi Karman award for oilseed production

The Tamil Nadu government has won the Centre’s Krishi Karman award for the best performing state in oilseed production. The state has received Krishi Karman award four times since 2011 under various categories. The persistent efforts in the agriculture sector had the state producing 101.52 tonne of food production in 2011, the highest pulses production of 6.114 lakh tonne in 2013-14 and the highest coarse cereals production of 40.79 lakh in 2014-15 and again highest food production in 2015-16. Despite acute drought in the region in 2016-17, the state managed to produce 107.133 lakh tonne in the following fiscal. “In particular, oilseeds production touched 10.382 lakh tonne. The state also managed to get a yield of 2,729 kilo per hectare, which is 113% more than the national average. The state exceeded 100 lakh tonne of food production in 2011-12, 2013-14, 2014-15 and 2015-16.

Table 1 Time Series Data on Area, Production and Yield Rate of Principal Oil Crops

Sl. No.	Years	GROUNDNUT			GINGELLY		
		AREA (in ha.)	PROD'N (in tonnes)	YIELD RATE (in kg/ha.)	AREA (in ha.)	PROD'N (in tonnes)	YIELD RATE (kg / ha)
1	1991-92	1099214	1517620	1381	149425	59070	395
2	1992-93	1188405	1766320	1486	140798	68820	489
3	1993-94	1158350	1865590	1611	129355	59100	457
4	1994-95	1079893	1762390	1632	127023	59190	466
5	1995-96	933353	1520300	1629	99656	38880	390
6	1996-97	901508	1438300	1595	102570	44430	433
7	1997-98	867633	1408010	1623	88435	44600	504
8	1998-99	858140	1569790	1829	98824	52510	531
9	1999-2000	759309	1318220	1736	112025	66020	589
10	2000-01	699389	1358440	1942	103988	64610	621
11	2001-02	662982	1249630	1885	83848	45990	548
12	2002-03	502090	717403	1429	64481	28047	435
13	2003-04	591696	918241	1552	83835	29004	346
14	2004-05	615877	1005342	1632	72725	33840	465
15	2005-06	618835	1097592	1775	65118	30772	469
16	2006-07	508032	1006475	1981	52624	27328	519
17	2007-08	535211	1047586	1957	74376	32201	433

Sl. No.	Years	GROUNDNUT			GINGELLY		
		AREA (in ha.)	PROD'N (in tonnes)	YIELD RATE (in kg/ha.)	AREA (in ha.)	PROD'N (in tonnes)	YIELD RATE (kg / ha)
18	2008-09	489844	974768	1990	63693	32242	506
19	2009-10	413011	895718	2169	62677	29021	463
20	2010-11	385509	895638	2323	48189	25387	527
21	2011-12	385612	1060654	2751	43175	26447	613
22	2012-13	339361	786362	2314	33181	17179	518
23	2013-14	336621	915884	2721	56591	33708	596
24	2014-15	336514	925182	2753	64242	44748	697
25	2015-16	346611	892280	2574	46017	29369	638
26	2016-17	282488	588854	2085	28231	10837	384
27	2017-18	327352	1007452	3078	41582	23054	555
28	2018-19	335495	911240	2716	44610	24422	548
29	2019-20	346643	1032903	2980	53018	36481	688

Source: Season and Crop Report 2019-2020, Det. of Economics and Statistics, Govt. of Tamil Nadu.

Among the oilseed crops, groundnut is one of the most important crops of India. India is the largest producer and exporter of groundnut. Tamil Nadu occupies major area under groundnut crop i.e. 40 per cent of total area. In Tamil Nadu castor is being cultivated an area of 40000 ha as intercrop with groundnut under rainfed situation. The average yield recorded in Tamil Nadu is maximum 2.5t/ha under pure crop situation. In particular, oilseeds production touched 10.382 lakh tonne. The state also managed to get a yield of 2,729 kilo per hectare, which is 113% more than the national average. The study is based on secondary sources in Government of Tamil Nadu. Data was obtained from Seasonal Crop Reports (Various Issues and Years), Government of Tamil Nadu and Directorate of Agriculture, Government of Tamil Nadu, Chennai relating to area, production and yield at state and district level in Tamil Nadu. The compound growth rate, simple percentage and triennium ending analysis were applied.

Oil Seeds: Groundnut / Coconut

Groundnut is the major crop under Oilseeds accounting for 5.9% of the total cropped area in the State during 2019-20. It is raised as both rainfed as well as irrigated crop. Tiruvannamalai, Vellore, Ranipet, Tirupathur, Erode, Pudukottai, Villupuram, Salem, Dharmapuri and Namakkal districts together constitute about 70% of the total area under Groundnut in the State during 2019-20. Coconut is a Perennial Crop raised extensively in Coimbatore, Tiruppur, Thanjavur, Dindigul, and Kanniyakumari districts. The area under Coconut in these districts accounted for 55% of the total area under this crop during 2019-20.

Table 2 Oil Seeds Area and Production in Tamil Nadu

Year	Area (in '000' Hectares)	Production (in '000' Tonnes)
2015-2016	347	892
2016-2017	282	589
2017-2018	327	1007
2018-2019	335	911
2019-2020	347	1033

Source: Season and Crop Report 2018-2019.

Marketing of edible oils

The edible oil company in Thiruchirappalli district has followed many marketing strategies such as offering samples, advertisements, competitions, small package, direct mail, free gifts, conducting contests *etc* to achieve its goal of increasing sales volume. The major goal of every business is to increase sales, profit and consumer satisfaction by improving the marketing efficiency. Regarding channels of distribution, the survey reveals that only few quantity of edible oil which are produced in Thiruchirappalli are consumed locally and most of the production goes to other districts in Tamilnadu. The main center of marketing of Thiruchirappalli oils is Karur, Madurai, Kovilpatti, Thirunelveli, Nagercoil, Kanyakumari, Tuticorin and Sivakasi.

Determinants Responsible for Edible Oil Choice in Tamil Nadu

In the northern and western regions, peanut oil was traditionally consumed, hence these zones were pooled and results were presented. Similarly, for the central and eastern/coastal regions, peanut oil/sesame oil/peanut oil-cum-sesame oil was traditionally consumed, hence these zones were pooled and results were presented. In the southern region coconut oil was traditionally consumed which is unique, hence this zone was analyzed and presented separately. The education level of the decision maker in the family and family income was positive and significant for the sunflower category. It implies as education and income level increase the odds in favor of sunflower oil increases vis-à-vis the reference peanut oil. It was expected because with higher education and income levels, the probability of selecting the low- saturated fat containing oils like sunflower oil increases. The education, number of days of non-vegetarian food consumed in the family and family income was positive and significant at the .01 level for the sunflower cum other oil category implying as education increases by one level, the probability of selection of sunflower cum other oil combination would be 1.725 times higher than the reference peanut oil. Similarly, the family income has positive effect on the selection of sunflower with other oil combination compared to reference peanut oil. The effect of income in selecting sunflower oil in place of traditional peanut oil was less when compared to education. Hence, it can be concluded that in this zone, education was an important determinant in low-saturated fat containing sunflower oil selection.

The household size and social group of the households are the significant variables among the peanut-cum-palm oil category. Household size variable was positive implying as household size increase by one unit, the probability of selection of peanut cum palm oil would be 1.419 times that of reference peanut oil. It means the larger households prefer peanut + palm oil combination over the reference oil. These oils are consumed by the weaker section of the society. This may be due to lower income levels or lack of awareness about high-saturated fat levels in these oils by the weaker section households. The higher-educated households prefer low-saturated-fat oils like sunflower, sesame, and the like, compared to palm oil, coconut oil, or any combination of these oils. Among the palm oil category households, the household size, number of days of non-vegetarian food and income were significant implying the larger and more non-vegetarian food consuming households has high probability of consuming palm oil vis-à-vis the reference oils. This might be due to cost effectiveness for these families. Family income positively influenced the sunflower oil choice in this zone implying high income people have higher probability of sunflower oil consumption than the reference oils.

Recommendations

In Thiruchirappalli district, land availability for oil seed crops is limited. So, there is need to increase the cultivable lands by converting dry land into wet lands. The Government should pass necessary legislations to prevent the sale of agriculture lands to builders. Water management should be devised towards the protection of water bodies by preventing construction of roads, building and introducing drip irrigation in well irrigated areas. To increase productivity of oil seeds, input support should be given by promoting the use of quality purified/hybrid seed, plant protection chemicals/equipments, fertilizers, augmentation of integrated pest management. Non monetary inputs like training and education to farmers and extension officers for timely undertaking of various operations *i.e.*, sowing, intercultural, weeding and practices of prescribed agronomical techniques should be given. Warehousing facilities should be provided to store and sell the oil seeds produced in Thiruchirappalli district in important places. Also it is easier for the farmers to hypothecate and get loan against the oil seeds stored in warehouse. It would enable the farmers to obtain a reasonable price for their produce.

Conclusion

Hence, it is essential to step up production of non-traditional oils like sunflower besides the traditional oils to meet the current and future demand domestically. The majority of the socially and economically deprived class households across zones in urban and rural regions of the study area consume high-saturated fat oils like palm or palm cum other oils due to income constraints and lack of awareness about oils. Hence, appropriate policy measures can be taken to sell low-saturated fat oils like sunflower, sesame, rice bran etc., at subsidised rates through the existing Public Distribution System (PDS) in Tamil Nadu so as to ensure universal access across social groups to these oils. Most of the oilseeds crops in Tamil Nadu state are grown under dry land with minimum input conditions. The oil seed sector constitutes an important determinant of agricultural economy of Thiruchirappalli district. The demand for edible oils being highly income and price elastic, the increase in population coupled with the rise in income levels have led to ever increasing demand for edible oil in the recent years. In Thiruchirappalli district, there is a high degree of variation in annual production of oil seeds owing to their cultivation predominantly under low and uncertain rainfall situations and input starved conditions coupled with poor crop management. A favourable public policy which takes into account the interest of all section of oil seed sector is needed. All concerned with oil seed sector must contribute to the best advantage of oil seed farmers, particularly those producing these crops in the stress prone ecologies and environments.

References

1. Solvent Extractors' Association of India. (<http://www.rspo.org/content.php?Member-name=&member-search>) accessed on 14 February 2018.
2. Chadhar, K. L. 2006. Progress and Potential of Oil Palm in India. Department of Agriculture and Cooperation, Government of India, New Delhi, July.
3. Seasonal Crop Reports 2017, Department of Economics and Statistics, Government of Tamil Nadu, Chennai. pp. 48-50.
4. Government of Tamilnadu. 2016. Policy Note 2015-16, Department of Finance, Government of Tamil Nadu, Chennai. pp. 78-80.

5. State Agriculture Plan 2009, Tamil Nadu Agricultural University, Tamil Nadu, Coimbatore, Tamil Nadu, pp- 88-89.
6. Directorate of Agriculture. Government of Tamil Nadu, Chennai.
7. State Agriculture Plan 2009. Tamil Nadu Agricultural University, Coimbatore, Tamil Nadu, pp. 106.
8. Vijay Paul Sharma. 2014. Problems and Prospects of Oilseeds Production in India, Centre for Management in Agriculture (CMA), Indian Institute of Management (IIM), Ahmedabad, November.

Peer Reviewed Journal

A STUDY ON SLUM DWELLERS SOCIO ECONOMIC CONDITIONS IN VELLORE DISTRICT²⁴

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INTRODUCTION

Slum dwellers are the person or people residing in the slums. They are present at all over the city of all the states. They are living at urban areas and semi urban areas. They are weak and helpless people of major cities. Low Income, illiteracy, less facilities at home, bad health and lifestyle, less exposure, poor social support and security, etc are the major challenges of the slum dwellers. Most of them are not healthy since they are exposed to open sewage or dirty lake or wastages, poor basic amenities of life, unhealthy and unhygienic practices, poor ventilation, impure atmosphere and unorganized housing size. Slums are common at all over the world. Social scientists and researchers found that the slums are inevitable part of any city or state or country. The state and central government have to consider their lifestyle challenges and socio economic status of them and find their lifestyle changing solutions. The governments should develop them and eventually the infrastructure of the city

IMPORTANCE OF THE STUDY

The state and central has been supporting these slum dwellers with different schemes and policies from the olden days to modern days, is as seen in the late 1991(The new economics policy). This change has shown the way of economics status to provide the lifestyles of slum dwellers. The various dimensions adopted by the social economics conditions to regular involved in slum dwellers. The number of people has affected by lack of socio amenities, hygiene, health resources, and proper education. Few have gone into the extremes and loss of life even. It is all because of our limited lifestyle about safety and security. Conclude that everything depends on the lifestyle of attraction. The slum dwellers among the socio-economic conditions and its impacts lifestyle of slum dwellers are not an exception to this for the balanced development of the nation. It is extremely crucial to observe slum dwellers' society, economy and health conditions of our nation. This study has been done with the goal of offering suitable solutions to manage the challenges or problem of slum dwellers of Vellore District. This research work highlights the socio economic position of slum people in Vellore District slums.

SOCIO-DEMOGRAPHIC ASPECTS OF SLUM HOUSEHOLD

Many researchers and research data found that Slum dwellers are not living a normal life like other human beings in the society. Not only they are socially marginalized, but also they have reconciled with social inequities. With a low standard of living to attitude of slum-dwellers reportedly have health problems. They have limited access to health information and services. Among them, the mortality rate is high. So is the matter with birth rate and

²⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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population growth rate. Literacy and education are found from which flow all changes and progress. In sharp contrast, the literacy rate among the slum population is sadly low. Slum-dwellers mostly work as daily-wage workers, Construction workers, and industrial workers. Vendor's etc.

It may be due to prevailing low educational background and skills, the earnings of an increased number of slum residents were low. Less than 50% of total slum people are earning. Most of them are technical and mechanical workers. This is because of their acquisition of comparatively high skills over others in the group.

Objective

1. To study the socio economic conditions of slum dwellers in Vellore district.

Results and discussion

A balanced diet is essential for the proper physical and mental development of children. It follows that the state of nutrition and health in almost slums is precarious. It is estimated that around 45% of our nation's population are suffering from moderate to acute malnutrition. Furthermore, the main brunt of nutrition is borne by women and children. A survey of Delhi slum reported that 40 percent of children (below five years in age) were severely malnourished. Slums are frequently in the grip of contagious and infectious diseases for understandable reasons. They also have more than their due share of seasonal epidemics. For example, in Vellore District slums, Gastroenteritis springs up, year after year, during monsoons. All water borne diseases are head pain, fever, diarrhea, cholera, typhoid, vomiting, cold, giddiness, sore throat, Chickoanguina, throat infection, joint aches, cough, spinal cord pain, Dysentery, etc. The slum environment makes a child vulnerable to infections and diseases.

Family

Family is the basic unit of social and economic life in every society. The form and structure of a family may differ with place and time. Family is supposed to perform various functions ranging from reproduction to economic security.

Profile of the Slum Households

Most of the studies on slums show that the most of the slum dwellers are migrated to cities from their village or rural places. On the other hand, with limited resources and little experience of managing unduly large human settlements, developing countries find it challenging to maintain the quality of urban environment resulting in unplanned urbanization, lack of sanitation and safe drinking water supply. What is more, the influx of people to urban areas continues. Thus Slum population goes on increasing and slum dwellers getting socially marginalized and living in sub-human conditions. Most of the services presently being provided by the government are hardly able to meet the needs of the slum dwellers. Ironically enough, the process of change and development does not seem to have reached the slums, and, to most slum dwellers, gains of growth remain a distant dreamed. Those in Vellore District slums are no exception to this.

Slum Characteristics

This research study clearly explains the characteristics of slum people of Vellore District slums. Perhaps a delineation of slum characteristics would help to understand some of

the social contours which predispose households' transactions. Similarly, a systematic understanding of slum households may provide a perspective on the processes of interaction between household members and the allocation of resources among them.

Migration

It is observed that more than 10 percent of the slum dwellers have been born and brought up in the slums (in which they were contacted and interviewed). The remaining 90% of the families had moved to other places, mainly in search of a job. This is true of the selected slum where out of the total sample households, majority migrants were while the remaining were residents. This group of people could also be identified as – migrants. Since it was either their father or grandfather who had migrated generations ago primarily, the slum consisted of migrants from rural areas from other city and semi urban places. Thus the slum becomes a place of migrants. Migrants in Tamilnadu: Case of much ado about nothing

Conclusion

It is concluded that slum dwellers' society, economy, demography and health status are very bad in Vellore slums. Inadequacy of basic or fundamental facilities is inevitable on Vellore slums. The slum people are exposing to various challenges on their everyday life. Their houses are small, poor conditioned and low economics structured. There are poor lighting and ventilation facilities on their slum areas. These facilities have impact on their health, work, studies and other daily activities. There are many illiterate slum dwellers in Vellore slums. Children of slum people are not going to schools regularly. Their knowledge, behaviour and exposure are not good. Government should make more awareness about education on these slum areas to make them literate. It is found that there are many migrants who are living more on slum areas. They are belonging to lower socio economic group. Most of the slum dwellers are living at the core or central part of the city so that they can easily move to their workplaces of city. They are crucial contributor to economic activities of the Vellore District.

Reference

1. Sribas Goswami and Samita Manna (2013). "Urban Poor Living in Slums: A Case Study of Raipur City in India", Global Journal of Human Social Science Sociology and Culture, Vol. 13(4), pp: 15-21.
2. Mirsaeed Moosavi (2011). "An Introduction to Environmental Challenges of Life in Slum Settlements of Tabriz", International Conference on Humanities, Historical and Social Sciences, Singapore.
3. Mohana Basu and Snehamanju Basu (2016). "Socio-economic condition of the slums in Kolkata: A case study of ward no: 82", International Journal of Humanities & Social Science Studies, Vol. 3(2), pp: 141-151.

INDIA'S AGRICULTURAL POLICIES AND DIFFICULTIES²⁷

Dr .V. KALAISELVI²⁸

Introduction

Human Entities, or simply humans, are a species that stands apart from all other living beings in this planet of infinite diversity. It is not just our superior physiology as humans that give us a unique social character, but also our civilization. Human civilizations have been evolving since the dawn of time, and the majority of their progress has been focused on food collection and consumption, making agricultural techniques a vital component of their foundation.

Agriculture is a science, an art, and a profession that involves cultivating land for the purpose of growing crops as well as breeding and raising livestock. It is the re-channeling of energy for human and animal use, as well as the simplifying of nature's intricate food webs. When it comes to India, agriculture has been more of a way of life than a business. Agriculture has always played an important part in the Indian economy, and it continues to do so now. It is not an exaggeration to say that agriculture is the Indian economy's backbone. Agriculture's overall share has decreased while other industries have grown. Agriculture's overall contribution in the Indian economy has decreased through time, from roughly 51.8 percent in 1950-51 to around 15.8 percent in 2018-19, due to the rise of other sectors (in terms of Gross Value Added at current prices). However, the agriculture industry continues to play an important role in India's overall economic situation, employing more than half of the country's workers, particularly in rural areas.

Agriculture is also important for the country's food security. India's current population is projected to be around 1.3 billion people, a figure that has nearly doubled since the 1970s and is expanding at a rate of 1.08 percent each year. Our current farming system is under great strain as a result of our fast rising population and climate change. Climate change forecasting is difficult and contentious. There is widespread recognition that, if weather patterns become more irregular, climates will become less appropriate for current agricultural practices, with locations that are comparatively warm and humid being particularly disadvantaged. Higher temperatures are expected to cut crop yields by more than 25% and essentially shorten the growing season by extending periods of extreme heat, according to studies. Agriculture and variations in land use patterns account about 19-29 percent of total world greenhouse gas emissions. Because the nature of these changes is so unexpected, it will be in everyone's best interests to adhere to mitigation measures diligently.

India is a global agricultural powerhouse since it is the world's largest producer of pulses, spices, and milk, as well as having the world's largest cattle herd. It also has the most land planted in rice, wheat, and cotton. India is the world's second largest producer of rice, wheat, sugarcane, cotton, tea, vegetables, fruits, and cultured fish. Around 63 percent of the 195 million hectares (mha) of land under agriculture in India is rainfed, while the remaining 37 percent is irrigated.

²⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Pattern of Land Use

According to 2014-15 land use statistics, the country's total geographical area is 328.7 million hectares, with a reported net sown area of 140.1 million hectares and a gross cropped area of 198.4 million hectares with a cropping intensity of 142 percent. The net irrigated area is 68.4 million hectares, while the net sown area is roughly 43 percent of the entire geographical area.

According to the Agriculture Census Phase-I statistics for 2015-16, the number of operational holdings, or land used for agriculture, increased by 5.3 percent from 2010-11 to 2015-16. The share of tiny holdings (less than 1 hectare) in total operating holdings climbed from 62.9 percent in 2000-01 to 68.5 percent in 2015-16, while the share of marginal holdings (less than 1 hectare) increased from 62.9 percent in 2000-01 to 68.5 percent in 2015-16. The proportion of small holdings (1 ha to 2 ha) in total operational holdings climbed from 62.9 percent in 2000-01 to 68.5 percent in 2015-16, while the proportion of large holdings (1 ha to 2 ha) declined from 18.9 percent to 17.7 percent (2018-19).

The percentage of large holdings (above 4 hectares) fell from 6.5 percent to 4.3 percent. The area operated by marginal and small holdings increased from 38.9% in 2000-01 to 47.4% in 2015-16, whereas the area operated by major holdings declined from 37.2 percent to 20 percent.

Women have increased their share of operating holdings from 11.7 percent in 2005-06 to 13.9 percent in 2015-16. The marginal and small holdings grown by women farmers account for 27.9% of total operational holdings cultivated by women.

Objectives

1. To revealed enhancing yield of major commodities.
2. To probe the integrated nutrient management.
3. To examine increased investment in agriculture and infrastructures.
4. To suggest the measures of policies and strategies to enhancing and empowering taking the sector forward.

Current Trend

According to the NSSO's Situation Assessment Survey 2002-03, 40% of farmers would prefer to stop farming if they had the option. Similarly, micro-level research shows that youth are uninterested in agriculture-related jobs (Himanshu et al. 2016). Agricultural development is critical for increasing the incomes of people who rely on agriculture for a living. The agricultural and non-agricultural sectors are inextricably linked. Agriculture could not become a leading sector due to its weak backward links, according to the theory of unbalanced growth, which examines sectorial linkages (Hirschman, 1958). Over the previous few decades, Indian agriculture has undergone substantial changes. Multiple reasons have aided growth in this sector, including rising household income, expansion in the food processing sector, and an increase in agricultural exports. Increasing earnings rising incomes are causing a structural shift in the average Indian's dietary habits, widening the country's food demand to include high-value goods. Although grains account for 26% of total food consumption expenditure in rural India, high-value items (such as milk, meat, eggs, fish, fruits, and vegetables) account for 42%, according to the National Sample Survey estimates for 2011-12. (GoI, 2013). Quickly and efficiently modify and rewrite your content.

The Indian government has launched a number of schemes to help the agriculture sector. The Pradhan Mantri Gram Sinchai Yojana intends to irrigate every farmer's land while also improving water use efficiency in order to accomplish the motto "Per Drop, More Crop." In general, the plan improves irrigation availability. In 2018, 285 new irrigation projects were expected to be completed, covering 18.8 million hectares of land. The plan has been allotted US\$ 565.16 million in the Union Budget 2019-20. In the face of a slowing in land productivity growth, the support price mechanism has been employed to adequately pay farmers for this input intensification (Dev & Rao, 2010, 2015).

Table 1 Agricultural Commodity Demand

	Achieved TE 1997-99			Demand in 2020 (Million tons)		Yield Target in 2020
Item	Area (Million ha)	Production (Million tons)	Yield (Kg/ha)	LIG	HIG	LIG
Rice	42.2	85.7	1903	112.4	111.9	2664
Wheat	26.2	69.1	2582	82.3	79.9	3137
Coarse cereal	30.7	30.4	1041	38.9	37.3	1268
Cereal	99.1	185.2	1814	233.6	229.0	2357
Pulses	21.7	13.8	608	22.3	23.8	1029
Food grains	120.8	199.0	608	255.9	252.8	2119
Edible oil	28.6	6.4	269	10.8	11.4	379.7
Potato	1.2	21.6	17188	2135	30.6	22279
Vegetables	5.3	74.5	14204	67.8	168.0	25673
Fruits	3.2	43.0	13437	77.0	93.6	24064

Source: R. S. Paroda and Praduman Kumar (2000)

LIG stands for Low Income Growth. GDP growth of 3.5 percent per capita HIG stands for High Income Growth. GDP growth of 5.5 percent per capita Exports are part of the demand. 4.7 million Tonnes of rice, 3.6 million tonnes of wheat, and vegetables 2.2 million tonnes of fruit 1.4 mt and 0.49 mt, respectively.

Size of the Market

Rice output is expected to reach a new high of 112.91 million tons in 2017-18, according to the Fourth Advance Estimates. Wheat production is expected to reach a new high of 99.70 million tons, up 1.19 million tons from the previous year's total of 98.51 million tonnes.

Furthermore, production of nutri/coarse cereals is expected to reach a new high of 46.99 million tonnes in 2017-18, while total pulses production is expected to reach a new high of 25.23 million tonnes. The country's total oilseeds production in 2017-18 is expected to be 31.31 million tonnes, slightly higher than the 31.28 million tonnes produced in 2016-17. In addition, the expected cotton production of 34.89 million bales (each weighing 170 kg) is 2.31 million bales greater than the 32.58 million bales produced in 2016-17. In addition, jute and mesta production is expected to reach 10.14 million bales (each weighing 180 kg) in 2017-18. In addition, overall sugarcane production in the country is expected to reach a new high of 376.90 million tonnes in 2017-18.

India's total agricultural exports increased at a CAGR of 16.45% from FY10 to FY18, reaching US\$ 38.21 billion. Between April 2018 and February 2019, farm exports totaled US\$ 34.31 billion. In 2017-18, India's spice exports were US\$ 3.1 billion, making it the world's top producer, consumer, and exporter of spices and spice goods. In CY 2017, India's tea exports hit a 36-year high of 240.68 million kg, while coffee exports hit a new high of 395,000 tonnes. In 2017, India's food and grocery retail business was worth US\$ 380 billion (IBEF 2019).

Strategies, Policies, and Challenges

The main issue currently is that agricultural development is no longer at the forefront of policymakers' concerns, since changing paradigms of development theory at the international level and specific developments in India have relegated agriculture to a secondary concern. The postwar literature on development theory highlighted the importance of agricultural modernization as a precondition for industrial expansion, which was then viewed as the sole indication of a country's development (Lewis, 1955; Schultz, 1964). Though agricultural growth and farmer profitability improved in the first decade of the new millennium, the growth was mostly driven by price incentives, raising severe worries about its long-term viability in the absence of breakthrough technologies (Chand, 2014; World Bank, 2014).

The following are some of the major issues facing India's agriculture sector, according to the World Bank:

- Increasing agricultural productivity per unit of land: With nearly all cultivable land under cultivation, increasing agricultural productivity per unit of land will be the main engine of agricultural expansion. Water resources are likewise restricted, and irrigation water supply will be hampered by rising industrial and urban demands.
- Reducing rural poverty: Rural poverty can be decreased by implementing a socially inclusive plan that includes agriculture as well as non-farm jobs, with the goal of ensuring that rural development benefits the poor, landless, women, reserved castes, and tribes. Furthermore, there are significant regional discrepancies, such as the fact that the bulk of India's impoverished live in rain-fed areas or the Eastern Indo-Gangetic region.
- Factoring food security into agricultural growth: During India's Green Revolution in the 1970s, a dramatic increase in food-grain production allowed the country to achieve food-grain self-sufficiency and avert famine. Agricultural intensification in the 1970s and 1980s increased demand for rural labour, resulting in higher rural salaries, which, when combined with lower food prices, alleviated poverty in rural areas. Despite this, agricultural growth decreased in the 1990s and 2000s, averaging around 3.5 percent per year, while cereal yields only increased by 1.4 percent per year in the decade.
- Notably, the agricultural sector is critical to the Indian economy, owing to the fact that it employs the bulk of the rural population (64.2%). Because a large portion of the rural population is reliant on it (Agricultural Census 2010-11). Given the importance of this industry, the Indian government has taken many initiatives to ensure its long-term success.
- Improving soil fertility through the Soil Health Card initiative;
- Improving irrigation availability and increasing water efficiency through the Pradhan Mantri Krishi Sinchai Yojana (PMKSY).
- The Paramparagat Krishi Vikas Yojana promotes organic farming (PKVY).

- Support for the formation of a unified national agriculture market to help farmers earn more money. To reduce the risk of crop loss in the agriculture industry, a new scheme called Pradhan Mantri Fasal Bima Yojana (PMFBY) was launched in Kharif 2016.

An Increase in Agriculture and Infrastructure Investment

The agriculture sector's deteriorating productivity and low capital formation can be attributed in large part to the sector's declining governmental investment. This trend is concerning, given the future load on productivity-driven growth. Appropriate policy measures are needed to boost agriculture's weak pace of private investment. Given that about 70% of India's population still lives in villages, the agricultural sector will continue to be the primary driver of broad-based economic growth and development in the country. This will also help with natural resource conservation, as well as food security and poverty reduction. The participation of NGOs, including farmer groups, at the community level should be promoted by the government.

Food security, poverty alleviation, and natural resource management sustainability are all priorities for the government. Recent evidence of resource depletion and decreased productivity in some intensively farmed areas is especially alarming.

Modern biotechnology approaches, such as genetic engineering, as well as traditional breeding methods, are projected to play a key role in the production of higher yielding, pest and stress resistant wheat, rice, and maize varieties. The genetic innovations are centered on high levels of investment in research and development, as well as the development of highly competent human resources.

Governments and private donors must enhance financing for agricultural research immediately. In addition, in order to develop a sustainable situation, every effort must be taken to ensure the free movement of technology and information.

Empowering small farmers is a priority

Despite the associated insecurity and vulnerability, small landowners' contributions to food security have expanded significantly. Off-farm and non-farm employment possibilities can help them improve their circumstances significantly. Agricultural research and development, increased information and extension, infrastructure development, improved irrigation technology, and investments in human resource development can all help to increase agricultural productivity.

Conclusion

- Farmers' incomes are low and fluctuate over time, which is one of the key causes of agrarian misery. The situation is significant and worsening with time, affecting substantial segments of the population that rely on agriculture for a living. Persistently low income levels may have a negative impact on India's agriculture economy.
- To ensure the future of agriculture in the country, adequate attention is essential to boost agricultural revenues and hence the welfare of farmers. To achieve this, the gap between farm and non-farm income will be narrowed, agricultural hardship will be alleviated, inclusive growth will be encouraged, and vitality will be infused into the farming sector. Good farm incomes will also draw young people to farming, reducing the need for non-farm jobs a component of the ever-increasing load. It will be difficult to double farmers' income by 2022, but it is necessary and achievable.
- Modern machinery, such as precision seeders and planters, laser field levelers, and farming practices, such as direct seeded rice, SRI (system of rice intensification), zero tillage, raised bed and ridge plantation, agro-forestry, and so on, enable very efficient farming.

- In addition, grassroots level innovations and traditional practices that are resilient, sustainable, and revenue improving should be included in research and development packages. With a focus on farm revenue, the Indian Council of Agricultural Research and State Agriculture Universities should collaborate to build tailored farming models for various socioeconomic and biophysical contexts. Improved price realization, better post-harvest management, improved irrigation infrastructure, competitive value chains, and the adoption of associated activities can all contribute to at least a third of the increase in farmer income.
- The ultimate duty for adopting bold decisions with a vision of moving the sector ahead and addressing the vexing difficulties associated with it rests with the political leadership.

Peer Reviewed Journal

AN ECONOMIC ANALYSIS OF COCONUT CULTIVATION AND PRODUCTION IN TAMILNADU²⁹

B. VICTORIYA³⁰ & Dr. K. PRAKASAM³¹

Introduction

Foods containing natural antioxidants can be used as a strategy to reduce morbidity and mortality especially due to oxidative stress and the prevalence of degenerative diseases. Coconut water is a natural, healthy, nutritious drink from coconut palm trees widely grown in tropical countries. Indonesia is the largest coconut growing country in the world. TCW has a therapeutic effect, containing various nutrients such as minerals, vitamins, antioxidants, amino acids, enzymes and growth hormones. Recent studies have shown that TCW is rich in L-arginine, a free form amino acid, and vitamin C, which can prevent heart disease and lipid peroxidation. Also, TCW also contains various important compounds for the body, such as magnesium, potassium, calcium, selenium, methionine, zinc, iodine, manganese, boron, molybdenum and phytohormone such as auxin, cytokines, gibberellins L-arginine can be used for the therapy and reduce the effects of heavy metal poisoning.

Coconut palm provides food security and livelihood to large size of population in the world particularly in Asia Pacific Countries. Coconut is a source of food, beverage, medicine, natural fiber, fuel, wood and raw materials for units producing a variety of goods. Coconut is interlinked with socio economic life of large number of small and marginal farmers in the peninsular India. It is estimated that about 11 million people in India are dependent on the coconut sector in areas of cultivation, processing and trading activities. With an annual production of around 16,000 million nuts, coconut contribution to nation's GDP is about 16,000 crores rupees.

Statement of the problem

Coconut water, being a refreshing beverage, provides important health benefits. The chemical components which contribute to its bioactivity are essential to the plant industry, biotechnology and biomedical fields. Undoubtedly, cytokinins are currently the most important components in coconut water. The potential anti-cancer properties of specific cytokinins could bring encouraging and novel perspectives in finding cures for the different types of cancers. The recent discovery of other medicinal values of coconut water signifies a good potential in improving human health. Better insights and understanding of the functions and properties of the individual components of coconut water will, therefore, help us to better utilize this marvellous and multidimensional liquid with special biological properties from nature.

Objectives of the study

1. To study the Area, production and productivity of coconut in Tamil Nadu from 2000-2001 to 2020-2021.

²⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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2. To find out the area production and productivity of coconut during 2019-2020 to 2000 to 2021 in Cuddalore district.

Methodology

This study is based on secondary data collected from 2000-2001 to 2020-2021. Trendline and Rank correlation method.

Result and Discussion

Table1 Area under Cultivation of Coconut from 2000-2001 to 2020-2021 in Tamil Nadu

S. No.	Year	Area Under Cultivation of Coconut in Hectares
1.	2000-2001	323485.00
2.	2001-2002	335632.00
3.	2002-2003	345886.00
4.	2003-2004	352710.00
5.	2004-2005	357056.00
6.	2005-2006	370515.00
7.	2006-2007	374604.00
8.	2008-2009	383366.00
9.	2009-2010	389429.00
10.	2010-2011	400466.00
11.	2011-2012	410149.00
12.	2012-2013	419400.00
13.	2013-2014	424121.00
14.	2014-2015	428538.00
15.	2015-2016	427842.00
16.	2016-2017	434875.00
17.	2017-2018	435673.00
18.	2018-2019	436022.00
19.	2019-2020	439746.00
20.	2020-2021	438935.20

Source: <https://coconutboard.gov.in/Statistics.aspx>

Compiled from Secondary data

As per the table areas under cultivation of coconut have been increased by gradually from 2000-2001 to 2019-2020. It has been depicted by trend line viz., least square method the prediction of area under cultivation for the year of 2029-2030 will be 5952386.91 hectars of coconut cultivation.

YEARS	Y	X	X Multiplied by 2	X ²	XY
2000-2001	323485	-9.5	-19	361	-6146215
2001-2002	335632	-8.5	-17	289	-5705744
2002-2003	345886	-7.5	-15	225	-5188290
2003-2004	352710	-6.5	-13	169	-4585230
2004-2005	357056	-5.5	-11	121	-3927616
2005-2006	370515	-4.5	-9	81	-3334635
2006-2007	374604	-3.5	-7	49	-2622228
2008-2009	383366	-2.5	-5	25	-1916830

YEARS	Y	X	X Multiplied by 2	X ²	XY
2009-2010	389429	-1.5	-3	9	-1168287
2010-2011	400466	-0.5	-1	1	-400466
2011-2012	410149	0.5	1	1	410149
2012-2013	419400	1.5	3	9	1258200
2013-2014	424121	2.5	5	25	2120605
2014-2015	428538	3.5	7	49	2999766
2015-2016	427842	4.5	9	81	3850578
2016-2017	434875	5.5	11	121	4783625
2017-2018	435673	6.5	13	169	5663749
2018-2019	436022	7.5	15	225	6540330
2019-2020	439746	8.5	17	289	7475682
2020-2021	438935.2	9.5	19	361	8339768.8
N = 20 $\Sigma Y = 7928450.2$ $\Sigma X = 0$ $\Sigma X^2 = 2660$ $\Sigma XY = 8446912$					
$YC = a + bx$ $\Sigma y = Na + b\Sigma x$ $\Sigma xy = a\Sigma x + b\Sigma x^2$ $\Sigma y/N = a + b\Sigma x/N$ $a = 7928450.2/20 = 396,422.51$ $\Sigma xy/\Sigma x^2 = b$ $8446912/2660 = 3175.53$ $yc = a + bx = 396422.51 + 3175.53x$ yc for the year of 2029-2030 at $x = 37$ $x = 396422.51 + 3175.53(37) = 396422.51 + 117494.61$ will be = 513917.12 hectare of coconut cultivation					

Table 2 Coconut Cultivation in Area, Production and Productivity from 2000-2001 to 2020-2021 in Tamil Nadu

S. NO	YEARS	Area under cultivation of coconut in hectares	COCONUT Production (Laks)	COCONUT Productivity (Production/Area)
1.	2000-2001	323485.00	31920.00	9868
2.	2001-2002	335632.00	32936.00	9813
3.	2002-2003	345886.00	28607.00	8271
4.	2003-2004	352710.00	25605.00	7260
5.	2004-2005	357056.00	40970.00	11474
6.	2005-2006	370515.00	48671.00	13136
7.	2006-2007	374604.00	54299.00	14495
8.	2008-2009	383366.00	54385.00	14186
9.	2009-2010	389429.00	53620.00	13769
10.	2010-2011	400466.00	55471.00	13852
11.	2011-2012	410149.00	58942.00	14371
12.	2012-2013	419400.00	62009.00	14785
13.	2013-2014	424121.00	50747.00	11965
14.	2014-2015	428538.00	46680.00	10893
15.	2015-2016	427842.00	49890.00	11661
16.	2016-2017	434875.00	59626.00	13711
17.	2017-2018	435673.00	47064.00	10803
18.	2018-2019	436022.00	41765.00	9579
19.	2019-2020	439746.00	40929.00	9307
20.	2020-2021	438935.20	49474.00	11271

Source: <https://coconutboard.gov.in/Statistics.aspx>

Compiled from Secondary data

The Table No 2 has been very clearly revealed by coconut cultivation in Area, production and productivity in Tamil Nadu From 2000-2001 to 2019-2020. According to the table, only area under cultivation of the coconut has been gradually increased where a coconut production in lakhs and coconut productivity both have been fluctuated in the periods of 2002-2003, 2003-2004, 2009-2010, 2013-2014, 2014-2015, 2015-2016, 2017-2018, 2018-2019, 2019-2020 and 2021-2022 which can be showed by the figure of trend line.

Table 3 Top 10 Districts of Coconut Cultivation and Production in the year of 2019-2020 in Tamil Nadu

S. No.	Districts	Area (000 hec.)	Production (in Laks)	Rank for Area	Rank for Production	D (R1-R2)	D ²
1	Coimbatore	87749.20	14882.00	1	1	0	0
2	Tiruppur	61890.00	5159.00	2	3	-1	1
3	Thanjavur	38777.00	5528.00	3	2	1	1
4	Dindigul	28657.00	3722.00	4	4	0	0
5	Kanniyakumari	24429.00	942.00	5	10	-5	25
6	Theni	21318.00	2167.00	6	5	1	1
7	Krishnagiri	14767.00	1668.00	7	7	0	0
8	Erode	14686.00	1446.00	8	8	0	0
9	Salem	12659.00	1689.00	9	6	3	9
10	Tenkasi	11618.00	1050.00	10	9	1	1
	Total	87749.20	14882.00			0	38

Source: <https://coconutboard.gov.in/Statistics.aspx>

Compiled from Secondary data

The above table 3 has been shown by top ten Districts' area and production of coconut in Tamil Nadu. As per the table the area wise ranking in ascending order of top ten Districts are followed by (1) Coimbatore (2) Tiruppur (3) Thanjavur (4) Dindigul (5) Kanniyakumari (6) Theni (7) Krishnagiri (8) Erode (9) Salem (10) Tenkasi. Likewise in coconut production wise ranking in ascending order of top ten Districts are followed by (1) Coimbatore (2) Thanjavur (3) Tiruppur (4) Dindigul (5) Theni (6) Salem (7) Krishnagiri (8) Erode (9) Tenkasi (10) Kanniyakumari. Due to different in shortages of Irrigation and Climatical Factors and soils in the top ten Districts' production has affected. Besides, not complete efforts have been taken in measures of disinfection and pest control diseases and not uniform measures for controlling price of the coconut.

Table 4 Area, Production and Productivity in Cuddalore Districts from 2000-2001 to 2019-2020

S. No.	Years	Area (Ha)	Production in Lakh Nuts	Productivity Nuts/Ha
1.	2000-2001	2478.00	462.00	18644
2.	2001-2002	2643.00	241.00	9118
3.	2002-2003	2670.00	357.00	13371
4.	2003-2004	2652.00	391.00	14744
5.	2004-2005	2743.00	378.00	13781
6.	2005-2006	2722.00	332.00	12197

S. No.	Years	Area (Ha)	Production in Lakh Nuts	Productivity Nuts/Ha
7.	2006–2007	2529.00	475.00	18782
8.	2007–2008	2497.00	351.00	14057
9.	2008–2009	2524.00	505.00	20008
10.	2009–2010	2513.00	383.00	15241
11.	2010–2011	2230.00	384.00	17220
12.	2011–2012	2343.00	437.00	18651
13.	2012–2013	1990.00	187.00	9397
14.	2013–2014	1881.00	152.00	8081
15.	2014–2015	1772.00	153.00	8634
16.	2015–2016	1732.00	191.00	11028
17.	2016–2017	1640.00	381.00	23232
18.	2017–2018	1626.00	342.00	21033
19.	2018–2019	1610.00	339.00	21056
20.	2019–2020	1648.00	191.00	11590
Total	N=20	44443.00	6632	299865
Average Production in the Year group (2000-2020):		2222.15	331.60	14993.25

Source: <https://coconutboard.gov.in/Statistics.aspx>

Compiled from Secondary data

The area in hector, production in lakhs and productivity of coconut in Cuddalore district has been fluctuated in the study period. The average production in the year 2000-2020 were 2222.15, 331.6 and 14993.25 area in hectors, production in lakhs and productivity respectively.

Conclusion

Coconut is grown in more than 80 countries. Tree crop such as coconut is of major importance to India's economy. The coconut tree has an unfathomed influence on the rural economy and it provides livelihood to more than 10 million people.

PROMOTION OF REAL ESTATE AND ITS EFFECT ON AGRICULTURE LAND IN TAMIL NADU³²

THAMIZANBAN. E³³

Abstract

Land is the basic natural resource of human society. Rapid economic development as well as growth of population, urbanization and industrialization put pressure on a country's limited natural resource base. Land conversion is one of the process to changing land use from agriculture use to non-agriculture uses i.e. urbanization and rural housing demand explosion. It was observed that some farmers converted land into residential use and left agriculture before land prices fell, thus reducing the area of agricultural land close to big cities. Urbanization has resulted in increased spatial changes, most commonly near and within urban centers. If transport infrastructure and public transport are fully developed, rural areas adjacent to urban centres will actively participate in the socio-economic life of nearby cities. Accelerating urban growth is leads to the loss of agricultural land, raising concerns for the provision of food to poor people and peri-urban farmers' livelihoods. This is an almost unavoidable phenomenon in times of population growth and economic development. However, uncontrolled conversion of land in general can have a major impact on environmental collapse and, in particular, pose a threat to food security over time. The level of urbanization and rural housing expansion has also been increasing over the years which lead to loss of farmland and agricultural land.

Real estate is the most important service industry and promoting housing sector in Tamil Nadu and India. After the liberalisation, the real estate in Tamil Nadu has become more prominent result in the increase of business opportunities and migration of labour has resulted in increasing demand for housing and commercial space. The growing urbanization, rural housing explosion and development of Tamil Nadu attract thousands of immigrants to this area over the years.

Therefore, this study tried to explore theoretical analysis of the effects of real estate promotion and agricultural land shrinkage in Tamil Nadu. Aware of the importance of agricultural land transfer, this study analyse the facilitation of real estate and the effect of agricultural land shrinkage in Tamil Nadu. The study was made in Tamil Nadu, a region that has a highly agricultural land converted to urbanization and industrial land demand. This paper argues that heavy burden of taxes on residential properties only increase farmers' living costs and lead to agricultural land loss, and that policies that promote various activities and reduce the cost of housing are important to preserve agricultural land on urban fringes.

Introduction

Farmland is a limited national resource that is vital to a country's economic growth and development. Land use is usually demand-driven divided between agricultural and non-agricultural sectors. Land conversion is the process of changing land use from agricultural to

³² Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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urban and industrial uses. This is an almost inevitable phenomenon in times of economic development and population growth. However, uncontrolled land conversion has a major impact on environmental damage in general and poses a threat to food security in particular over time. Tamil Nadu is the second largest industrialized state after Maharashtra. The degree of urbanization and industrial expansion is also increasing year by year lead to loss of farmland.

Research issue

With declining population and declining demand for rental properties, landowners tend to be slow to adapt and often fail to earn a decent return on their land. This results in unstable income for farmers, which may eventually lead to the sale of farmland, thereby losing its multifunctional benefits. In many areas, suburban agriculture is expected to provide such multifunctional benefits to local populations (Zasada, 2011), but ensuring this requires an appropriate land-use planning system based on an understanding of the potential for loss of agricultural land to other uses.

Objective

1. To assess the impact of real estate promotion and agricultural land shrinkage in Tamil Nadu.

Methodology

The study was conducted in Tamil Nadu, a region that has a high conversion rate of agricultural land mainly due to urbanization and industrial land demand. Data from secondary sources like Census Reports, Economic Appraisal of Tamil Nadu, Central and Tamil Nadu state government reports were obtained for the purpose of analysis.

Evolution of Land Use Pattern in India

The Directorate of Economics and Statistics provides estimates for the agricultural and non-agricultural sectors, as shown in Table 1.

Table 1 Trends in land use in India

Classification	(in million hectares)		
	1950-51	1990-91	2014-15
Geographical area	328.73	328.73	328.73
Reporting area	284.32	304.86	307.80
Forest	40.48	67.81	71.79
Area under non-agricultural uses	9.36	21.09	26.88
Barren and unculturable land	38.16	19.38	16.99
Other uncultivated land excluding fallow	49.45	30.22	25.83
Fallow land	28.12	23.37	26.18
Net areas own	118.75	143.00	140.03
Cropping intensity	111.07	129.89	141.6
Net irrigated area	20.85	48.02	68.38

Source: Ministry of Agriculture and Farmer's Welfare, Agricultural Statistics (2016).

Net sown area increased significantly from 118.7 million hectares in 1950-51 to 143 million hectares in 1990-91, but declined slowly in subsequent years. During the same period, land use for non-agricultural purposes (urbanization, industrialization, and infrastructure) showed a steady upward trend, from 9.36 million hectares in 1950-51 to 21.09 million

hectares in 1990-91, and then to 26.88 million hectares in 2014-15. Obviously, the urbanization process has little pressure on cultivated land. If urbanization trends are as mild as in the past, there is no longer the risk of massive loss of farmland in the future. The impression that the urbanization pressure on arable land is rather moderate is reconfirmed if the changes in the proportion of land use in recent decades are taken into account. It shows that non-agricultural land use increased from 6.92% of the total area in 1990-91 to 8.73% in 2014-15.

Law and Policy on Land Use

Key features of the legislation (Land Acquisition Act, 1894) were repealed at the same time as the Land Acquisition, Restoration and Resettlement Act 2013 (LARR Act, 2013) came into effect. Land requisitioned under the Act can be used not only by the central or state governments, but also by companies or companies owned by them, as well as by private companies. The Act also provides for the acquisition of land “for the construction of buildings or works by companies engaged in trades or jobs serving public purposes”.

Based on the experience of developed and other developing countries, urbanization is expected to accelerate as rural populations leave for industry and services to make a living. However, data from the last four decennial censuses show that the ten-year growth rate of the urban population has slowed, increasing from 24.66% in 1971-81 to 23.87% in 1981-91 to 21.54% in 1991-2001 and 17.70% in 2001-11. The urban population increased only marginally from 20.2% in 1971 to 31.16% in 2011.

The Strategic Urban Planning Working Group of the Twelfth Plan (Ministry of Housing and Urban Poverty Alleviation, 2011) recommended replacing the current system of land use regulation through master planning with a system based on strategic urban planning. The master plan will be replaced by the Space and Development Plan (SDP), which includes proposed land use and development control regulations. Strategic densification of existing cities has been proposed as new cities develop along transport and industrial growth corridors. The working group also emphasizes the integration of land use and transportation planning to promote functional and spatial connections between housing, workplaces and business parks.

Reducing the loss of agricultural land

In order for the country to realize its development potential and alleviate the economic difficulties of the rural population, it must accelerate the process of urbanization. Urban sprawl leads to low-density urbanization and has a tendency to engulf large areas of arable land. There are currently no estimates of the area occupied by infrastructure projects or industrial estates or individual industrial units. Even if urbanization is properly regulated, World Bank projections suggest that large areas of land must be set aside to meet the housing needs of the population.

Therefore, it may be difficult to prevent the loss of arable land due to urbanization in the coming decades. Loss of agricultural output can be offset by increased productivity and multiple cropping. The real limiting factor will be the availability of irrigation water. The country's final irrigation potential is estimated at 139.89 million hectares and by the end of the 11th Five-Year Plan (31 March 2012), 113.53 million hectares of irrigation potential had been created (CWC 2015). While there is some scope for irrigation to expand, potential climate change is already weighing on the outlook. Adaptation to the climate requires the use of micro-irrigation (drip and sprinkler) to conserve water while increasing agricultural yields to offset declines in agricultural yields due to the loss of arable land.

Real Estate in Tamil Nadu

Tamil Nadu is the 11th largest state in the country with an area of 130,058 square kilometers. Tamil Nadu accounts for about 3.96% of India's geographic area, and 5.95% of India's population (2011 census). An estimated 48% of the population lives in urban areas. Tamil Nadu is considered to be one of the most urbanized states among the major Indian states.

Tamil Nadu is the country's second largest economy with an estimated gross national product (GSDP) of Rs.15.96 billion (\$220 billion) in 2018-19. The real growth rate of government gross domestic product (GSDP) between 2004-05 and 2013-14 was 9.2%, supported by the primary, secondary and tertiary industries, which increased by 4.38%, 8.34% and 10.48% respectively over the same period.

Real estate is the most important service industry in Tamil Nadu and India. It is the fourth largest sector in terms of foreign direct investment (FDI) and is recognized for rapid growth. In India, real estate is the second largest employer after agriculture and is expected to grow by 30% over the next decade. The real estate industry includes four sub-sectors - residential, retail, hospitality and commercial. The construction industry ranks third out of 14 major industries in terms of direct, indirect and induced impacts across all economic sectors. With the liberalization of the economy, the importance of the Indian real estate sector is increasing as the resulting business opportunities and labor migration increase the demand for commercial and residential space. The growing urbanization and development of Tamil Nadu attracts thousands of immigrants this has resulted in huge demand for real estate over the years.

The rapid growth of the residential real estate industry in recent years is mainly due to: population growth, migrate to cities; there are many employment opportunities in the service industry and easy access to funds; and the demand for housing has increased significantly while the supply of housing has not kept up with demand, leading to a sharp rise in home equity, especially in urban areas. Broadly speaking, the residential real estate can be divided into four growth areas. The trends urbanization of Tamil Nadu during the 1981 to 2011 census period can be seen in table 2.

Table 2 Urbanisation in Tamil Nadu

Sl. No.	Year	Total population (in Percentage)	Share in India
1	1981	32.95	10.00
2	1991	34.20	08.76
3	2001	44.25	10.60
4	2011	48.45	11.23

Source: Census 2011

Tamil Nadu owns about 4% of the country's geographic area, 7% of its population and 3% of its water resources. The total area in 2010-11 was approximately 40% of the total geographic area, of which 56% was irrigated. The contribution of agriculture (including related activities) to gross domestic product (GSDP) in 2010-11 was 9.4% in constant prices. However, the sector ensures household food security and generates equitable distribution of income and wealth, which will lead to poverty reduction (Tamil Nadu - Economic Review, 2010-11). The urbanization rate and the proportion of industrial GDP in Tamil Nadu are shown in table 3.

Table 3. Rate of urbanization and share of industrial GDP in Tamil Nadu

Year	Rate of Urbanization (in percent)	Share of industrial GDP (in percent)
1961	26.1	15.5
1971	30.2	16.05
1981	32.9	19.70
1991	34.7	23.51
2001	44.1	29.28
2011	45.3	31.63

Source: Tamil Nadu - An Economic Appraisal (1961 to 2011)

Over the past 10 years, due to urbanization and industrialization, Tamil Nadu has lost 500,000 hectares of arable land, resulting in a growth of only 0.69% in the agriculture and related sectors. Between 1960-61 and 2010-11, the total planted area in Tamil Nadu decreased from 6.5 million hectares to 5.6 million hectares, a decrease of around 20%. At the same time, the area of non-agricultural land increased from 12.7 hectares to 21.75million hectares. (Season and Crop Reports 1960-61 to 2010-11).

Real estate marketing strategies adopted in Tamil Nadu

- Advertising campaigns are mainly carried out through newspaper advertisements and billboard advertisements. The focus is on reaching the public through spoken language.
- Most leads are generated only through walk-ins in the field offices in these two cities.
- Radio advertising is seen as the second major marketing channel.
- Digital marketing is under explored compared to Tamil Nadu where the ratio of offline to digital marketing spending is around 70-30. If developers still believe in offline mode and are more likely to use this channel.

Shrinking agricultural land

Agricultural land shrinkage is the effect of non-agricultural land use and urbanization rates reducing productive agricultural land (commercial, commercial, residential, and industrial). In general, urban rents are higher than agricultural rents and the former increases as the location gets closer to the city. This potential difference in rental income is significant, especially where properties are close to city centres, and in some countries it is common for former owners to rent out buildings for other purposes. While most farmers in Tamil Nadu are equally reliant on housing real estate income or the loss of parking spaces on their property, many continue to farm, either to maintain family traditions or because they consider farming to be their main occupation. Due to population growth, urbanization and industrialization, the proportion of non-agricultural land is increasing year by year. From 1960-61 to 2010-11, it increased from 1.27 million hectares to 2.175 million hectares.

Land Use Status in Tamil Nadu

According to the nine-fold classification of land use by the Indian Ministry of Agriculture (Statistical Yearbook of India 2017), the land use classification of Tamil Nadu is shown in table 4.

Table 4 Classification of land use in Tamil Nadu
(in Thousand Hectares)

Land Use	2003-04		2013-14	
	Area	Percentage	Area	Percentage
Total geographical area	13006	NA	13006	NA
Reporting area for land utilisation	13026.65	100.00	13033	100.00
Forests	2122.04	16.29	2125	16.30
Not available for cultivation	2622.73	20.13	2678	20.55
Permanent pastures and other grazing lands	113.47	0.87	110	0.84
Land under misc. tree crops and groves	282.98	2.17	245	1.88
Cultivable wasteland	379.44	2.91	328	2.52
Fallow lands other than current fallows	1862.86	14.30	1718	13.18
Current fallows	953.96	7.32	1115	8.56
Net area sown	4689.16	36.00	4714	36.17

Source: Draft Tamil Nadu State Land Use Policy-2019

Part of the unbuildable area (20.55%) is estimated to be about 6.69% of fallow and wasteland, while all development, infrastructure, water bodies, etc. together account for about 13.86%. Land use patterns in Tamil Nadu have changed dramatically over the last few decades due to industrialization and urbanization. Changes in land use patterns are associated with ecological changes. In Tamil Nadu, the available area per capita is only 0.18 hectares, while the net sown area per capita is only 0.07 hectares. Table 5 provides the land use in Tamil Nadu.

Table 5. Land Use in Tamil Nadu

Land Use	2005-06 (%)	2016-17 (%)
Built Up	2.82	4.02
Water (Post Monsoons)	6.40	5.28
Forest Dense	4.75	4.42
Forest Moderate	13.00	12.18
Forest Open	0.96	0.89
Grasslands	0.84	0.69
Littoral Swamps	0.09	0.07
Agriculture (Kharif)	6.26	5.37
Agriculture (Rabi)	9.93	12.18
Agriculture (Double or Triple Cropping)	18.75	16.47
Agriculture (Current Fallow)	20.17	22.51
Agriculture (Zaid)	0.00	0.22
Plantations	7.74	7.30
Wasteland	8.30	8.39
Total	100.00	100.00

Source: Draft Tamil Nadu State Land Use Policy-2019

According to the State of India's Forests Report (2017), the total forest and tree cover in Tamil Nadu is about 23.80% of its total geographic area, with a net gain of 73 square kilometers. The state's forest cover is attributed to plantations and conservation efforts within registered forest areas. Tamil Nadu, jointly compiled by the Ahmedabad Centre for Space Applications (ISRO) and the Chennai Remote Sensing Research Institute (May 2010), estimates that there are approximately 42,978 wetlands in Tamil Nadu. The total wetland area is estimated at 902,534 hectares, which is approximately 6.92% of the total geographical area of Tamil Nadu.

Conclusion

By converting land into real estate and giving up farming before land prices fall, farmers exhibit profit-maximizing behavior. However, even in the face of falling land prices, many farmers continue to farm and do not sell their land. Most farmers lived in the area prior to urbanization, and some argue that their response to land price fluctuations is conservative, mainly for reasons of household sustainability. It is reasonable to assume that all farmers who remain in an area after urbanization have a similar tendency to continue farming. While diversification helps increase sales, it is also significantly associated with less farmland. This suggests that smallholders who sell their farmland can increase their income by diversifying and continuing to farm. Agriculture is critical for employment, and food security. As the population grows, it becomes important to protect and protect potential farmland. Vertical construction is encouraged. The government should ensure development projects in certain areas other than productive agricultural land, strengthen zoning management, issue guidance, and reduce the loss of agricultural land. Farmers with high-yielding farmland should be financially compensated for keeping their land active in agriculture, rather than selling it to development projects.

References

1. Jahangir Alam (2018) Rapid urbanization and changing land values in mega cities: implications for housing development projects in Dhaka, Bangladesh. *Bandung J of Global South* 5:2. Pp. 01-19.
2. Hironori Yagi, Guy Garrod (2018) the future of agriculture in the shrinking suburbs: The impact of real estate income and housing costs. *Land Use Policy* 76, Pp 812–822.
3. Ting Zhou, Eric Koomen, Xinli Ke (2020) Determinants of Farmland Abandonment on the Urban–Rural Fringe, *Environmental Management*, 65: Pp 369–384.

CHANGING STRUCTURE OF AGRICULTURAL WORKFORCE IN TAMIL NADU³⁴

Dr. K. RAJA³⁵

Introduction

This study examines the occupational distribution of the workforce in India, Tamil Nadu and district. The pattern of development of the states economy during the period 1961- to 2011 should be taken into consideration before arriving at any meaningful conclusion with regard to changes in the occupational structure and necessary to examine whether the growth in industrial, agricultural and other activities have really set in motion a systematic processed of shifts chapter of workforce from activities have the sector to another, therefore, the main scope of this chapter is to examine whether there have been substantial change in the occupational distribution of the state corresponding to the economic progress it had achieved. Be has been claimed that irrespective of the big strides in development the occupational distributional has not changed much.

Changes in the size of the agricultural workforce and occupational structure in Tamil Nadu

The total workers in Tamil Nadu had 24.84 percent were cultivators (census 1991). The percentage had been declined to 19.95 per cent in 2001 and again it had been increased at 12.9 per cent in 2011. The district wise details show that in 2011, the percentage of cultivators was highest in Perambalur 39.1 per cent, followed by Ariyalur 29.8 per cent and Ramanathapuram 28.8 per cent. The percentage of cultivators was lowest in Chennai and Nilgiris. As expected, the percentage of female cultivators in rural areas was much higher than in urban areas. A similar figure was observed in the districts during 2001 and 2011. In 2001, 31 per cent of the workers were engaged as agricultural labourers and further it had reduced to 29.2 per cent in 2011. In the rural areas, 44.6 per cent of the workers were engaged as agricultural labourers, but in the urban areas this had been reduced into 8.5 per cent. A similar trend had been seen in rural and urban female agricultural labourers continued in 2001 and 2011 as well. The district wise data indicates that the maximum percentage of agricultural labourers was in Thanjavur 54.6 per cent, followed by Villupuram and Ariyalur since these districts were predominantly depending on agriculture. A much larger proportion of the rural work force had been engaged as agricultural labourers when compared to urban areas. A similar trend had been continued in 2001 and 2011 as well with regard to agricultural labourers. Out of the workers in 2011, 5.4 per cent were engaged in the household industry. This percentage had declined to 4.2 per cent in 2011. In the rural areas, a similar percentage of workers were engaged in the household industry as compared to those in urban areas. The urban and rural female workers were engaged in the household industry of about 4.18 and 6.3 percent respectively as per 2001 census. However, in 2011, the data figure had been declined both urban and rural workers engaged in the household industry while in 2011 census, the urban workers were increased in household industry up to 2.4 percent and 2.9 percent in the

³⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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rural areas. The district wise data show that in 2011, 16.7 per cent of the workers in Tiruvallur were engaged in the household industry, while the lowest percentage of 1.1 happened to be in the district of Nilgiris. The percentage of workers engaged in household industry in rural areas was the maximum in Tiruvallur 17.5 per cent, while in the case of urban areas it was highest in same district of Tiruvallur 15.5 per cent. A similar trend had been in labour force engaged in the household industry continued in 2001 and 2011 as well. The workers who had not been engaged in the agriculture and household industry were categorized as other workers. In 2001 census onwards, 45.3 per cent of the 53.7 workers were engaged in other occupations and this trend had been consistently increased to 8.4 per cent in 2011. A much larger percentage of the female workers in urban areas were engaged in other occupations as compared to rural areas. The percentage of workers engaged in other occupations in urban areas had increased from 79.6 per cent in 2001 to 84.1 per cent in 2011, while in rural areas; the percentage had increased from 9.03 per cent to 10.82 per cent. Surprisingly, the percentage of workers in other occupations was highest in Chennai 96.4 per cent, followed by Kanniyakumari 81.5 per cent and Coimbatore 77.8 per cent. The percentage of workers in rural areas engaged in other occupations was also highest in Krishnagiri, which indicated that even though Krishnagiri is agriculture predominant district, the workers of the district preferred other occupations which possibly entitle them to live with more dignity and earn more income.

Table 1 The growth rates of workers in Tamil Nadu in India

1961-2011	7.80	1.51	0.07	0.34	2.11	0.03	0.58	0.49	0.02
1971-2011	0.02	2.07	0.22	0.33	0.42	0.14	0.18	0.17	0.06
1981-2011	0.80	1.11	0.23	0.35	0.41	0.20	0.13	0.11	0.06
2001-2011	4.45	2.90	9.09	0.15	0.23	0.05	7.60	14.88	1.53

Source: Computed from various Census reports from 1961-2011

It is seen that, during the period 1961-1971, the negative growth of agricultural and non-agricultural workforce among females led to negative growth among persons as well as the positive growth rate of males workers in both Tamil Nadu and rural Tamil Nadu. The growth rate of agricultural workers is seen in continuously decreases among the persons and females from 1981 to 2011. The growth rate of females shows high growth rate compared with the male counterparts. The growth rate of non-agricultural workers in 2011 high compared with 1981 and 1991 in Tamil Nadu. In rural Tamil Nadu, female workforce shows a more than 4 percent growth in 1981, 2001 and 1971-2011. The growth rate of total main workers shows a positive growth rate between 1981 to 2011 in Tamil Nadu and 1981 in 1991 in rural Tamil Nadu. During the period 2011 shows the negative growth of agricultural workers in 1991-2011.

Table 2 Growth rate of main workers in Tamil Nadu rural and urban Areas Together: 1961-2011

(In per cent)

Period	Agricultural workers			Non-agricultural workers			Total main workers		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
Tamil Nadu rural									
1961-1971	-0.52	1.89	-4.61	-0.72	0.86	-6.67	-0.4	1.45	-5.21
1971-1981	2.46	0.95	6.1	2.79	2.47	4.49	2.58	1.6	5.69
1981-1991	1.58	1.1	2.41	2.2	1.98	3.23	1.83	1.5	2.61

Period	Agricultural workers			Non-agricultural workers			Total main workers		
	Person	Male	Female	Person	Male	Female	Person	Male	Female
Tamil Nadu rural									
1991-2001	-2.25	-2.7	-1.56	3.44	2.86	5.65	0.41	0.27	0.74
2001-2011	2.26	3.62	5.59	5.79	6.39	4.42	1.09	0.81	1.07
1961-2011	8.36	1.01	0.26	11.17	8.64	0.10	6.81	0.39	0.04
1971-2011	0.01	4.01	0.15	0.74	1.05	0.22	0.16	0.32	0.03
1981-2011	0.91	2.99	0.96	1.20	1.63	0.42	0.33	0.36	0.16
2001-2011	0.45	0.50	2.30	0.49	0.78	0.14	6.48	11.11	1.95

Source: Computed from various Census reports from 1961 to 2011

Table 3 pertaining to the growth rates of main workers at Tamil Nadu rural and urban levels respectively. We observe by and large the same situation as obtained at the national level. However, the growth a rate of agricultural workers in Tamil Nadu is slightly less than the obtained at the national level. However, the growth rate of non agricultural workforce is greater in Tamil Nadu. When compared to all India. Another glaring feature is negative trend of growth of workers during the decade 1991-2011 which is normally referred to as period of economic reform measures in India and its adverse effect in agricultural and non- agricultural employment opportunities by way of fall in capital formation, declining public investment and increase in the prices of fertilizers and other inputs.

Turning to table 2 we find the growth trend of agricultural and non-agricultural workforce at the state level, followed by rural Tamil Nadu and in turn followed by urban Tamil Nadu. Interestingly, even in Tamil Nadu state as a whole, the growth rate of female workforce is greater than male workforce bot agricultural and non- agricultural. But then, the long turn growth of workforce of male workers is less than female workforce.

A major striking feature in all the tables is that during the period of first decade of reform measures (1991-2011) we observe a negative growth of all classes of labor force. The growth rate of workforce in the agricultural sector has recorded negative trend both it all India and state level of Tamil Nadu. However, can it be attributed to the adverse impact of the new economic policy on the agricultural work is a mute question. In all other respects Tamil Nadu workforce trend is similar to the national situation. Urban Tamil Nadu also exhibits similar situation (Table 4) as rural Tamil Nadu.

Growth rate of cultivators sharply declined at the Tamil Nadu from 1.19 per cent in 2001's to -43.53 per cent in the 2011's. However, in Periyar, Salem, Coimbatore, Ramanathapuram and Dharmapuri in the growth rates of cultivators during the latter decade, while all other districts show a clear and sharp deceleration. In fact, as many as five districts there had been a declining trend in the number of cultivators during 1991-2001 and 2011.

Agricultural labourers also show a deceleration in growth rate in the post reform period, declining from -2.21 per cent in 1991-2001 to -14.78 per cent during 2001-2011. In fact, Kanniyakumari shows a sharp decline in the absolute number of agricultural labourers during the latter decade. Their numbers had also declined in Kancheepuram and remained nearly static in Vellore and Tiruvannamalai. The Nilagiris had the only district exception showing a sharp increase in the growth rate of agricultural labourers was much higher during the post reform period as compared to the pre reform period.

Taking total agricultural workers together, we found that the post reform decade witnessed a sharp deceleration in compound annual growth rate from 2.41 per cent in 1980's

to 1.56 per cent in 1990's. and -14.78. This phenomenon was fairly widespread across the states except the The Nilagiri district. All the districts had registered a sharp decline in growth rates of agricultural workers in 2011's as compared to the preceding decade. In fact, as many as nine districts, there had been witnessed an absolute decline in the number of agricultural workers. The deceleration in growth rate of agricultural workers had caused by a decline in the rate of growth of agricultural output coupled with declining employment elasticity in this sector.

The growth rate of workers in household industry at the Tamil Nadu level rose sharply 6.48 per cent in 1991-2001. And decline 04.2% in 2001-11. This had been true of majority of the districts as well: The growth rate was particularly high (above 3 per cent per annum) in the districts of Kancheepuram, Vellore, Villupuram, Dharmapuri, Nilgiris and Pudukkottai.

Other workers, mainly comprising non household manufacturing and services, showed a sharp increase at the Tamil Nadu level from 5.43 per cent in 1991-2001 to 18.5 per cent in 2001-2011. However, in Chengalpattu, Nilgiris, Madurai and Pudukkottai had registered a sharp decline in growth rate of other workers. Their numbers had also highest in Krishnagiri and remained nearly static in Salem.

The growth rate of total non agricultural workers sharply increased from 5.65 per cent during 1991-2001 to 14.43 per cent at the Tamil Nadu except the Nilgiris and Madurai whereas the growth rate of workers in this category had exceeded highest 7 per cent per annum in Vellore, Tiruvannamalai, Dharmapuri, Salem, and Erode districts.

Rural workers also show a fast pace of diversification in favour of non-agricultural sector during the last decade (Table 6). During the 2000's, one out of 16 districts i.e. Ramanathapuram had recorded a negative shift in the proportion of agricultural workers, while the trend of change was quite obvious in opposite direction of eleven districts, namely, Kancheepuram Tiruvallur, Tiruvannamalai Vellore, Villupuram Cuddalore, Salem, Erode, Coimbatore, Thiruppur, Madurai, Tiruchirapalli, Thanjavur, Tirunelveli and Kanniyakumari respectively. During the post reform decade, however, all the districts had show a sharp decline in the proportion of agricultural workers ranging from 1.10 per cent points to 13.94 per cent. The pace of diversification was particularly sharp in the district of Kanniyakumari, Tirunelveli, Tiruvallur Kancheepuram, Madurai, Coimbatore and Thiruppur. On the other hand structural shifts were less marked in the districts of Salem, Tiruchirapalli and Villupuram and Cuddalore.

The proportion of cultivators had witnessed a decline in both the decades, but the pace of decline has hastened in the post reform decade. During 2001-2011, however, all the districts witnessed a decline in the share of cultivators in rural workers. The decline was very sharp (more than 3 per cent) in the districts of Villupuram Cuddalore, Tirunelveli and Kanniyakumari.

Conclusion

In both the overall economy rural urban and rural economy, the shares of agricultural labourers in Tamil Nadu are higher than those in all India and reverse is the case for those of cultivators over the period 1961-2011. While the shares of agricultural labourers are relatively stable, the shares of cultivators have been on the decline over the period leaving 1961 in both all India and Tamil Nadu. In both the overall rural urban and rural economy of India and Tamil Nadu, the shares of household industry workers are not high, but they have declined up to 2001 and 2011, they have risen marginally. But the shares of other workers had increased only marginally up to 1991 between 2001 and 2011, they have risen by 6.4 to 10.64 percentage

points at all India and by 6.9 to 18.54 percentage points in Tamil Nadu among males, females and persons. Thus, both in all India and Tamil Nadu, the decade of the 1990s has witnessed a substantial shift in favour of non-agricultural workers, which augurs positively for a welcome change in the structure of workforce. In both the overall economy rural urban and rural economy, in all India and Tamil Nadu, the growth rates of agricultural workers have continuously decreased among males, females and persons from the period 1971-81 to 2001-2011. The growth rates of non-agricultural workers are substantially the highest during the decade of 1990s among males, females and persons, in all India and Tamil Nadu. However, the growth rates of the total workforce decline continuously for all India and Tamil Nadu except among males during 2001-2011 for rural Tamil Nadu.

Peer Reviewed Journal

AN ECONOMIC ANALYSIS OF MGNREGA SCHEME IN TIRUCHIRAPPALLI DISTRICT³⁶

Dr. T. SUDAKAR³⁷ & Dr. N. KANNAN³⁸

Introduction

The planners and policymakers in India have been underscoring higher economic growth as an outcome as well as a prime-mover of development policies. However, while discussing about the economic growth both as an instrument and outcome, the question that inherently arises is whether economic growth has actually been pro-poor and inclusive in nature. In order to understand the nuances of poverty alleviation process in Indian context, an assessment of pro poorness of economic growth is all the more essential.

It may, however, be mentioned that the poverty reduction process in India is quite complex. Although, at the macro-level, it may not be very difficult to identify an inverse correlation between economic growth and poverty reduction, the picture at the micro-level is quite disparate and heterogeneous. This is owing to web of deeply ingrained social, political and structural factors which have a very large bearing on the pro-poorness of development policy, in general, and on the efficacy of the economic growth, in particular.

Statement of problem

The MGNREGS is the most prevalence type of scheme operation in India. In Tamilnadu is good concentration of regulating in this scheme. The scheme very low of rain fall and below of agricultural cropping pattern. This scheme regulate from the daily work (weekly days) works, as well as weekly wage of the scheme of MGNREGS. So, new techniques have to be identified to solve their family problems.

Objectives

1. To analyse the socio-economic condition of the beneficiaries of the study area.
2. To find out the income level of beneficiaries.

Methods and Materials

The study area was confined to Kodumbapatti Gram Panchayat of Marungapuri Block in Tiruchirappalli District. The village Kodumbapatti consists of three hamlets i.e., Keelakurichypatti, Palathupatti, and Aralapatti. A sample of 150 job card holders were selected. Primary data were collected from all the stakeholders of NREGS. Transect walk into the MGNREGS worksites were conducted to have first hand experience on the MGNREGS works at the community level.

³⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Analysis and Discussion**Annual Income Before and After Participating in MGNREGP****Table 1 Annual Income Before and After Participating in MGNREGP**

Sl. No.	Annual Income	Before participating in MGNREGP		After participating in MGNREGP	
		No. of Respondents	Percentage	No. of Respondents	Percentage
1	15000 to 30000	30	20	45	30
2	30000 to 45000	30	20	30	20
3	45000 to 60000	45	30	45	30
4	Above 60000	45	30	30	20
	Total	150	100	150	100

Source: Computed from the Primary Data.

From the above table states that the annual income of the family before joining MGNREGP, sample of 30 (20 percent) respondents were having income of less than Rs.30,000, 30 (20 percent) respondents were having income of Rs.30,000-Rs.45,000, 45 (30 percent) respondents were having income of Rs.45,000-Rs.60,000 and 45 (30 percent) respondents were having income of more than Rs.60,000. After joining MGNREGP, sample of 45 (30 percent) respondents were having income of less than Rs.30,000, 30 (20 percent) respondents were having income of Rs.30,000-Rs.45,000, 45(30 percent) respondents were having income of Rs.45,000-Rs.60,000 and 30 (20 percent) respondents were having income of more than Rs.60,000.

Monthly Expenditure on Food Items Before and After Participating in MGNREGP

The table 2 explains the monthly expenditure on food items before and after participating in MGNREGP of the respondents in the sample villages of Keelakurichypatti, Palathupatti and Aralapatti villages of Marungapuri Taluk in Tiruchirappalli District.

Table 2 Monthly Expenditure on Food Items Before and After Participating in MGNREGP

Sl. No.	Monthly Expenditure	Before participating in MGNREGP		After participating in MGNREGP	
		No. of Respondents	Percentage	No. of Respondents	Percentage
1	1000 to 2000	60	40	75	50
2	2000 to 3000	45	30	15	10
3	3000 to 4000	15	10	30	20
4	Above 4000	30	20	30	20
	Total	150	100	150	100

Source: Computed from the Primary Data.

The monthly expenditure on food items of the family before joining MGNREGP, sample of 15 (10 percent) respondents were having monthly expenditure on food items of less than Rs.1000 and Rs.3000-Rs.4000, 45 (30 percent) respondents were having monthly

expenditure on food items of Rs.1000-Rs.2000 and Rs.2000-Rs.3000, and 30 (20 percent) respondents were having monthly expenditure on food items of more than Rs.4000.

After joining the MGNREGP monthly expenditure on food items of the family, sample of 15 (10 percent) respondents were having monthly expenditure on food items of less than Rs.1000 and Rs.2000-Rs.3000, 60 (40 percent) respondents were having monthly expenditure on food items of Rs.1000-Rs.2000, 30 (20 percent) respondents were having monthly expenditure on food items of Rs.3000- Rs.4000 and more than Rs.4000.

Table 3 Expenditure on Non- Food Items Before and After Participating in MGNREGP

Sl. No.	Expenditure on Non-Food Items	Before participating in MGNREGP		After participating in MGNREGP	
		No. of Respondents	Percentage	No. of Respondents	Percentage
1	Milk Animals	30	20	30	20
2	Goat / Sheep	15	10	15	10
3	Poultry	30	20	30	20
4	Pigs	-	-	-	-
5	Milk Animals/ Goat / Sheep	15	10	30	20
6	Milk Animals and Poultry	15	10	15	10
7	Milk Animals / Goat / Sheep and Poultry	15	10	15	10
8	Goat / Sheep and Poultry	30	20	15	10
	Total	150	100	150	100

Source: Computed from the Primary Data.

The table above explains the spending non- food items before joining MGNREGP. 8 (7 percent) respondents are having only milk animals, 30 (20 percent) respondents are having only goat/sheep, 15 (10 percent) respondents are having only poultry, 30 (20 percent) respondents are having milk animals goat/sheep, 15 (10 percent) respondents are having milk animals and poultry, 15 (10 percent) respondents are having milk animals / goat / sheep and poultry and 30(20 percent) respondents are having goat / sheep and poultry.

After joining MGNREGP 30 (20 percent) respondents are having only milk animals, 15 (10 percent) respondents are having only goat/sheep, 30 (30 percent) respondents are having only poultry, 15 (10 percent) respondents are having milk animals goat/sheep, 15 (10 percent) respondents are having milk animals and poultry, 15 (10 percent) respondents are having milk animals / goat / sheep and poultry and 15 (10 percent) respondents are having goat / sheep and poultry is the spending of non-food items.

Conclusion

The dominant majority of workers in the informal economy were excluded from social security provision. Anti-poverty programmes provided some measure of relief, and welfare funds covered a few groups of unorganized workers in parts of the country. Since the early 1990s, the better growth performance, as well as stronger political commitment, has led to many more social protection programmes being started. Among these, the MGNREGP

stands out for the fact that it is demand driven, has greater permanence than other schemes, covers the whole country, and has the potential both to provide a minimum income and stimulate local development. Public policy and public works in India have generally tried to include women as a percentage of beneficiaries, but have not paid enough attention to gender sensitive design. The MGNREGP in its design has attempted some gender sensitivity.

Peer Reviewed Journal

IMPACT OF GROWTH AND PROFITABILITY OF PADDY PRODUCTION IN TAMIL NADU³⁹

Mr. K. KUMARA RAJA⁴⁰ & Dr. K. RAJA⁴¹

Introduction

Paddy is the most important crop in India, with the largest area in the world (45 million hectares, 2000-2020) and second only to China in production (89.5 million tons, 2000-2020). Taking into account the average annual population growth of 1.5 percent, it is estimated that the per capita daily consumption of paddy is about 400 grams. This growing demand can only be met by maintaining the ever-increasing production trend. This is necessarily due to a decreasing trend in land availability and total factor productivity due to increased productivity, and must meet the requirements for sustainability and protecting the quality of the environment. The achievement of the long-term high growth rate in the agricultural sector is due to the regional growth of the state's economy. Before independence, there was a great famine in Bangladesh; this trend continued until the 1960s. During this period, India faced severe food shortages that the domestic agricultural sector could not address, so the idea of High Yielding Variety (HYV) seeds was implemented in agriculture. The HYV seed program achieves the best results in agricultural production. The increase in productivity and yield was mainly due to the use of HYV seeds. Cereal production will increase from 50 metric tons (million tons) in 1950-51 to 255.56 metric tons in 2012-13 (Economic Survey, 2014). In six years, it has grown fivefold. Significant changes in food production are attributed to the Green Revolution. In India, paddy and wheat production more than doubled between 1960 and 2013. During this period, the total annual grain production increased from 77 tons to 255.5 tons. The area under HYV increased from 5.638 million hectares (15.11 percent) in 1970-71 to 32.162 million hectares (74 percent) in 1996-97 and further increased to 39.624 million hectares in 2012-13.

Review of Literature

Gideon Too, Japheth Ogalo Onyando, Julius Kipkemboi Kollongei, Emmanuel Chessum Kipkorir (2020) explain a comparative study of paddy yield between conventional paddy and paddy intensification systems. The increase in agricultural productivity may not be realized once paddy farmers currently use the traditional method of flooding paddy, which has been reported to yield very little paddy. According to the results of this study, paddy yields were higher with SRI technology compared to conventional flood system cultivation methods. The results showed that the improved crop yield in the SRI system was due to vigorous crop growth and increased tiller numbers due to the AWD irrigation scheme. In contrast, in conventional systems, water is used inefficiently because the flooding is continuous, which

³⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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negatively affects shoot growth, and the results show that the system uses less water than the SRI technology. To get more efficient is a less efficient drive count tiller.

Barun Kumar Paul (2019) examines the profitability of paddy cultivation and farmers' perceptions in West Bengal, with a special focus on the Purba Bardhaman area. Many economists and experts believe that farming is an unprofitable activity in India these days, mainly due to rising costs and low agricultural prices. However, a sharp increase in costs was observed during the field investigation of the Purba Bardhaman Galsi I and Galsi II blocks. They found that the cost of cultivation was miscalculated and therefore estimated a higher profit margin. Some of the types of expenses they do not charge include household labor, depreciation expenses, capital interest, rental value of apartments, etc. Finally, the government should educate and empower farmers so that they can properly calculate the cost of growth, as it is important to assess the costs and returns before engaging in economic activity.

P. Mahesh and N.R. Deepa (2016) stated that the declining trend in paddy acreage, yield and productivity was a major cause of concern and highlighted the threat to India's food security. They found that among the Indian states, Kerala is in a huge dilemma, where it is difficult for the state to preserve existing resources for future generations. Factors such as high population growth rates, engulfing of valuable settlement land, scarcity of land to meet growing food demand, development of the industrial sector, urbanization, conversion of paddy fields to non-agricultural uses, etc., have contributed to the land use of society. Therefore, it is necessary to promote planting and supply, promote rational use of inputs, link MGNREGS with agricultural activities, provide farmers with low-interest loans and insurance coverage, and promote mechanization and management techniques as appropriate.

Telu Visalakshi (2015) testified that Andhra Pradesh is the fourth largest paddy producer in India due to its abundance of resources, with about a quarter of the state's total area devoted to paddy cultivation. After the green revolution, with the development of packaging technology, the yield and yield increased significantly. According to government analysis in 2002-03, the yield in Andhra Pradesh was 26.2 quintals/ha, while the average yield in India was 18 quintals/ha. The Godavari and Krishna deltas and adjacent coastal plains form one of the country's finest paddy-growing regions.

Objectives

1. To analyse yield and productivity growth rate of paddy in Tamil Nadu.
2. To analyse cost and profitability of paddy cultivation in Tamil Nadu.

Research Methodology

The present paper is mainly based on secondary data only. Secondary data are collected from relevant government publications, seasonal crop reports, Ministry of Agriculture annual reports and publications, Agricultural Outlook and Situation Analysis Reports, and Agricultural Statistics from the Ministry of Agriculture and Cooperatives, Government of India.

Trends of Paddy Production

Paddy cultivation is the most important agricultural operation in the country, not only in terms of food security but also in creating better livelihoods and opportunities for rural people. It plays an important role in people's diet, economy and employment. Almost 90 percent of paddy is produced and consumed in the country. It contributes nearly 15 percent to India's annual gross domestic product (GDP) and provides 31 percent of total caloric intake.

The area under paddy cultivation increased from 31.29 million hectares in 1953-54 to 42.56 million hectares (125.73 million hectares for grain) in 2010-11, while yields increased from 902 kg/ha to 2240 kg/ha during the same period. In 2010-11, the area of paddy fields accounted for 33.85 percent of India's grain crops and 42.79 percent of the grain planting area. The paddy and growth rates in India from 2000 to 2021 are shown in Table 1.

Table 1. Paddy Production and Growth rate in India

Year	Production	Unit of Measure (MT)	Growth Rate (%)
2000	84977	1000	-
2001	93334	1000	9.83
2002	71814	1000	-23.06
2003	88522	1000	23.27
2004	83127	1000	-6.09
2005	91785	1000	10.42
2006	93345	1000	1.70
2007	96682	1000	3.57
2008	99172	1000	2.58
2009	89083	1000	-10.17
2010	95970	1000	7.73
2011	105301	1000	9.72
2012	105241	1000	-0.06
2013	106646	1000	1.34
2014	105482	1000	-1.09
2015	104408	1000	-1.02
2016	109698	1000	5.07
2017	112760	1000	2.79
2018	116480	1000	3.30
2019	118870	1000	2.05
2020	122270	1000	2.86
2021	125000	1000	2.23

Source: Economic Survey – 2020-21.

It is clear from this table that paddy yield has increased over time, but its growth rate has fluctuated during these periods. In 2003, the output was 88.522 million tons, with a growth rate of 23.27 percent. In 2012, the output was 105.241 million tons, with a growth rate of -0.06, showing a negative growth trend, but it remained unchanged after 2019, 2 percent.

Trends of Paddy Production

In India, as in countries all over the world, the priority of the agricultural sector has diminished; especially paddy fields have been neglected in India by government policies and the former's personal interests in recent years. Paddy planted area had a minimum of 41.78 MH in 1992-93, a maximum of 45.91 MH in 2007-08, and continued to decrease to 43.39 MH by the end of the 2015-16 reporting year. Due to various reasons such as climatic conditions, there are differences in the area of paddy cultivation. The paddy production in 2002-03 was the lowest at 71.82 tons, the highest in 2013-14 was 106.65 tons, and it continued to decline to 104.32 tons in 2015-16. Paddy production was lowest in 1992-93 at 1744 hectares, highest in 2012-13 at 2461 hectares, and continued to decline to 2404 hectares

in 2015-16. This all points to the irregular development of the production and productivity of the paddy crop in India.

Growth of Paddy Crop in Tamil Nadu

The area under paddy cultivation decreased from 2.08 billion hectares in 2000-01 to 1,956 hectares in 2019-20. After that it went back to 1493 m. hectares 2012-13. But in 2011-12, the area of paddy fields was 1.904 billion hectares. Paddy acreage accounts for the highest proportion of food crops in Tamil Nadu. The area under paddy cultivation increased from 1443 hectares. 2016-17 to 1956 Miha. 2019-20. Due to the introduction of modern agricultural technology, the paddy cultivation area is the highest. The total area, yield and yield of paddy in Tamil Nadu are shown in Table 2.

Table 2. Area, Production and Productivity of Paddy in Tamil Nadu

Year	Area (Hectares in '000)	Production ('000 Tonnes)	Productivity Kg./Hec	Percent of Growth	Minimum support Price
2000-01	2080	7366.3	3541	-	500
2001-02	2059	6584.0	3196	-10.6	500
2002-03	1517	3577.1	2359	-45.7	550
2003-04	1397	3222.8	2308	-9.9	550
2004-05	1873	5062.2	2703	57.1	560
2005-06	2050	5220.0	2541	3.1	570
2006-07	1931	6610.6	3423	26.6	580
2007-08	1789	5040.2	2817	-23.8	850
2008-09	1932	5182.7	2683	2.8	900
2009-10	1846	5665.2	3070	9.3	1000
2010-11	1906	5792.4	3039	2.2	1000
2011-12	1904	7458.7	3918	28.8	1080
2012-13	1493	4049.9	2712	-45.7	1250
2013-14	1726	5349.8	4123	32.1	1310
2014-15	1795	5839.0	4429	9.1	1360
2015-16	2000	7517.1	3687	28.7	1410
2016-17	1443	2369.4	2463	-68.5	1470
2017-18	1829	6638.9	3630	180.2	1550
2018-19	1605	6454.7	3562	-2.8	1750
2019-20	1956	6899.5	3537	6.9	1815

Source: Ministry of Agriculture, Government of India, 2021

The total agricultural production in Tamil Nadu was 6.4547 million tonnes in 2018-19 and increased to 6.8995 million tonnes in 2019-20 which is the sum of food production and non-food production. During the 18 years from 2000-01 to 2018-19, edible cereal production in Tamil Nadu increased while fluctuating. Paddy production was 3,541,000 tonnes in 2000-01 and 3,537,000 tonnes in 2018-19. In food production, the most important food is paddy, followed by coarse grains and pulses, which also increased between 2000-01 and 2018-19.

In terms of annual growth rates, total grain output and paddy have experienced negative growth in 8 of the 18 years. Details of paddy production and yield and the price per quintal for hec and total price of paddy production are shown in Table 3.

Table 3. Price of Total Production for Paddy in Tamil Nadu

Year	Production ('000 Tonnes)	Productivity Kg./Hec	Minimum support Price	Price per quintal in Hec	Price of total production in crores
2000-01	7366.3	3541	500	17705.0	3683.16
2001-02	6584.0	3196	500	15980.0	3291.82
2002-03	3577.1	2359	550	12974.5	1967.41
2003-04	3222.8	2308	550	12694.0	1772.53
2004-05	5062.2	2703	560	15136.8	2834.51
2005-06	5220.0	2541	570	14483.7	2969.38
2006-07	6610.6	3423	580	19853.4	3834.15
2007-08	5040.2	2817	850	23944.5	4283.96
2008-09	5182.7	2683	900	24147.0	4665.05
2009-10	5665.2	3070	1000	30700.0	5665.26
2010-11	5792.4	3039	1000	30390.0	5792.42
2011-12	7458.7	3918	1080	42314.4	8055.35
2012-13	4049.9	2712	1250	33900.0	5062.92
2013-14	5349.8	4123	1310	54011.3	9320.91
2014-15	5839.0	4429	1360	60234.4	10811.23
2015-16	7517.1	3687	1410	51986.7	10398.30
2016-17	2369.4	2463	1470	36206.1	5224.55
2017-18	6638.9	3630	1550	56265.0	10289.60
2018-19	6454.7	3562	1750	62335.0	10730.21
2019-20	6899.5	3537	1815	64196.6	13186.27

Source: Ministry of Agriculture, Government of India, 2021

Paddy cultivation is common in the southern states. The cost of paddy cultivation per acre has increased by about Rs.6000. Drought and rising fertilizer prices have affected paddy growers. Paddy farmers can't take it anymore and there is a commotion in many parts of Tamil Nadu. Recently, the Union government raised the minimum support price for wheat by Rs.1,000 per quintal. At the same time, the minimum support price Paddy gets is well below this price. Paddy cultivation requires more labor and remains labor-intensive. In Tamil Nadu, we are only getting a minimum support price of Rs.750 for paddy, which includes the Union and State Government's share. The minimum price in Tamil Nadu, among other states, needs to be raised to Rs.1,000 per quintal, considering the dire problems faced by paddy farmers. Measures must also be taken to open more paddy mills to benefit southern paddy farmers.

Conclusion

Paddy acreage accounts for the highest proportion of food crops in Tamil Nadu. The area increased from 75.80 percent in 2000-01 to 85.49 percent in 2019-20. Due to the introduction of modern agricultural technology, the paddy cultivation area is the highest. Analyzing the profitability of growing paddy over the years shows that farmers are either making small profits or suffering losses. The cost of cultivation has been increasing over the years and has outpaced the increase in the value of the product. However, profitability appears to have increased slightly following the global food crisis and rising food prices. For years, farmers have faced losses, not only because of a lack of monsoons or drought, but also because of a general decline in agricultural profits.

Over the years, the compound annual growth rate of paddy acreage, production and yield in India has remained positive, but has been gradually declining. Instability in paddy area, yield and yield can be reduced through appropriate institutional support and input supply to farmers, including marginal and smallholders. Furthermore, efforts to increase the value of paddy products or the prices received by farmers are the way forward. The global community has a responsibility to create an enabling environment where farmers can reap rich rewards and live dignified lives.

Reference

1. Gideon Too, Japheth OgaloOnyando, Julius Kipkemboi Kollongei, Emmanuel Chessum Kipkorir (2020), Comparative Study of Rice Yield Production for Conventional Paddy Rice and Systems of Rice Intensification, American Journal of Water Science and Engineering, Vol. 6(2).
2. Barun Kumar Paul (2019), The Profitability of Paddy Cultivation and Farmers' Perception in West Bengal With Special Reference to Purba Bardhaman District". *Space and Culture, India*.
3. P. Mahesh and N.R. Deepa (2016), Trend Analysis of Area, Production and Productivity of Rice in Kerala in the Context of Food Security, International Journal of Agricultural Research and Review, Vol.4 (8).
4. Telu Visalakshi (2015), Portfolio of Rice in United Andhra Pradesh, Recent Advances in Rice Nutrition and Chemistry, JRR.
5. Economic Survey – 2020-21
6. Ministry of Agriculture, Government of India, 2021
7. Agricultural Statistics at a Glance – 2021.
8. Annual Report 2020-21, Ministry of Agriculture & Farmers Welfare, Government of India.

THE INTERNAL MIGRANT LABOUR IN TAMILNADU⁴²

Dr. S. BALRAJ⁴³

Introduction

Globalisation, Urbanisation and the search for better livelihood has led to an increase of migrant labourers. In some regions of India, three out of four households include a migrant. About two out of Ten Indians are internal migrants. The impact of migration of labourers and their households has a significant impact on the social, economic and political conditions of India. Conversely the post reform period concerns an increase in the internal population movement. The increase in the migration rate of labourers can be due to several factors that contrast themselves. Increasing unemployment conditions, lack of resources, environmental conditions, and degradation of natural resources force the people to move. These push factors are in contrast with the pull factors like better employment opportunities, wages, good educational facilities, urbanization, better communication, commutation factors, life styles and economic factors.

Review Literature

Shashi Kumar and Z. Zakir Hussian (2008) in their study on Managing International Labour Migration from India: Policies and Perspectives, revealed about the labour migration flows from India since 1990. The study not only addressed issues related to international labour migration from India, but also deal with safety policies of migrant workers. This paper properly makes an effort to do a detailed evaluation of Emigration Act 1983. It also explains as how the IT enabled industry in India has been expanding during the previous decades. Finally, the study makes a strong note on the need to strengthen multilateral cooperation to transform migration to efficient process.

Zachariah and S. Irudaya Rajan (2010), in their work on Migration Monitoring Study, 2008 - Emigration and Remittances in the Context of Surge in Oil Prices, found that the effects of recession resulted on loss of jobs abroad and on return of migrants to Kerala. According to the study, there were 1.73 lakh returnee emigrants of which 63000 of them were direct victims of recession and about 28000 could not find a job on return. The recession had stopped the remittances of 90000 households in Kerala whereas the remittances of about 4.31 lakh households have gone down. The study also found changes in the occupation of emigrants as a result of recession and this could be one of the reasons for the low rate of unemployment among emigrants. Though there was an increase in remittances during the recession period, many sub-groups showed very significant decrease in the remittances.

Objectives

1. To examine the issues with respect to internal migrant labour.
2. To find out the challenges faced by the internal migrant labour.

Methodology

The study is descriptive and the data were collected from secondary sources.

⁴² Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Issues of Internal Migrant Labour**➤ Health and Living Conditions**

The migrant labourers working in unorganized sector work and live in unhygienic and polluted environment and because of this they are vulnerable to health problems and sickness. Migrant Labourers who are employed in construction sites, metro projects, quarries, mines and highway projects live in hazardous environment and are vulnerable to air and water pollution leading to kidney and lung disorders. Most live in open spaces or make shift shelters in spite of the Contract Labour Act which stipulates that the contractor or employer should provide suitable accommodation. Apart from Seasonal Workers, workers who migrate to the cities for job live in parks and pavements. Slum dwellers, who are mostly migrants, stay in deplorable conditions, with inadequate water and bad drainage. Inadequate safety measures and ignorance of safety gadgets lead to accidents which may be fatal.

➤ Safeguards to Women Workers

In the past, women used to migrate along with their husbands to help them with the housework while they eked out a living. In recent years, there has been an increase in the number of women who migrate independently in search of work. Women form more than half of the interstate migrant workforce. Ninety-two per cent of the 20 million domestic workers in the country are women and children, and 20% of these females are under 14 years of age (Banerjee et al, 2009). Hence, they are prone to exploitation and require safety measures.

➤ Child Labour

Children who migrate along with their families are deprived of the free and subsidised educational facilities offered by the state resulting in Child Labour. They are often engaged in occupations which are as dangerous as those in which the adults are engaged. Thus, the children are exposed to health problems and occupational hazards similar to those faced by the adults. This hampers the overall growth and development of the child. It also contributes to increased childhood morbidity and mortality.

➤ Psychosocial Disorders

Migrant labourers do not have social capital and social support structures in the place to which they have migrated. They uproot themselves from their native place and move to a totally new environment, and initially, they face problems adjusting to the new socio-cultural milieu. This gives rise to a good deal of psychological distress. The absence of strong social support perpetuates the psychosocial distress and has an adverse effect on the migrant labourers' mental health (Rogaly B et al, 2002).

➤ Occupational diseases

Migrant labourers are usually employed in the 3-D jobs – dangerous, dirty and degrading. These are jobs which the local population of the developed state would not take up and hence, labour is brought in from outside the state for the same wages and sometimes for less. These jobs are invariably associated with more occupational hazards than other jobs. Migrant labourers working on construction sites commonly suffer from falls, injuries caused by machines, amputations and crush injuries. Migrants cannot access various health and family care programmes due to their temporary status. Free public healthcare facilities and programmes are not accessible to them. For women workers, there is no provision of maternity leave, forcing them to resume work almost immediately after childbirth. Workers, particularly those

working in tile factories and brick kilns suffer from occupational health hazards such as body ache, sunstroke and skin irritation (NCRL, 1991).

➤ **Limited access to Formal Financial Services**

Despite the economic imperatives that drive migration, migrant workers essentially remain an unbanked population. Since migrants do not possess permissible proofs of identity and residence, they fail to satisfy the Know Your Customer (KYC) norm as stipulated by the Indian banking regulations. They are thus unable to open bank accounts in cities. This has implications on the savings and remittance behaviors of migrant workers.

➤ **Political Exclusion**

In a state of continuous drift, migrant workers are deprived of many opportunities to exercise their political rights. Because migrants are not entitled to vote outside of their place of origin, some are simply unable to cast their votes. A 2011 study on the political inclusion of seasonal migrant workers by Amrita Sharma and her coauthors found that 22 percent of seasonal migrant workers in India did not possess voter IDs or have their names in the voter list. Because of this, migrant workers are often left unable to make political demands for entitlements or seek reforms.

➤ **Exploitation by Agents**

Migrations are mediated by an elaborate chain of contractors and middlemen who perform the critical function of sourcing and recruiting workers. The lowest links in this chain are most often older migrants who are part of the same regional or caste-based social network in the rural areas. While these networks do serve the purpose of providing migrants with information and subsequent access to work opportunities, they largely operate in the informal economy. There are no written contracts, no enforceable agreements regarding wages or other benefits, and no commitments regarding regular provision of work. Migrants, completely dependent on the middlemen for information, end up working in low-end, low-value, hard, and risky manual labor and are constantly subject to exploitation with little or no opportunity for legal recourse. Their work lives are characterized by exploitative practices such as manipulation in wage rates and work records, nonpayment or withholding of wages, long work hours, abysmal work conditions, and verbal and physical abuse. Accidents and deaths at workplaces are also extremely common in the construction sector, which is aggravated by the absence of any kind of social protection.

Challenges of Internal Migrant Labour

➤ **Rapid Growth in Population**

If labour migration takes place too fast or unexpectedly, the planning necessary to accommodate growth will not be in place. Rapid growth of population leads to issues such as overcrowding, increased traffic and pressure on resources such as schools and medical centres.

➤ **Unemployment of Skilled Human Resource**

Illiterate and unskilled workers are commonly found. They fail to get jobs in urban areas who also can't afford housing in cities and thus live in slums and suffer from unemployment and make a living in the informal sector, causing a real challenge in the existing system.

➤ **Inadequate Resource Allocation**

Rural areas also confront the problem of inadequate resource allocation; it causes poverty, unemployment, illiteracy and finally lack of growth. It is one of the major causes for labour migration as argued by Gunnar Myrdal in his Migration Theory. According to him migration causes backward and forward effects in the economy.

➤ **Challenges of High Labour Migration Cost**

The high labour migration cost is the result of several causes continuing in Karnataka of origin and destinations. The travelling cost of labour migration is too high and they are travelling from rural areas to urban area, and there is no good road connectivity as well, provision of which is also highly challenging in capital shortage economies.

➤ **Agricultural and Rural development**

It should be given a high priority in the government policies and programmes aimed at combating labour migration. A major policy focus has to be on a more vigorous pro-poor development strategy in the backward areas. This should address the needs of these regions, and simultaneously improve the access of the poor to land, financial resources and governance institutions.

➤ **Ensure basic entitlements**

To migrants and their families, a focused approach is required to ensure that the basic entitlements of the poor to food, elementary education, basic health are fulfilled, as also their entitlement to other government programmes and subsidies.

➤ **Improvement in the economic, social and political environment**

It is favour of mitigating labour migration. An improved information base, orientation and skills are also important requirement in the case of labour migration. Labour markets of the major labour importing states need to be closely monitored.

Conclusion

The challenges faced by the migrant labourers are more complex. An analysis of this migrating pattern makes it clear that though the migrant labourers contribute more to India's economy, they are not in a protective and prosperous zone. The Central and State Governments have to provide adequate measures to safeguard the interests of the migrant labourers, and derive context-specific solutions. A concerted national policy to facilitate and promote the wellbeing and a system that ensures access to entitlements and basic work conditions is highly recommended.

References

1. Banerjee A, Raju S. (2009) Gendered mobility: women migrants and work in urban India. *Economic and Political Weekly*, 54(28); 115-23.
2. Shylaja L. (2010) Socio-Economic and Demographic impact of Labour Emigration in Kerala, *ISDA Journal*, 20 (1), pp.61-74.
3. B. Jayarama Bhat & Nagesha. B (2019) Labour Migration in Karnataka-Some Issues and Challenges, *Research review International Journal of Multidisciplinary*, ISSN: 2455-3085. (Online) Issue-05.
4. C. Annie Jane (2016) A study on the internal migrant labour - issues and policies, *Indian Journal of applied research*, Volume 6, Issue 4, Special Issue, ISSN-2249-555X.
5. S. Irudaya Rajan and Aditya Srinivasan (2020) The COVID-19 Pandemic and Internal Labour Migration in India: A Crisis of Mobility, *The Indian Journal of Labour Economics* 63:1021-1039.

A STUDY ON THE PERFORMANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES (MSMEs) IN TAMIL NADU⁴⁴

Dr. V. SUMATHI⁴⁵ & M. LAKSHMANAN⁴⁶

Introduction

Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last five decades. MSMEs not only play a crucial role in providing employment opportunities at comparatively lower capital cost than large industries but also help in industrialization of rural and backward areas, thereby, reducing regional imbalances, assuring more equitable distribution of national income and wealth. The significant point is that MSMEs are complementary to large industries as ancillary units. The size of this sector in Indian can be inferred from the following:

- 63 Million MSMEs
- 80% of industrial coverage
- 31% of Gross Domestic Products (GDP)
- 45% of Exports

Tamil Nadu accounts for the largest number (15.7%) of MSMEs in the country. They are providing order 8000 varieties of products worth Rs.32,008 cores (2020-21). The major products include Auto parts, Leather and leather goods, electrical and electronic goods, drugs and pharmaceutical and solar energy equipments.

Statement of the Research Problem

An analysis on the performance of these industries will help to understand their pattern of growth and development and will give an idea about their contribution to the production, employment and export to an economy. In this context, a state level study on MSME sector should be undertaken to know the growth and performance of this sector. Hence, the present study.

Objective of the Study

1. To examine the performance of MSMEs sector in Tamil Nadu.

Methodology

The required data were obtained from the published sources like Economic Survey, Department of MSME and analyzed by using Annual Growth Rate (AGR), Compound Annual Growth Rate (CAGR) and Trend analysis.

Review of Literature

Karpagalakshmi and Muthusamy (2020) identified the independent variables which are influencing the performance of Micro, Small and Medium Enterprises (MSMEs) in the state of Tamil Nadu. The data collected from secondary sources were used and multiple

⁴⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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regression analysis was fitted. The results showed that the capital involved and the number of employees significantly influenced the performance of MSMEs.

On the basis of a survey of 180 managers of MSME sector, it was found by **Muthukrishnan (2021)** that agricultural based products industries are not affected during the COVI-19 Lockdown period.

Meeravali Shaik et al (2017) found that though MSME total working enterprises, employment and market value of fixed assets grown at a CAGR of 4.39%, 4.75% and 6.64% respectively, the contribution from manufacturing and service sector of MSME contribution to GDP is -1.53% and 1.82% respectively. Though government has taken measures to improve to productivity, over last seven years the MSME contribution to GDP has not increased to acceptable level. It is suggested that government has to adopt integrated policy, providing sound data with efficient governance, promote skill development to increase productivity and providing assessable credit through government sponsored agency exclusively to MSME is essential to increase productivity and contribution to economic growth.

According to **Jena and Thatte (2017)** the differences in performance of the MSME sector in different states exist due to differences in the presence or absence of adequate enabling factors like labour force, various economic infrastructure (road, ports, power), regulatory framework, size and status of GSDP, and density of MSME clusters.

According to **Vanitha, Sangeetha and Sumathy (2018)**, Micro Small Medium Enterprises (MSME) sector has been instrumental in the growth of the nation, leveraging exports, creating huge employment opportunities for the unskilled, fresh graduates, and the underemployed, also extending the opportunities to banks for giving more credit to enterprises in this sector. The government should take utmost care of this sector in terms of providing more and more MSME Registrations benefits through better regulations.

On the basis of an analysis of published data, **Kathuria and Sen (2014)** argued that the productivity performance of organised and unorganised segments of the Indian manufacturing sector at the sub-national level for the period 1994-1995 to 2004-2005, the labour productivity has increased for the organised sector over time whereas both labour productivity and capital intensity growth have slowed down in the unorganised sector. They doubted the effectiveness of liberalization policies and reforms in strengthening the growth of unorganised sector.

Maiti and Sen(2014) argued that the informal sector was found as dynamic one involving the two major players in the informal sector.

- a) Primitive capital accumulation
- b) Economic dynamism and entrepreneurial creativity

A study by **Ghecham (2017)** revealed that the informal sector has dual impact on income distribution. It oscillates between two ends: On one hand it narrows the income gap at lower end of income groups but at the same time it contributes to the widening of income gap at high end of income group. The fact that informal sector can exacerbate the concentration of income at the top-end income category while reducing this gap at the bottom highlights the existence of elements that interplay within the informal sector itself.

To know what extent the sub-contracting matters for the performance of SMEs **Sudhir Kumar and Balasubramanya (2009)**, conducted two case studies in Bangalore. The first one was a single proprietorship firm engaged in the manufacturing of machine parts and the second one was a private limited firm specialised in the manufacturing of material and ground handling equipment and industrial and office furniture. The first one entered into a

relationship with a large CNC machine manufacturer and got orders for precision parts. The second one got orders from Hindustan Aeronautics Ltd (HAL) which was a labour contract for structural fabrication. The case studies revealed that the sub-contracting led to technological innovations mainly because of external factors of competition and customer requirement.

Results and Discussion

The growth of MSME sector has been analysed in terms of three parameters namely number of units, investment and employment. In Tamil Nadu the MSME sector units have grown from, 41,799 units in 2009-10 to 2,33,954 in 2018-19. The investment in these units also grown from Rs.3,214 lakhs to Rs.30,078 lakhs. The employment has grown from 1,51,743 persons to 15,33,804 persons during the same period (Table 1).

Table 1 MSME Units, Capital Investment, and Number of Employees in Tamil Nadu

Year	Number of Units	Investment (Rs in Lakh)	Employment (in numbers)
2009-10	41,799	3,214.22	1,51,743
2010-11	57,902	5,872.37	4,05,233
2011-12	70,758	7,429.59	5,02,381
2012-13	90,974	8,751.54	5,83,436
2013-14	1,16,393	18,939.87	4,94,990
2014-15	1,43,104	24,349.65	6,51,180
2015-16	1,83,792	40,630.59	11,12,002
2016-17	2,67,310	36,221.78	18,97,619
2017-18	2,17,981	25,373.12	13,78,544
2018-19	2,33,954	30,078.85	15,33,804

Source: Annual Report of 2009-10 to 2018-19 Govt. of Tamil Nadu, MSMEs

The district wise distribution of MSME registered units and their investments and employment are given in table 2. A small calculation has been made to find out the number of persons employed per unit. Among the districts Chennai tops in the number of registered units (1,82,814) followed by Coimbatore (1,08,077) and Tirupur (89,514). Accordingly the investments made and the number of persons employed, in these units have also been found as concentrated in a few districts. For the state as a whole the per unit of employment came to 6.67 per cent. At the same time in the case of Tirupur district it was high at 9.9 per cent. Some districts like Ramanathapuram, Salem, Madhurai, Theni, Tiruvarur and Tirunelveli have shown a lower amount of persons employed per unit.

Table 2 No. of Registered MSMEs in Tamil Nadu 2019-2020

S. No.	District Name	MSMEs (Nos)	Investment (Rs. Lakhs)	Employment (Persons)	No of Persons per unit
1	Ariyalur	2,746	26,398	15,240	5.5
2	Chennai	1,82,814	23,51,338	13,07,235	7.1
3	Coimbatore	1,08,077	16,51,273	7,09,101	6.5
4	Cuddalore	13,488	1,98,755	91,368	6.7
5	Dharmapuri	12,397	1,24,987	69,372	5.6
6	Dindigul	18,835	2,18,026	1,13,109	6.0

S. No.	District Name	MSMEs (Nos)	Investment (Rs. Lakhs)	Employment (Persons)	No of Persons per unit
7	Erode	47,146	5,50,479	2,91,066	6.1
8	Kancheepuram	71,381	9,44,042	4,82,894	6.7
9	Kanyakumari	24,333	2,63,019	1,34,207	5.5
10	Karur	11,608	1,84,391	98,037	8.4
11	Krishnagiri	23,012	4,62,777	1,74,651	7.5
12	Madurai	55,022	5,03,627	2,89,565	5.2
13	Nagapattinam	6,464	66,367	35,238	5.5
14	Namakkal	26,209	4,19,750	1,67,313	6.4
15	Perambalur	2,351	35,010	15,424	6.6
16	Pudukkottai	8,834	1,26,031	55,486	6.3
17	Ramanathapuram	5,591	60,517	28,633	5.1
18	Salem	63,636	5,98,496	3,29,083	5.2
19	Sivaganga	7,633	85,616	44,553	5.8
20	Thanjavur	13,810	1,48,036	77,338	5.6
21	The Nilgiris	2,569	33,741	16,275	6.3
22	Theni	9,509	85,641	48,152	5.1
23	Tiruvallur	55,391	9,11,319	3,81,968	6.9
24	Tiruvarur	5,400	59,605	27,773	5.1
25	Tiruchirappalli	24,304	2,96,281	1,44,620	5.9
26	Tirunelveli	25,501	2,77,159	1,34,262	5.2
27	Tiruppur	89,514	1,40,0124	8,85,329	9.9
28	Tiruvannamalai	11,798	1,29,079	59,875	5.1
29	Tuticorin	17,372	2,30,953	1,07,278	6.2
30	Vellore	28,268	3,84,362	2,04,577	7.2
31	Villupuram	14,092	1,94,301	77,975	5.6
32	Virudhunagar	26,788	3,41,840	1,61,656	6.0
Grant Total		10,15,893	1,33,63,340	67,78,653	6.67

Source: Annual Report of 2019-20 Govt. of Tamil Nadu, MSMEs

Tamil Nadu state has about 50 lakh MSMEs in non-registered unorganised sector. As per Udyog Aadhar registration, the State enrolled 7.7 lakh MSMEs. These MSMEs have a strong presence in engineering, automobile production, auto components manufacturing, agro based, food processing and information & bio technology sector.

Classified Analysis of MSMEs in Tamil Nadu

The registered MSMEs in Tamil Nadu are classified according to the following categories: Udyog Aadhar registered, Micro, Small and Medium. The district wise data available with respect to the size of the MSME units, and the ranks were allotted to them. Accordingly Chennai got first rank in all the four categories followed by Coimbatore, Tirupur and Kanchipuram. As per the Annual Report of Tamil Nadu the number of units has been found as high in the Micro units compared to Small and Medium units.

References

1. Dibyendu Maiti (2014), "The Informal Sector in India: A Means of Exploitation or Accumulation?" Journal of South Asian Development 5 (1), June pp.1-13.
2. Ghecham Adnan Mahieddine (2017), "The Impact of Informal Sector on Income Distribution: Could Concentration of Income be Explained by the Size of Informal Sector?" International Journal of Economics and Financial Issues, 7(1), pp 594-600.
3. Karpagalakshmi S and Muthusamy A (2020), Factors Influencing the Performance of MSMEs in the State of Tamil Nadu, Academic Leadership (Online Journal), 21(7). pp.39-43.
4. Meeravali Shaik et al (2017) Performance of MSMEs Sector in India, International Journal of Economics and Management Studies, 4(3).pp.11-15.
5. Nagarajan Muthukrishnan (2021), Importance of Enterprise Risk Management and Technology for Micro Small Medium Enterprises During 'COVID-19' SCE..., Sambodhi UGC Care Journal, 44(1). pp. 181-188.
6. Nihar Ranjan Jena and Lina R Thatte (2017), Performance of the Micro, Small & Medium Enterprises (MSMEs) Manufacturing Sector in Select States in India: The Concept of MSME Manufacturing Business Facilitator (MSME-MBF) Index, 13(2). pp.62-76.
7. Sudhir Kumar and Bala Subramanya (2009), How does subcontracting matter for SME performance? An empirical examination in the Indian context, International Journal of Globalisation and small Business, 3 (1), pp.4-22.
8. Vanitha K, Sangeetha R and Sumathy M (2018), MSMEs of Tamil Nadu : The Journey Far & Beyond, International Journal of Research and Analytical Reviews, 5(4). Pp.147-151.
9. Vinish Kathuria, Rajesh Raj and Kunal Sen (2014), "Organised versus Unorganised Manufacturing Performance in the Post-Reform Period", Economic and Political Weekly, 45(24), June, pp.55-64.

TAMIL NADU POWER INFRASTRUCTURE - AN OVERVIEW⁴⁷

Dr. D. HEMALATHA⁴⁸

Introduction

The Electricity supply which was traditionally viewed as a natural monopoly developed dissatisfaction with limited incentives for efficient operation of a cost-of-service regulated or government owned electric utility. As a result, new regulatory schemes and organizational reforms are now being implemented worldwide in an effort to improve the efficient operation of electric utilities. All these reforms are consistent with the view that competition should be introduced into the electricity supply industry wherever it is technologically feasible. Only those portions which are most efficient and are being supplied by a single firm should remain regulated. Power generation and public distribution started in Calcutta in April 1899, after which the Electricity Act, 1903 was brought into force. The Indian Electricity Act, 1910, which Act is still in force today, with quite a number of amendments. After 1st Electricity Act, Government enacted the Electricity (supply) Act, 1948, the Indian Electricity Rules, 1956, the Electricity Regulatory Commissions Act, 1998. Recently Indian Electricity Act, 2003 was enacted to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and largely for taking measures conducive to development of electricity industry, promoting competition, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, and promoting of efficiency.

Power Generation in Tamil Nadu

Tamil Nadu is one of the most industrialized states in India with a high Human Development index. Chennai, the capital city of Tamil Nadu, is the gateway of South India with an international airport, sea ports and rail and road network connectivity. The investment scenario in the State is very buoyant due to the transparent and proactive approach of the Government. The State has emerged as the front-runner in attracting new investments in manufacturing sector. The Tamil Nadu Electricity Board is a statutory body formed on 01.07.1957 under the Electricity Supply Act, 1948 as a successor to the erstwhile Electricity Department of the Government of Madras. The Board is responsible for the development of infrastructure and service relating to the state's growing need for electrical energy. Starting with a modest installed capacity of 156 MW (Mega Watt) at the dawn of independence, the Board's own generating capacity has grown by leaps and bounds to 11,631 MW as on 31.03.2010. The Board has an even mix of the various generating capacities such as 3220 MW of coal based four thermal stations, 1026.30 MW from the five Gas Turbine Stations and 2186 MW from 38 Hydro Stations. In addition, there is an infirm power of 4865.51 MW from Wind Farms and R.E.S. Besides, the Board has a share of 2825 MW from Central Generating Stations, 4270 MW of privately owned wind farms and 1180 MW of Independent Power projects. The peak reached is 10446 MW on 23.02.10 and the maximum daily consumption was 216.38 MU on 29.06.09. In fulfilling its obligations over the last five decades, the Board

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has also been an effective tool for the Government in implementing its policies and fulfilling social obligations relating to agriculture and other weaker sections of the society that require positive support and special attention of the Government. This approach was however not unique to Tamil Nadu alone but has been adopted in some states, with reduced tariff to certain consumer segments. The TNEB occupies third rank in the list of top three SEBs in the country, along with Maharashtra and Gujarat, in terms of the size of its operation gauged by the generating capacity at its command, the amount of energy sold and the number of consumers serviced. Tamil Nadu ranks sixth in terms of per capital electricity consumption among States.

Tamil Nadu is a pioneer in introducing cogeneration in sugar mills and continues to lead with installed capacity of 466 MW of which exportable surplus is 266 MW, which is about 250% of installed capacity in India. The installed capacity from biomass is 147.5 MW. (includes waste to energy projects) The overall demand shortage is of the order 2.71% to 12.47%. The energy shortages were of the order 3.59% to 9.04%. The registered system peak demands, unrestricted demand and registered minimum demand during the year 2009-10 is 10446 (23rd Feb'10) 11356 (Mar'10) 5236 (Nov' 09).

Power Sector Reforms in Tamil Nadu

The Government of Tamil Nadu is committed to reform its Power Sector with a vision to achieve commercial viability and provide reliable and quality power at competitive prices to all consumers in the state. To achieve these objectives the following provisions have been made:

A. Restructuring

Government of Tamil Nadu have accorded in- principle approval for the re-organisation of TNEB by way of establishment of a holding company, by the name TNEB Ltd and two subsidiary companies, namely Tamil Nadu Transmission Corporation Ltd (TANTRANSCO) and Tamil Nadu Generation and Distribution Corporation Ltd (TANGEDCO) with the stipulation that the aforementioned companies shall be fully owned by Government. The Govt. has also constituted a Steering Committee to finalise the transfer scheme for the re-organisation of Board under section 131 of the Electricity Act 2003.

B. Power Generation

The total installed generation capacity of Tamil Nadu as on 31.03.2010 is 15,800 Mega Watts.

(i) Hydel, Coal, oil based and conventional sources

TNEB's own generating stations: 5690 MW (Hydel, Thermal, Gas and wind)
Private Sector Power Plants (IPP): 1,180 MW
Share from Central Sector generating stations: 2,825 MW
External assistance: 305 MW
Others (Captive Power Plants): 214 MW (Supply to TNEB)
TOTAL: 10214 MW

(ii) Renewable or Non-conventional energy sources

Wind Mills (Private) (in-firm power): 4889.765 MW
Co-Generation: 559.5 MW; and
Bio-mass: 137.05 MW

Total (Renewable sources): 5586.315 MW
Grand Total 15800.315 MW.

(iii) Manpower Rationalization

The number of employees per million units of scale for the year 2007-08, 2008-09 and 2009-10 work out to 1.38, 1.40 and 1.35 which is lower than the norms, indicated by TNERC.

(iv) Renewable Energy

Tamil Nadu has achieved tremendous success in harnessing renewable energy for generation of grid quality power. It has an installed capacity of 4790 MW from renewable sources as on 31.3.2009 against country's installed capacity of 14485 MW, which is about 33%. As a share of 1207 grid power, renewable energy with installed capacity of 4790 MW accounts for about 32% of TNEB's total grid capacity of about 15,100 MW while the national average is 9% only. Dividing the 2008-09, the total units generated in Tamil Nadu from Renewable energy sources are 7532 million units which is 11% of Tamil Nadu's grid consumption.

Wind power: Tamil Nadu is No. 1 state in India with an installed capacity of 4287 MW as on 30.3.2009, which is about 42% of the total installed capacity in India. The private investment in wind power exceeds Rs.18200 Crores. The power generation has exceeded 40 billion units (cumulative).

Solar: 25068 solar domestic lighting systems have been installed in Tamil Nadu with assistance from Government. 6095 Solar street lights have been installed in public places/streets mostly in village panchayats with Government assistance and active support and involvement of Rural Development Department. Solar water and air heating/drying systems have been installed for a collector area of 28791 sq.

Biomass gasifiers with cumulative capacity of 5444 KW are in operation. 189 nos. of community and toilet linked biogas plants have been constructed in the State under subsidy scheme.

Management information Systems: The slab wise consumption and revenue details are maintained and furnished for all categories such as domestics, place of worship, power loom and locally body consumers. 100% computerisations for all sections have been completed.

Energy Audit: TNEB has an excellent record of billing and collection of CC charges from customers. It has around 98% level of collection efficiency which is the highest among the various power utilities in the country. The board has an effective meter replacement program wherein the defective meter replacement is carried out on a priority basis. Static meters have been installed at all the output points at each SS all 22/11 kV feeders (99.65%). Based on the energy accounting study is undertaken in different distribution circles at the rate of 2 Nos. HT feeders per SS, the No. of HT feeders having high line loss were identified as 1587. Improvement works have so far been carried out in 751 Nos. feeders. Monthly energy balance assessment is being carried out from 230 KV level to 11KV bus. A pilot scheme, Automatic Data Logger System (ADLS) has been commissioned in six substations of Coimbatore South EDC. Linking of these ADLS with Centralised Monitoring Station at Coimbatore Circle has also been done and is under observation. Energy audit is being conducted internally and quarterly returns are being submitted to the TNERC.

Metering of Energy: TNERC has accorded extension of time up to 1.10.2012 for installation of meters in hut services and agricultural service connections. TNEB has not yet furnished any roadmap for installation of meter in hut and agricultural services.

Power Procurement: The TNERC has ordered TNEB to instruct all the Independent Power producers to swap/restructure the high cost rupee term loans to low cost rupee term loan and to hedge all the foreign currency to Indian currency loan.

Demand Side Management (DSM): TNEB is taking various steps in implementing DSM measures and a separate division is constituted to look after the DSM aspects. The government of Tamil Nadu is implementing the scheme of replacing the existing pump sets with ISI energy efficient pumps sets in the agriculture sector by giving subsidy through the agricultural engineering department. Recently TNEB has approved the proposal for awarding the work of implementing lighting energy efficiency program under Bachat Lamp Yojana scheme in the domestic sector comprising 13 million domestic consumers in the state of Tamil Nadu.

Transmission and Distribution losses: The transmission and distribution losses in Tamil Nadu have been estimated as 18% for the years.

Grid Discipline: Tamil Nadu falls in the Southern Region Load Dispatch Centre (SRLDC) with its headquarters at New Delhi. TNEB is maintaining grid discipline, complying with Indian Electricity Grid Code and carrying out the directions of the Regional Load Dispatch Centre.

Computerized and online Billing: Tamil Nadu already has computerised billing for most of its consumers in the state. The collection through banks (on-line), Any Time Payment (Kiosk) machine have been introduced in Chennai Metropolitan area. The collection through post offices is worked out and is likely to be materialised shortly. These efforts have improved the overall efficiency of the organization.

Transmission and Distribution Losses

The transmission and distribution losses are the areas of major concern in any power utility in the country. Lot of energy generated and transmitted goes unmetered in the form of losses, pilferage and theft of energy. This area need to be addressed at the priority level. These losses cannot be reduced overnight.

Component of T and D Losses: Losses occur in the process of supplying electricity due to technical and commercial losses. The losses are due to: Non-installation of sufficient capacitors. These technical losses are inherent in a system and can be reduced to an optimum level. The losses can be further sub divided depending upon the stage of power transformation & transmission system as transmission losses (400kV/220kV/132kV/66kV), as Sub transmission losses (33kV / 11 kV) Distribution losses (11 kV/0.4kV).

Barriers in private sector participation: The lack of realistic estimates of T& D losses acts as a disincentive for private sector participation in power distribution as the party cannot have an idea of the realistic revenue potential of the area being privatized.

Aggregate Technical and commercial losses (AT&C): T&D loss is purely technical in nature and is assessed considering the energy fed in to the grid and the energy billed. The AT&C losses on the other hand is assessed considering the energy fed into the grid and the energy for which revenue realized which accounts for the collection efficiency.

Tamil Nadu: T& D losses in the State are at present among the lowest in the country, with latest TNERC Tariff Order assessing the losses at 18%. Most of the T & D losses are technical in nature. T & D losses are assessed as the difference between the energy input and the estimated sales. The various steps that are being undertaken by the Board like strengthening of lines, addition of distribution transformers, etc. an overall loss level of 18% has been considered for calculating the various components of the annual revenue requirement for the year.

Realization of outstanding dues: The current consumption charges arrears realised from the government for the local bodies and other government departments is shown:

Outstanding Dues

Year	Rs. Crores
2004-2005	558.24
2005-2006	299.49
2006-2007	455.30
2007-2008	584.08
2008-2009	495.97

The accumulated arrears of local bodies as on 31.03.09 are Rs.150.47 Crores.

Rating of power sector: ICRA Limited (formerly Investment Information and Credit Rating Agency of India Limited) was set up in 1991 by leading financial/investment institutions, commercial banks and financial services companies as an independent and professional Investment Information and Credit Rating Agency. Tamil Nadu rank 5th among all the states in INDIA as per the rating given by ICRA limited for the year 2005. A score of 50.94 has been assigned to the power sector in Tamil Nadu.

Conclusion

As a result of restructuring or enactment of Electricity Act 2003, the power scenario in Tamil Nadu in particular and all over India in general has improved significantly and hopefully will overcome the present grim power situation in future. The reduction in the losses occurs due to identification of the weakest areas in the distribution system and strengthening/improving them so as to draw the maximum benefits of the limited resources. Reactive power mismatch is the area which needs to be tackled on priority. The power quality and reliability of power supply in the state has also improved markedly. The computerization and implementation of information technology has resulted transparency in commercial business of power utility in state.

References

1. S. A. Khaparde, "Power sector reforms and restructuring in India", IEEE.
2. R.J. Thomas, "Introduction: Electric power systems restructuring: Engineering, Economics and Policy Track", 40th Annual Hawaii International Conference on System Sciences, Jan. 2007, pp. 110-110.
3. J.T. Cain, "Power System Restructuring [Asian and Australian Power Policy]", IEEE Power Engineering Review, Vol. 16, Issue 2, Feb. 1996 pp. 9.
4. Tripta Thakur, S.G. Deshmukh, S.C. Kaushik, Mukul Kulshrestha, "Impact assessment of the Electricity Act 2003 on the Indian power sector", Energy Policy 33, 1187-1198.
5. Tamil Nadu Energy Development agency. [www. teda.gov.in]
6. Tamil Nadu Regulatory Commission. [http://tnerc.tn.nic.in]
7. Tamil Nadu Electricity Board. [http://www.tneb.in]

PRODUCTION AND MARKETING OF PULSES IN TAMIL NADU⁴⁹

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Introduction

Tamil Nadu is the second richest and the most industrialized states of India. In spite of that, agriculture still plays a vital role in this state with around 13% contribution towards GSDP and 40 percent to employment opportunities. To fulfill the target of enhancing the physical wellbeing of the people, the state government has changed the structure of food basket from basic cereals to fruits, milk, meat, fish, pulses, eggs, etc. pulses production was encouraged by the state for attaining the twin objectives of i) reducing water scarcity in agriculture and ii) increasing farmers' income. Insufficient irrigation is the major blockage that prevents the development of agricultural sector. As the state has access to only 3 percent of India's fresh water resources, most of the regions of the state are highly dependent upon monsoon rains. Failure of the government in safeguarding traditional water bodies and the irresponsibility and neglect shown by the people in saving water resources has aggravated the plight of farmers in Tamil Nadu. Pulses cultivation is a blessing in disguise for the farmers of rain fed area, where, over exploitation of ground water and monsoon failure were the order of the day. Pulses cultivation requires limited water and gives a reasonable income to the farmers. Protein and micronutrient deficiencies can be reduced by increasing the consumption of pulses which are rich sources of proteins, minerals, iron and fiber.

A well planned balanced diet only could keep the people healthy and productive. This study aims at analyzing the causes for low productivity in pulse production and finding out ways and means to increase production, and to suggest the government the suitable policy changes to be made to attain the twin objectives of doubling the yield and tripling the income of farmers and ensuring the availability of nutritious meal at affordable rate.

Objective

1. To analyse the growth and variability of area, production and productivity of pulses in India with special reference to Tamil Nadu.

Methodology

The area, production and productivity of pulses in India were analyzed over a period of 22 years at the national level and for a period of 15 years at State level. The required data were collected from the reports and statistics published by the state government. Annual Average Growth Rate has been calculated in order to assess the growth trends of pulses cultivation in India.

Area, Production and Productivity of Pulses in India

The area, production and yield trends of pulses are explained in the following table. For the first thirty years, starting from 1980-81 to 2000-01, the decennial values are given. Thereafter, the values are given for each year.

⁴⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Table 1 Area, Production and Yield Trends in India between 1980-81 to 2020-21

Year	Area (Lakh hectares)	AGR of Area under Pulses cultivation	Total Pulses			Annual Growth Rate for Yield per Hectare
			Production (Lakh million tonnes)	AGR of	Yield (kilogram per hectare)	
1980-81	22.46	—	10.63	—	473	—
1990-91	37.25	65.85	20.36	91.53	547	15.6
2000-01	20.35	-45.36	11.08	-45.57	544	- 0.54
2010-11	26.40	29.72	18.24	64.62	691	27.02
2011-12	24.46	-7.35	17.09	-6.30	699	1.15
2012-13	23.25	-4.94	18.34	7.31	789	12.87
2013-14	25.21	8.43	19.25	4.96	764	-3.16
2014-15	23.10	-8.36	17.16	-10.85	743	-2.75
2015-16	24.91	7.83	16.35	-4.72	656	-11.70
2016-17	29.44	18.18	23.13	41.46	786	19.81
2017-18	29.81	1.25	25.42	9.90	853	8.52
2018-19	29.16	-2.18	22.08	-13.13	757	-11.25
2019-20	27.99	-4.01	23.03	4.3	823	8.71
2020-21	28.78	2.82	25.46	10.55	885	7.53
2021-22	31.24	8.55	27.75	8.99	888	0.34

Source: DES; Ministry of Agri. & FW (DA&FW), Govt. of India

There was a sharp increase in area under pulses cultivation between 1980s and 1990s from 22.46 lakh hectares to 37.25 lakh hectares. But between 1991 to 2001 the area under pulses cultivation was dropped to 20.35 hectares. Since then, the pulses cultivated area tend to fluctuate frequently. But in spite of fluctuations in area under pulse cultivation, the total output produced and the productivity per hectare increases sharply. The production of pulses was 10.63 lakh million tonnes in 1980-81 and it continued to increase thereafter and reached a total output of 27.75 lakh million tonnes. The productivity also increased from 473 kg per hectare in 1980s to 888 kg per hectare during 2021-22.

Import, Export and availability of pulses in India

The following table shows the total availability of pulses in India since 2013-14, which include domestic production and imports.

**Table 2 Import, Export and availability of pulses between 2013-14 to 2020-21
(Unit-Lakh tonnes)**

Year	Domestic Production	Import	Export	Total Availability
2013-14	192.49	31.78	3.44	220.84
2014-15	171.46	45.85	2.22	215.09
2015-16	163.19	57.98	2.56	218.61
2016-17	231.25	66.09	1.37	295.97
2017-18	254.12	56.08	1.79	308.40
2018-19	220.71	25.28	2.87	243.12
2019-20	230.22	42.25	2.32	270.14
2020-21	254.63	24.66	2.77	276.52

Source: Production- DES, GoI, Import & Export – Ministry of Commerce & Industry

In order to meet out the domestic demand for pulses, the government of India has been importing pulses from other countries. There has been sharp rise in the import of pulses from 2013 to 2017, as the prices of pulses were skyrocketing. From 2017-18 onwards, the import of pulses tend to decline, except in 2019-20. And the import of pulses started declining during 2020-21. India is one among the largest importers of pulses. The union ministry of agriculture has aimed at increasing the production of pulses so as to achieve self-sufficiency in pulses consumption. The self-sufficiency in pulses production will lower its imports bill and also preserve valuable currency for other uses.

The major countries exporting pulses to India are Canada, Australia, Myanmar, United States and Russia. Having larger number of pulses processing units is one of the reasons for the increased imports of pulses. Some countries, such as Canada and Myanmar, as they have no developed pulses processing units, export pulses to India, and after processing, it is being exported to other countries from India.

Table 3 Per capita availability of Pulses in India

Year	Per capita Availability of Pulses in India	
	Gram per capita per Day	Kg per capita per Year
2013	43.29	15.80
2014	46.30	16.90
2015	43.84	16.00
2016	43.01	15.70
2017	54.79	20.00
2018	51.23	18.70
2019	42.47	17.20
2020	43.84	17.50
2021*	44.93	16.40

Source: APEDA (DGCIS)

Though the Indian Council of Medical Research (ICMR), recommends an average intake of 40 grams of pulses per day for a person, India's National Institute of Nutrition recommends a daily pulse intake of 80 grams per person/day. If we take the advice of the latter, we are yet to go a long way in pulses production. The above table shows that the availability of pulses per head ranges between 40 and 50 grams, except the two years 2017 and 2018.

Minimum Support Prices for Pulses in India

Agriculture is frequently affected by the vagaries of monsoon. To ensure nutritionally balanced diet to all its citizens, the Government of India has left no stones unturned to increase domestic production. Procurement of pulses at the Minimum Support Prices assured by the government is one such move, especially to safeguard the farmers from the unexpected drop of prices.

Table 4 Minimum Support Prices for Pulses (in Rs. per quintal) in India

Year	Tur	Moong	Urad	Bengal Gram	Lentil
2007-08	1550	1700	1700	1600	1700
2008-09	2000	2520	2520	1730	1870
2009-10	2300	2760	2520	1760	1870

Year	Tur	Moong	Urad	Bengal Gram	Lentil
2010-11	3000	3170	2900	2100	2250
2011-12	3200	3500	3300	2800	2800
2012-13	3850	4400	4300	3000	2900
2013-14	4300	4500	4300	3100	2950
2014-15	4350	4600	4350	3175	3075
2015-16	4625	4850	4625	3425	3325
2016-17	5050	5225	5000		
2017-18	5450	5575	5400		
2018-19	5675	6975	5600		
2019-20	5800	7050	5700		
2020-21	6000	7196	6000		
2021-22	6300	7275	6300		
2022-23	6600	7755	6600		

Source: Commission of Agriculture Costs and Price

In order to increase domestic production to cope with increased demand, the government of India has announced Minimum Support Price for pulses. The above table shows the MSP fixed by the government for a period of 10 years, i.e., from 2007-08 to 2016-17. When we look into the table we could observe that the MSP fixed for Tur dal has been increased each year, regularly, since 2007. This is the case with Moong dal and Urad dal. Whereas, the frequency of revision of prices of Bengal gram and Lentil is lesser during the same period. No details regarding the revision of MSP for Bengal gram and Lentil are available.

Table 5 Area, Production and Productivity of Pulses in Tamil Nadu

YEAR	AREA (Hects. in '000)	PRODUCTION '000 TONNES	PRODUCTIVITY Kg. / Hec.
2004-05	590	216	367
2005-06	525	177	337
2006-07	537	291	541
2007-08	610	185	303
2008-09	536	167	312
2009-10	536	204	381
2010-11	637	245	385
2011-12	667	354	531
2012-13	513	213	415
2013-14	816	614	752
2014-15	884	767	868
2015-16	888	585	659
2016-17	785	338	431
2017-18	825	556	675
2018-19	851	551	648

Source: Department of Economics and Statistics, Chennai-600 006.

Table 5 shows the data regarding area, production and productivity of pulses in Tamil Nadu. As pulses are dry crops which require minimum irrigation, area under pulses

cultivation has been on the increase since 2004-05. The government of Tamil Nadu has been encouraging the cultivation of pulses in order to increase the livelihood of farmers in dry areas. The state government has been supporting the pulses cultivators of dry areas with subsidies, along with technical support for switching to drip irrigation. Due to such constant efforts of Tamil Nadu government, there has been a sharp increase in the production and productivity of pulses till date.

Table 6 High Yielding Varieties of Pulses in Tamil Nadu

S. NO.	Crops	Variety Name
1.	Red gram	BRG-1, BRG-2, CO-8, LRG-41, CO(Rg)-7
2.	Black gram	VBN-4, VBN-5, VBN-6, VBN-7, VBN-8, CO-6, ADT-3, MDU-1, KKM-1, ADT-6, ADT-5
3.	Green gram	VBN-3, CO-8, CO(Gg)-7, ADT-3
4.	Bengal gram	JAKY-9218
5.	Cow pea	CO(CP)-7
6.	Horse gram	PY-2

Source: Department of Agriculture, Tamil Nadu.

In order to increase yield and to cope with biotic and abiotic stresses, the new varieties of seeds were produced after intense research. The above table lists out the most demanded HYV seeds produced and distributed in Tamil Nadu. By the use of these seeds the state was able to increase its productivity continuously.

Table 7 Procurement of Pulses made through Price Support Scheme during 2018-19

S. No.	Name of the crop	Minimum Support Price (Rs. per kg)	Total Quantity Procured (MT)	Total amount in Crores
1.	Red gram	56.75	399.90	2.27
2.	Black gram	56.00	3379.07	19.75
3.	Green gram	69.75	5317.57	38.76
Total			9,096.53	60.78

Source: Department of Economics and Statistics, Chennai-600 006.

The above table shows the minimum support price fixed by the state government during 2018-19. The prices were fixed per kilogram of pulse. The table shows that the price fixed for green gram is greater than other pulses cultivated in the state.

Conclusion

As people are more aware about the nutritional contribution of pulses, there is continuous increase in the demand for pulses. Import of pulses to meet out the domestic demand is not a viable solution. Efforts to increase pulse production at home will serve the twin objectives of the government, by way of providing a source of livelihood for the marginal and small farmers of rain fed area, and by saving foreign exchange. Creating awareness about quality enhancement such as low moisture content, machine cleaning and polishing etc., to pulses producers will help in increasing exports, and thereby earning additional foreign exchange. Drought and heat are the main abiotic stresses which affect the crop growth leading to poor yield. Research should be encouraged to produce new varieties of pulses and to introduce new techniques of cultivation which could help to withstand biotic

and abiotic stresses. As per the findings, most of the farmers who are indulged in the cultivation of pulses are marginal or small farmers. In order to mitigate the disadvantages of small farming, “collective farming” – an innovative programme introduced by the Tamil Nadu government could be implemented in the study area. If the above said suggestions are carried out by the state government, it could certainly pave way for the development of pulses cultivation.

Peer Reviewed Journal

IMPACT OF TROPICAL CYCLONE OCKHI ON FISHERFOLK IN THOOTHOR PANCHAYAT, KANYAKUMARI DISTRICT⁵²

C. THATHEUS⁵³

Introduction

In Bengal language “Ockhi” means “Eye”. The cyclone which was originated from a low pressure and turned as a cyclone in the eastern Andaman Sea considered as a strongest storm in 2017 occupied the way over the Arabian sea. The cyclone Ockhi, in 2017 was considered as the first very severe cyclone since 1925. As the fishermen were in the sea for their usual fish harvesting, the tropical Ockhi cyclone hit and devastated the southern parts of Tamil Nadu and Kerala. The cyclone Ockhi, caused not only damages of the property, disappearances of the loved ones, lifelong injury to the fishermen of Kanyakumari district but it caused great damage to their spirits as well. Kanyakumari district was the worst affected district of the state Tamil Nadu which significantly provides fish production around 40,000 tonnes estimated 200 crores every year. Kanyakumari has the sea shore area of 71.5 km and congested with high density of fishermen living in the country. The population is about 1.8 million in this district. After 1990s the government of India had allowed foreign fishing vessels, the fish production of the Indian fishermen significantly diminished and led the Indian fishermen to go deeper into the sea water in search of fishes. Consequently, in order to sustain in the deep water even during the rough weather situations, the length of deep-sea fishing vessels increased for a month-long journey. During the time of publicizing the warning of cyclone, around 3000 fishermen were already in the sea.

Fishing and Fishermen in Kanyakumari District

Kanyakumari is the southern district of Tamil Nadu State and it consists of 42 fishing villages. In these villages around 80,000 people are engaged in inshore and deep-sea fishing. However, they are well known for deep-sea fishing. Deep sea fishing is a venture of hunting shark and tuna fishes, and their voyage for fish hunting is beyond 200 to 500 nautical miles. Thoothoor panchayat, the place we are concerned is located in the coastal area and southern part of Kanyakumari district, and it consists of five villages, namely, Eraviputhenthurai, Chinnathurai, Thoothoor, Poothurai and Erayumanthurai. Here, if a man is said to be a fisherman, he is definitely a deep-sea fisherman. For deep sea fishing they utilise various technological methods to catch shark and other fishes. Generation by generation, they go for deep-sea fishing, and without doubt they are well versed in that area. Their average days for deep sea fish hunting is 30 days, and sometimes if the necessity arises the days will be extended to 40 and more. Now automatically a question arises in our mind, then who is going for inshore fishing? Those who themselves feel that they are not eligible by age, those who have health issues, and those who are tired of going for deep sea fishing will go for inshore fishing and they are mostly above 50 in age.

⁵² Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Research Issue

Since the cyclone Ockhi devastated and caused damages and disappearance of many fishermen, the economic conditions of the families of missing and death fishermen are to be notified. The steps taken by the central and state government in order to recover the missing and the compensations given by the government are to be analysed. The people's experience and their demands for their safety in future are to be heard.

Objectives

1. To study the situation during and after the time of Ockhi cyclone.
2. To find out the compensation given by the government and from the local diocesan NGOs for the lost, dead and the assets.
3. To provide findings and suggestions for the safety and security of the fishermen to the fishery department of the State Tamil Nadu.

Situation during Tropical Cyclone Ockhi

Around 2 pm, on 29. 11. 2017 a warning was given from the fisheries department that a cyclone was forming in the sea of Kanyakumari and the wind speed during the onshore impact of the cyclone will be about 45 km to 55 km and asked the fishermen not to go for fishing. For the Kanyakumari fishermen, who are well experienced in deep sea fishing, the wind speed of 45 km to 55 km is not a big issue as they have much experience in the sea. Nevertheless, by the bell of the church and by the horn sound service the information about the cyclone was given to the inshore fishermen who were fishing, but for the deep-sea fishermen, who were already in the sea, the information about the cyclone was not reached. So, the fishermen asked the fisheries department and the government to contact the deep-sea fishermen through Navy and Coast Guard services. But for the security reasons the officials rejected their request and failed to save the fishermen who were fishing in the deep sea. On 30.11.2017 morning the devastation of the tropical cyclone started in an unexpected wind speed of 100 km to 180 km. The fatal cyclone destructed the deep-sea fishing vessels, mechanized fishing vessels and country crafts irrespectively. The requisition from the fisher folk community was given immediately to the Collector, officials of fisheries department, MLA and MP. The assurance of informing the state government in order to search the deep-sea fishermen through Navy, Coast Guard and helicopter was given. However, at the end, they shrugged off their shoulders as if they could do nothing in that matter. The fishermen who survived in the Ockhi cyclone, while coming back, with their boats went around to search for the affected fishermen and found and brought to the sea shore 38 fishermen alive.

Like Tamil Nadu, Kerala also was affected severely by the Ockhi cyclone. Kerala government immediately accelerated the Navy, Coast Guard and the helicopter in search of the fishermen in the deep-sea water. By the instant action of the Kerala government around 200 fishermen from Tamil Nadu have been rescued. Whereas in Tamil Nadu, the Indian Coast Guard with eight fishermen went to the sea in search of the fishermen and they did not go beyond 60 nautical miles. In seeing the hesitation and irresponsibility of the Navy and Coast Guard, the Thoothoor fishermen went out with five mechanized boats in search of their missing fishers. After a long search of the coast from Kanyakumari to Kollam of Kerala, they found five decomposed bodies floating in 57 to 120 nautical miles. However, the sad news is that they couldn't recover the bodies back as they were decomposed but recovered two ID

cards and eight mobiles packed in a bag. Maharashtra government announced that 952 fishermen had been rescued and landed safely. Gujarat government did not permit 600 fishermen to enter into their port. Lakshadweep Island Coast Guard informed that 193 fishermen safely landed. During that time, the fishermen heard the sudden news that some of the fishermen had not yet been contacted still. In the aftermath of Ockhi cyclone, the Kanyakumari collector announced that 462 fishermen were missing. District administration officials expressed that 66 boats and 544 fishermen were yet to be traced. Soon after the tropical Ockhi cyclone, a truth finding group went around the Thoothoor panchayat villages and other villages and gathered the information through direct interview with the fisher folk found out that more than 100 fishermen were dead and more than 500 fishermen were missing. The INFIDET President Justin Antony said that around 690 fishermen from eight villages were still missing.

Situation after the Tropical Cyclone Ockhi

Having heard the news on the Coast Guard's refusal of going beyond 60 nautical miles, the parish priests along with the people of eight villages namely Erayumanthurai, Poothurai, Thoothoor, Chinnathurai and Eraviputhenthurai belonging to Thoothoor panchayat and Vallavilai, Marthandamthurai and Neerodi belonging to Kollamkode panchayat decided to picket train at nearby Kuzhithurai railway station, on 7th December 2017. And, on 9th December 2017 more than 2000 fishermen including around 1000 women accompanied by 8 parish priests marched towards Colachel bus stand to stage a protest demanding the government to find out the missing relatives. While the people were demanding the lives of their loved ones cases had been registered in various police stations in terms of Colechel, Manavalakurichi, Puthukadai, Marthandam and Kaliyakavilai of Kanyakumari district under sections 341, 143, and 188 against 15,000 fishermen and family members who participated in the 'rail roko' protest, including 240 activists and 12 catholic parish priests, anti-nuke activist, Pachai Thamilagam party leader, S P Udayakumar, Tamil nationalist and May 17 movement leader Thirumurugan Gandhi. Moreover, The fishermen had village wise protest, and protest by standing in the seawater, etc.

In the meantime, some officials expressed that 9 Indian Navy ships, 7 aircraft and 13 coast guard ships were deployed in search of missing fishermen in the deep-sea waters. Along with the families of the missing fishermen, fishermen from the coastal hamlets went on protesting. However, the officials were being reluctant to announce the missing fishermen as dead since the deep-sea fishermen spend long days in the sea. The DMK working president M K. Stalin declared of staging a protest in Chennai demanding the centre and the state government in order to accelerate the search and rescue operation and the Fisheries Minister told the officials to make fast the activities in order to rescue the missing fishermen of Kanyakumari district. It was a heartbroken moment and shedding tears while some of the rescued fishermen were sharing their fatal experiences on their return. They expressed that if the rescue operations were carried out immediately after our fishermen along with our family members demanded for it many lives could have been saved. We cannot deny the fact that the utilisation of helicopters had been launched earlier, many families wouldn't have lost their breadwinners and dear ones.

Officials meet the fishermen affected by Ockhi cyclone

On 03.12.2017, the then Defence Minister Nirmala Sitharaman met the fishermen of Thoothoor and Neerodi. While reviewing the search and rescue operations undertaken by the

Navy, Coast guard and Indian Air Force the Defence Ministry reported so far 357 stranded fishermen had been rescued and around 89 boats with 1154 fishermen had landed in various ports of Karnataka, Maharashtra, Goa and Lakshwadeep. Later on, 28th December 2017, she put forward the report that around 400 fishermen from Tamil Nadu were still missing in the aftermath of Ockhi cyclone.

The fishermen representatives of Chennai, Kancheepuram and Thoothukudi met the Chief Minister Edappadi K. Palaniswami and had discussions with him and submitted a seven points charter of demands in order to help the fishermen affected by the tropical cyclone Ockhi in Kanyakumari district. The Chief Minister assured of taking appropriate steps to help the fishermen families affected by the cyclone Ockhi. And the Fisheries Minister D. Jayakumar explained the steps already taken by the government to rescue and recover the missing fishermen. Meanwhile, the fishermen were demanding that the Chief Minister would visit the cyclone affected coastal areas. On 12th December 2017 the Chief Minister met the representatives of the fishermen and Bishops Rev. Nasaren Soosai, Rev. Soosai Packiam and Rev. Christhudass along with Ministers Jayakumar and Udhayakumar, Secretary Girija Vaidyanathan, IAS Gagandeep Singh Bedi at St. Jude's College Thoothoor and assured of fulfilling all the demands of the fishermen affected by the Cyclone Ockhi.

On 20th December 2017, PM Narendra Modi met and had discussion with around 25 representatives of the fishermen from eight coastal villages affected by cyclone Ockhi and 6 parish priests who submitted the memorandum of 12 demands which contains widening the search and rescue operation for missing fishermen in the deep sea, satellite phones for fishermen, establishment of a naval base with helipad in the district and reservation for fishermen youth in the coast guard and Navy. The PM assured of taking necessary steps to find out the missing fishermen and to help the fishermen families affected by the devastating natural disaster.

The details of Causalities in villages of Thoothoor Panchayat

S. No.	Name of the Village	Deaths/Missing
1.	Eraviputhenthurai	06
2.	Chinnathurai	40
3.	Thoothoor	09
4.	Poothurai	15
5.	Erayumanthurai	02
Total		72

Economic conditions of the Thoothoor Panchyat Fishermen affected by Ockhi Cyclone

Thoothoor zone is otherwise called Thoothoor Mandalam of Kanyakumari district of the state Tamil Nadu and it consists of 8 villages: Neerodi, Manrthandanthurai, Vallavilai, Eraviputhenthurai, Chinnathurai, Thoothoor, Poothurai and Erayumanthurai. Thoothoor Panchayat consists of five villages namely Eraviputhenthurai, Chinnathurai, Thoothoor, Poothurai and Erayumanthurai, which is part of Thoothoor Mandalam. This zone has a history in deep sea fishing for six decades. They make a month-long oceanic journey so as to hunt the shark and other deep-sea fishes even to the international water. According to the estimation of Food and Agricultural Organisation, in 2019 India became the third shark fishing nations in the world. However, the livelihood of the fishermen who engage in the deep-sea fishing totally depend on marine fisheries. In 1940s and 1960s, they utilised catamaram and small

wooden boats with no motors for fishing even for shark fishing. Time has changed, the methods of fishing has changed and the utilisation of mechanism has changed. Now they use catamaran, wooden motorised boats (Vallam), mechanized boats and deep-sea vessels. Nevertheless, for deep sea fishing they utilise mechanized deep-sea vessels. To make a deep sea vessel it costs now more than 50 lakhs, and it goes up to 90 lakhs according to the length and width of the boats, which in fact is the assets of the fishermen family. With these the fishermen go for a long deep-sea journeys upto 40 to 50 days. So, once the boat is lost, the financial and the economic conditions of the fishermen families would be unimaginable.

The natural deadly disaster of that Ockhi cyclone caused indigestible tragedy to some of the fishermen families who lost their loved family members and the assets (boats and other fishing materials) as they built their assets with their long struggle in the sea. In the colossal cyclone, Thoothoor panchayat alone has lost around 72 fishermen. It was the worst tragedy that ever happened to all the fishermen especially to the family members of the deceased.

In the aftermath of the Ockhi cyclone, the Tamil Nadu Chief Minister announced Rs.20 lakhs as the compensation to the families of the deceased fishermen and 5 lakhs to those fishermen who were unable to continue their work. The Madras High Court asked the Tamil Nadu government to help the fishermen families affected by the cyclone with necessary amenities. Moreover, the Tamil Nadu CM announced Rs.25 crores for the restoration work in Kanyakumari district. Whatever the decent compensation the government and the NGOs has given, it would not be equitable to the lost loved ones and the assets.

Compensation from the Government

- The kin of the deceased fishermen received ₹ 20 lakhs from the government. (Animal Husbandry, Dairying and Fisheries GO (Ms) No.4. 12. 01. 2018)
- Rs5 lakh was given to those who lost their assets like boats and other fishing equipments in the fatal tropical cyclone Ockhi.
- Mobile medical camp was organised in the affected areas by the support of the government.
- Free medical treatment was provided to those injured in the Ockhi cyclone.
- Government jobs like *Anganvadi* helper, surveyer, school *sathunavu* teacher (Food Incharge), etc were given to the kin of the deceased fishermen.

Help from NGOs (Trivandrum Social Service Society TSSS)

- Rs.30,000 was given as an immediate support to those affected by Ockhi cyclone.
- Through a 'Save A Family Plan' (SAFP), the children of the families affected by Ockhi were adopted to help in the field of education. Likewise, the TSSS adopted some children to help in education.
- Continuous support of 6 years free medical treatment to the injured and affected people at Jubilee Memorial Hospital, Trivandrum.
- Special training like food making (Pickle, halva, etc) was imparted to the families affected by the Ockhi cyclone.
- Under IPG (Income Generation Programme) in order to start a new business 75% per cent of the support was provided from TSSS and 25% per cent from the family.
- 7 houses (costs ₹7 lakh each) were constructed and entrusted to those affected in the Ockhi cyclone.

- Counselling was arranged to the family members of the deceased.
- To help in marriage Rs.3 lakh was given to the family members affected by Ockhi cyclone and from last two years onward the amount was reduced to Rs.50,000.
- Every month Rs.1000 is given to those injured from the diocese.
- A motorised boat (*Vallam*) was bought and given to two fishermen.
- Through the SAFF programme all the families affected by the Ockhi cyclone were adopted and are given ₹ 900 every month.
- The diocese of Trivandrum provides a particular amount help every month to the parents who lost their children in the Ockhi cyclone.
- Syro Malabar – KRLCPC- Kerala based social action commission supported financial help to the above matters.

Findings, Recommendations and Suggestions

On the basis of observations, recommendations made by *South Asian Fishermen Fraternity (SAFF)* and *International Fishermen Development Trust (INFIDET)* the following points are presented here

- The cyclone warning was not given earlier and during the announcement of warning around 3000 fishermen were already on the sea. So, the government must have utilised the Indian Coast Guard, Navy ships, helicopter and Aircraft so as to give alert message to the deep-sea fishermen. If it was done before 3 days in advance, most of the fishermen would have been remained in their homes safely.
- The immediate search and rescue (SAR) operation was not done as quickly as possible, and added to that the Coast Guard officials were reluctant to go beyond 60 nautical miles.
- When the search and rescue operation was done after 5 days, many of the fishermen in the sea lost their lives. If it was done in time, hundreds of fishermen could have been saved.
- The undeniable fact is that the search and rescue operation was carried out only after the fishermen staged protest in various places.
- Government allotted jobs for the kin of the deceased fishermen were given in a far area. For some, cost of travel is more than the wages and the time for travelling to the respective place is too long.
- Though the government gave moral support to the people financially, it will not be equitable to the lost relatives. For, some families lost their sons and some families lost their son, son-in-law and husband. Though they have money, the life of those people will remain empty for the rest of their lives.
- The compensation of ₹ 5 lakh from the government was not equivalent to the value of the lost assets. For a boat alone it costs more than 60 lakhs and more than 10 lakhs for other fishing equipment. Some families who lost assets are still struggling to manage their lives as the interest of their debt is mounting up every year and attempted suicide.
- To avoid increasing death of fishermen in future, some candidates from fishermen community itself should be given preference while recruiting coast guards and a safety group can be appointed in Colachel based fishery department by recruiting its members from the local fishermen community.

- The government can observe and feel the struggles of those who lost their assets and can help in minimum level support economically in order to reduce the burden of debt.
- A High-Tech Communication Coordination Centre should be established in Kanyakumari district.
- Under district administration, a helipad with helicopter and speed ship for the rescue operation should be erected.
- Special technological equipment like Radio Telephone (RT), Satellite Phone and Automatic Identification System (AIS) should be provided to all the mechanized boats and motorized fibre crafts.
- The government can provide life jacket, life Bouyand First Aid Boxes to all the deep-sea fishermen at free of cost.
- National Disaster Management Centre (NDMC), Marine Rescue Co-ordination Centre (MRCC) and Branch of Meteorology Centre have to be instituted in Thoothoor.

Conclusion

Thoothoor fishermen are known for deep sea fishing for many decades. As the fishermen spend their entire life in the sea, the sea is their mother which only gives. During the time of Ockhi cyclone, in their own expression, the fishermen have never been felt such a deadly cyclone which in fact never allowed them to go in any direction but only devastated their confidence, their courage, their fishing boats, and above all their lives. If the immediate search and rescue operations with the experienced fishermen were carried out on time many lives could have been saved. On the other hand, delayed search and rescue operations resulted in finding many decayed bodies and missing fishermen rather than the precious lives of the fishermen. Let us accept the truth though the government extended moral support in assisting financial help it will not be equivalent to the lost lives of the fishermen. To avoid such disaster in the future the wisest part is to accept prudently the demands of the deep-sea fishermen which will protect the fishermen during rough weather conditions. The undeniable fact is that though the fishermen lost many lives and their belongings, the very next day they take their hook and net and sail into the sea as their entire life depends on the sea. So, if not they, who would tell us the better solutions. Let us consider their views.

EMPOWERMENT OF SELECTED WOMEN AGRICULTURAL LABOURERS IN MADURAI DISTRICT⁵⁴

R. DILIPAN⁵⁵

Introduction

The empowerment of women is anchored on their economic status in the society. Their social status is in general facilitated by education, skill, knowledge and information. The concept of empowerment is the outcome of several important critiques and debates generated by the women's movements.

Objectives of the study

1. To examine the level of empowerment of selected women agricultural labourers.

Methodology

This study is based on primary data collected from 200 women agricultural workers in Madurai District. Percentage and ranking are used to analyse the data.

Empowerment of Women

It is the process of challenging existing power relations and of gaining greater control over the source of power. The major root of the word empowerment is "power". Power is usually defined in two ways (a) The ability to get what one wants, and (b) the ability to influence others to think, feel, act and believe in ways that further is one's interests. The economic status of women is now accepted as an indicator of an economy's level of development. However this does not mean that economic development necessarily results in improving the status of women. Nevertheless, economic development opens new avenues to women. Modernisation, social change and education would enable some women to enter new occupations, which were totally closed to them earlier. At present through out the world, there are calls for creation of conditions that will help the integration of women in an organized manner in the development process.

Women Empowerment policy in India

Empowerment is the most recent approach articulated by the "Third World" women. It seeks to meet women's strategic gender needs, due to their subordinate position to men, through bottom up mobilization around practical gender needs according to their accepted role in society. It aims at increasing women's power in terms of their self-reliance and internal strength to determine choices of life and to influence the direction of change. The access of women to critical inputs and productive resources such as land was expanded to include support through credit, marketing, training in skills/management and technology. The Eighth Five Year Plan (1992-1997) shifted the focus from development to empowerment. In 1996, the Draft of the National Policy for the empowerment of women was finalized.

⁵⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Decision-Making by Sample Respondents

Gender discrimination is a universal phenomenon. Both inside and outside the house women are excluded from positions of power. They are denied the opportunities to participate in decision-making process. The primary challenge facing women today is to increase participation and become actively involved in decision-making.

Participation has two dimensions-quantitative and qualitative. People's participation in terms of numbers has no meaning. Today there is a need for change from quantitative to qualitative. Active participation in social, economic and political spheres would help in enhancing process of decision-making empowerment and it will also give women the desired self respect and social dignity and these of course, are the pre-requisites of empowerment.. Karl (1995) very rightly says "that increased participation of women in decision-making at all levels will help to "adjust" the goals pursued through development."

The participation of female in the decision-making process is an important segment of each and every household. These decisions vary in importance and affect the farm-family in one way or other. In Indian economy farm business has been a family enterprise in which both husband and wife participate evenly. Their roles are complementary, not only in physical participation at farm and home related activities, but also in respect of decision making process concerning such activities. Men's role is dominant and authoritative while that of women is subtle and persuasive. Outwardly decision-making is the prerogative of the male head of the farm family, but any such decision taken is strongly influenced by the attitude and opinion of the female partner.

Different individuals have used different methodologies of empowerment. Economic empowerment of women is mainly based on their participation in decision making process with regard to raising and distribution of income and expenditure of all levels. The entire efforts of empowering women is to help them to exercise their rights in decision making at all levels and in every sphere both inside and outside the households as equal partners in the society. Efforts are on to enhance the capacity of women to earn and ensure that they get access to lands and ownership of all family and community assets.

The Analytical Framework

The empowerment of women in the present study has been measured in terms of their decision-making capacity which has been classified on the basis of wife alone, wife more than husband, husband more than wife, both of them and husband alone. These five aspects are applicable to the following seven variables which are identified for measuring the decision-making power of women.

1. Education of children
2. Preparation of family budget
3. Medical expenses
4. Employment
5. Entertainment
6. Personal expenses and participation in festivals

The responses have been obtained from the sample women labourers in five aspects for each variable. The responses observed for each variable have been scored. To secure the total empowerment score of a female labourer, five points are given for "wife alone", four points for "wife more than husband", three points for "husband more than wife", two points

for “both” and one point for “husband alone”. Thus the total empowerment score of a respondent is obtained by adding up the scores of all seven variables.

Table 1 Decision-Making by Sample Respondents

S. No.	Category	Wife	Score	W>H	Score	H>W	Score	Both	Score	Husband	Score
1.	Education	21	105	29	116	31	93	79	158	40	40
2.	Family budget	56	280	61	244	15	45	42	84	26	26
3.	Medical Expenses	15	75	22	88	60	180	30	60	63	63
4.	Employment	25	125	33	132	64	192	38	76	40	40
5.	Entertainment	24	100	30	120	49	147	42	84	55	55
6.	Personal Expenses	10	50	18	12	63	189	36	72	73	73
7.	Festivals	18	90	27	108	58	174	49	98	48	48
	Total		825		880		1020		632		345

Source: Survey Data

Women have been practically playing a significant role in most of the households. Their involvement is less significant in spheres where their physical participation is less. There are very few cases where women take decisions independently. The characteristics of farm women examined in conjunction with their role in decision-making were, Education, Family Budget, Medical Expenses, Employment, Entertainment, Personal Expenses and Participation in Festivals. In most of the cases the Head of the Household took the decision regarding various aspects. Most of the decisions were taken in consultation with the partner.

Table 2 Family Budget

S. No.	Category	Frequency	Total	Rank	Percentage
1	Wife	56	280	I	41
2	W>H	61	244	II	36
3	H>W	15	45	IV	7
4	Both	42	84	III	12
5	Husband	26	26	V	4
	Total		679		100

Source: Survey Data

Since women in the study area spend 10 to 13 hours a day in household activities they have power to decide about family budget; 41 per cent of the decisions were taken by the sample respondents and they were ranked first in this category.

Table 3 Education

S. No.	Category	Frequency	Total	Rank	Percentage
1.	Wife	21	105	III	20
2.	W>H	29	116	II	23
3.	H>W	31	93	IV	18
4.	Both	79	158	I	31
5.	Husband	40	40	V	8
	Total	200	512		100

Source: Survey Data

Regarding education of the children the decisions were taken jointly by both husband and wife in the household.

Table 4 Medical Expenses

Sl. No.	Category	Frequency	Total	Rank	Percentage
1	Wife	15	75	III	16
2	W>H	22	88	II	19
3	H>W	60	180	I	39
4	Both	30	60	V	13
5	Husband	63	63	VI	13
	Total		466		100

Source: Survey Data

Husband took all major decisions, as to which hospital to go, which doctor to approach etc.

Table 5 Employment

Sl. No.	Category	Frequency	Total	Rank	Percentage
1.	Wife	25	125	III	22
2.	W>H	33	132	II	23
3.	H>W	64	192	I	34
4.	Both	38	76	IV	14
5.	Husband	40	40	V	7
	Total		565		100

Source: Survey Data

Regarding the employment of the sample respondents the husband took decisions in most of the cases.

Table 6 Entertainment

Sl. No.	Category	Frequency	Total	Rank	Percentage
1	Wife	24	100	III	20
2	W>H	30	120	II	24
3	H>W	49	147	I	29
4	Both	42	84	IV	16
5	Husband	55	55	V	11
	Total		506		100

Source: Survey Data

The husband took all decisions as to the mode and manner of entertainment.

Table 7 Personal Expenses

Sl. No.	Category	Frequency	Total	Rank	Percentage
1	Wife	10	50	V	11
2	W>H	18	72	IV	16
3	H>W	63	189	I	41
4	Both	36	72	III	16
5	Husband	73	73	II	16
	Total		456		100

Source: Survey Data

Even though women spend 10 to 13 hours in household activities as well as 7 to 8 hours in the field to contribute to family income they had no freedom to spend anything for themselves. Further regarding participation of sample respondents in various festivals. The heads of the household took all major decisions regarding participation in the festivals.

Table 8 Over-All Decision-Making Power of Sample Respondents

Sl. No.	Category	Rank
1	Education	IV
2	Family Budget	I
3	Medical	VI
4	Employment	II
5	Entertainment	V
6	Personal Expenses	VII
7	Festival	III

For assessing the decision-making power various aspects were taken into consideration: Education, Family Budget, Medical Expenses, Decisions related to Employment, Entertainment, Personal expenses and Participation in festivals. With regard to medical expenses, Employment, Entertainment, Personal expenses and Participation in Festivals, the Head of the family took all major decisions. In the case of Family budget alone the sample respondents enjoyed a higher degree of decision-making power. In the case of Education decision was taken by the Head of the household in consultation with the respondents.

CONCLUSION

Economic empowerment of the respondent is a pre-requisite to participate in decision-making. Economic independence of women would help them to play a decisive role in families. In farm households even though they were earning members they had very little power in decision making as they remained very subordinate to their husbands who brought more income.

To sum up, it can be stated that the female labourers depended very much on farm operations to earn their livelihood and their contribution to family income was substantial. Yet in decision making their role is underestimated and they have to support and accept all the decision taken by their husbands. The low decision-making power of the respondents was a consequence of poor educational standard, technical skill and economic independence. Nearly 50 per cent of the respondents were illiterates and another 28 per cent had gone only to one or 11 standard. It can be inferred that the sample respondents have an urgent need for better education facilities, farm training and extension programmes, banking facilities and creation of supplementary occupations.

REFERENCES

1. Chandra, "Women and Empowerment", *Indian Journal of Public Administration*, July-September, Vol. XL111, No. 3, 1997.
2. Karl, Marilee, *Women and Empowerment participation and Decision - Making*, Zed books Ltd. London and New Jersey, 1995.

CHALLENGES AND ISSUES OF GROUNDNUT GROWERS IN WESTERN ZONE OF TAMIL NADU⁵⁶

Dr. R. REVATHI⁵⁷ & Mrs. NAZIRA⁵⁸

Introduction

The Groundnut crop has an important role in the agrarian economy of Tamil Nadu. The growers who engaged the Groundnut is to earn more money from short period from one season either karib and rabi. Those who engaged mixed or multi crops, they can manage for maintenance expenses from that crops upto yield which is going to starts from the beginning stage. In the meantime, they are going to face the challenges on selection of seeds, organic manure purchase, water supply (irrigation) labour expenses, marketing constraints.

Review of Literature

Sonika Gupta et al. (2006) found that all India level productivity was increased by 2.46% per annum and also found that increase in area is seen in Gujarat and West Bengal whereas in Madhya Pradesh and Uttar Pradesh reverse trend is observed. It is suggested that prices of sesame were influenced by the prices of other oilseeds in the market thus there is a need to make strategies to avoid the price reduction in the central market for oilseeds in general and sesame in particular.

Venkattakumar et al. (2010) examined cultivation constraints in oilseeds in Mahabubnagar, Cuddappah and Ranga Reddy districts of Andhra Pradesh and found that non-availability of quality seeds as an important problem.

According to **Vinod Kumar (2010)** the marketing of groundnut is done through five channels viz., channel-1 (Producer-Processor), channel II (Producer - Village trader - Processor), channel III (Producer – Wholesaler - Processor), channel IV (Producer - Village trader – Wholesaler - Processor) and channel V (Producer – Wholesaler – Retailer - Consumer). It was found that price-spread among the five identified channels indicate that the channel-I as the most efficient because the producers' share was maximum (96.44%) whereas in channel-V, the producers' margin in consumer's rupee was found to be minimum (42.50%).

Groundnut Outlook Report (2021) represent that some pest and disease incidence including "Thrips" in the groundnut crop is reported in the Andhra Pradesh districts of Ananthapuram, Chittoor, Kadappa and Kurnool. NAFED has procured about 2,84,733 metric tonnes of groundnut seed under PSS by 12th February 2021-valued at Rs.1,502 crores including Gujarat (2,02,630 MT), Haryana (691 MT), Andhra Pradesh (257 MT), Rajasthan (74,511 MT) and UP (6528 MT) and Karnataka (116 MT). China continues to buy groundnut oil and seed from India to meet its demand gap after its groundnut production was hit by 25-30% against the normal output of around 17 million tonnes of the output, due to the floods. India's export of groundnut has witnessed a continued upward journey in 2021 hitting 19% growth in terms of volume followed by strong overseas demand. Currently, Indonesia,

⁵⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Vietnam, Malaysia, Philippines, Thailand and China are the top buyers of India's groundnut seed. Few countries demand diverted to India due to short supplies from China

Statement of the problem

Groundnut cultivation is a complex form of practices and process where adopted by the growers. In case, there is a cause for limited cultivation by the growers, it will adversely affect oil production. Regarding cultivation, mostly they are preferred mixed crop up to 2 years. After two years, they may have engaged other crops for income generation while Off-Season. Therefore, it leads to more expenses for ploughing, maintenance of tree. Because of this, the Dwarf, DJ varieties are required more maintenance except traditional Local varieties. Otherwise, yield is going to reduce from its maximum expected level. Are there manure expenses, labour cost are adequate and reasonable for existing Groundnut Cultivation? How the Growers who adapted to seasons and availability of labour? Is there any impact on organic manure and pesticides for yield? How for it feasible with marketing of Groundnut growers? Hence, this study makes an attempt to find out the solution for developmental aspects of Groundnut growers in the study area.

Objectives

1. To assess the cost of cultivation of groundnut in the selected area
2. To analyze the issues faced by the farmers cultivated groundnut

Methodology

The primary data were collected from 90 sample farmers in the mass cultivation zone of Tiruppur and Erode Districts in Tamil Nadu. A regression model has been constructed with labour requirement as dependent variable and irrigation as independent variable.

Results and Discussion

The annual income of the selected farmers were calculated and discussed on the basis of the farm size.

Table 1 Annual income with farm size

Farm size Annual income	2-5 AC	5-10 AC	11-15 AC	16-20 AC	Total
Below 1 lakhs	7 30.44%	4 12.90%	4 20%	3 18.75%	18 20%
Upto 2 lakhs	8 34.78%	13 41.94%	5 25%	4 25%	30 33.33%
Upto 3 lakhs	3 13.04%	10 32.26%	4 20%	5 31.25%	22 24.44%
Above 3 lakhs	5 21.74%	4 12.90%	7 35%	4 25%	20 22.23%
Total	23 100%	31 100%	20 100%	16 100%	90 100.0%

Source: Primary Data

Farm size is one of the economic indicators of Groundnut growers. If has assessed their asset and operational structure of cultivation and its expenses have come up with

income. However, annual income is considered to be consolidated income where gained from various sources of the growers, table explains that the range of farm size (in acres) and average income of groundnut growers, the range of 16-20 acre holders have above 3 lakhs of annual income is 25 per cent. (4 persons out of 16) The category of 2- 5 acre holders who belonged to the range of annual income is below one lakh per annum is 30 per cent (7 persons out of 23). Next to, the category of 5-10 acre holders who belonged to the income range is upto two lakhs (34%). The same category of land holders income range is 3 lakhs covered 13 per cent. Therefore, the land holders' income is not equal for the range of land size and its earning. It is inferred that Groundnut cultivation. Itself not determine the income generation of their family.

Table 2 Farm size and experience in the cultivation of groundnut

Farm size (in acres) Experience	2-5	6-10	11-15	16-20	Total
6-10 years	7 30.43%	4 12.5%	4 25%	5 26.30%	20 22.22%
11-20 years	5 21.75%	10 31.25%	3 18.75%	8 42.12%	26 28.89%
21-30 years	4 17.39%	8 25%	5 31.25%	3 15.79%	20 22.22%
Above 31 years	7 30.43%	10 31.25%	4 25%	3 15.79%	24 26.67%
Total	23 100%	32 100%	16 100%	19 100%	90 100.0%

Source: Primary Data

The duration of Groundnut cultivation refers to the growers contribution, span of time and investment with profit since the beginning stage are the major component of cultivation and assessment of financial indicator for the range of farm size, nearly each 30 per cent of the (63 per cent) respondents who belonged to the category of below 5 acre have engaged only Groundnut cultivation is upto 6 years and above 31 years each respectively. The category of 6-10 acre holders who belonged half of them are engaged the Groundnut cultivation is above 21 years and the same duration is covered 31 per cent of them are below 5 acres, therefore, the range of high amount of farm size holder only engaged Groundnut cultivation.

Most of the big farmers used groundnut seeds saved from their earlier harvest. Others found purchased from the private shops. From the regression results it was found that the type of irrigation influenced the labour requirement in the cultivation of groundnut in the selected districts.

Conclusion

The preference of groundnut cultivation is profit oriented with seasonal attachments. The study area is located in middle part of south west monsoon catchment area. This is one of the challenges to practice for optimum and sufficient yield for groundnut. According to the observation from data analysis the water source is inadequate for maximum number of

quantity yield. Secondly, the maintenance expenses are higher than hybrid variety of groundnut in terms of organic manure, water supply, cutting and removal of dry leafs are periodical work. But, the reasonable price of groundnut is getting only summer season. Regarding, election of samplings by the growers, they can preferred private nursery is more than horticulture recommended saplings. Besides, the awareness of Horticulture Development Board has offered subsidies to the groundnut are very less. The labour cost is more expenses for only those who undertake hybrid varieties. The horticulture department board has been undertaken more provisions to promote the Groundnut cultivation and sales in this area.

Peer Reviewed Journal

PALMYRAH AND RURAL LIVELIHOOD IN TAMIL NADU WITH SPECIAL REFERENCE TO KARUR DISTRICT - A STUDY⁵⁹

Dr. A. SHANMUGAM⁶⁰

INTRODUCTION

Agriculture plays a vital role in the Indian economy. In agriculture the coconut palm, Date palm, and Palmyra palms are plays an important role in growth of Indian economy and earning foreign money. India is the third largest coconut producing country in the world. Tamilnadu, Karnataka, Andhra and Kerala are the leading coconut producing states in India. And the well known date palm is one of the sweet edible fruit. It is widely cultivated palm tree and it has providing various nutritional and medicinal benefits to human. Both coconut and date palms are widely used for various purposes like handmade basket, fiber robes, fiber brushes, fans, hats, and mats etc,. The Coconuts have separate board for farmer's welfare (Coconut Development Board) and this board control by ministry of agriculture under government of India. The Palmyra palm is also same kind of coconut tree it has been providing more products like neera sap, palm jaggery, palm sugar, palm candy, nungu, palm fruit jam, palm wine palm sprout etc;. Its woods are used for making various handmade products, wood based products, leave based products, coir based products etc, and Palmyra palm has various medicinal benefits. It has very good home and export market and also earning foreign money. But the both state and central government are not given sufficient important for its growth like coconut products. Srilanka has been giving special attention for growth of palm products.

Research Issue

When fertile agricultural lands or sand dunes are being traded by land sharks and real estate brokers, the Palmyra trees in these parcels of land are also sacrificed. We are witnessing the tragedy of the Palmyra trees being cut to be used as fuel for brick kilns. When we are facing heating of the earth and depletion of ground water resources, we must pay attention to one of our hopes, bestowed by nature - the palm trees. Rural livelihoods mean sources of income for rural people to live their lives. There are various ways in which people can earn their livelihood in rural areas. Rural livelihoods are enhanced through effective participation of rural people and rural communities in the management of their own social, economic and environmental objectives by empowering people in rural areas, particularly women and youth, including through organizations such as local cooperatives and by applying. In India, palmyrah adorns the dry landscape of the semi arid regions of Tamil Nadu, Andhra Pradesh, Gujarat, Odisha, West Bengal, Bihar, Karnataka and Maharashtra. Currently, palmyrah palm wealth of India is estimated as 102 million palms and half of them are in Tamil Nadu. Thus this paper has an attempts to bring out the potential benefits of Palmyra with rural livelihood in Tamil Nadu with special reference to Karur district.

⁵⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Palmyra Development Mission

According to the census of Khadi and Village Industries Commission, the State has five crore Palmyra trees. Thoothukudi, Ramnathapuram, Thirunelveli districts have more than 50% of Palmyra tree population. As the palmyra population is declining in Tamil Nadu, the Government has taken strenuous steps to protect the existing trees and also to increase the number of palmyra trees. The State Government will issue necessary orders to prevent the cutting of palmyra trees. For cutting of Palmyra trees under unavoidable circumstances, a special permission from the District Collector will be made mandatory. With this objective, it is programmed to distribute 76 Lakh palmyra seed nuts to farmers with full subsidy covering 30 districts. Palmyra Development Mission will be implemented with an outlay of Rs.3 crore during 2021-22.

Objectives

1. To examine the area and production of palmyra palm in district wise and the state level.
2. To analyze the products made from palmyra palm in the study area.
3. To discuss the role of palmyra in rural area livelihood in the study area.

Materials and methods

The general objective of the study is to understand the economics of production and marketing of palmyra palm products and therefore, the choice of the study has to be around the major production and marketing centre for palmyra palm products. Accordingly Karur district has been selected for the study. By personal interview method primary data were collected from 90 farmers spread over in three blocks (Krishnapuram, Kadavur and Thogamalai) of the district. For the purpose of this research, individuals and groups, at different category (farmer group / youth group / women group / general public etc.) were interviewed to assess farming, employment and livelihood status and also impact of Palmyra tree. Mainly women found engaged in making baskets in a traditional way. The pliable, tender Palmyra leaf has good structural strength, so it is used to make decorative Olai (leaf) baskets.

Palm leaf basket making is craft practiced from many generations and has been a culture and tradition in Chettinad. The tools and raw materials used for making the products are easily available in the local market. The selected households are making a variety of products using the palm leaf - baskets, fruit baskets, mats, pen stands, flower vases and gift boxes. The baskets are used as storage containers as well as decorative items. Earlier, kottan baskets were mainly used during marriages for packaging gifts and for containers filled with offerings to give at family functions and rituals. The art and craft is being revived with design, process and marketing interventions and many articles of modern utility are now being made.

Research and Development in Palmyra

Palmyra is a mandatory crop under All India Coordinated Research Project on Palms. Pandirimamidi in Andhra Pradesh and Killikulam in Tamil Nadu are research centres under AICRP on palmyra where collection, conservation and evaluation of existing germplasm in palmyra and hybridization for developing dwarf types are focused. The following image indicates the various locations of AICRP centres across India contributing to various researches oriented to Palmyra according to Sankaralingam et al. The Tamil Nadu palm products development board was established in 1995 based at Egmore, Chennai under Tamil Nadu Act (15) of 1994. Though the Tamil Nadu Palm Products Development Board is not

directly involved in trading activities, it promotes production and trade through 996 Primary Palm Jaggery Cooperative Societies (including Palm Leaf Workers Cooperative Societies), 8 District Palm gur Marketing Cooperative Federations and one Tamil Nadu State Palmgur and Fibre Marketing Co-operative Federation. Research on the preservation of palmyra nungu and palmyra fruit Jam has been completed and the technical know-how has been provided to the Tamil Nadu State Palm gur and Fibre Marketing Cooperative Federation. This would create awareness among the Self-Help Groups and other individuals interested in palm products industry to produce and market these products. Department of post-harvest technology in Tamil Nadu Agricultural University has developed more and more products based on palmyra palms such as palmyra tender fruit RTS beverages, jam, jelly, candy, preserve, peda, ice cream; palm tuber flour idly, rotti, panaiyaram, uppuma, muruku, pakoda, laddu, kesari, payasam, soya laddu using palm tuber flour, porridge, bread, cookies and vermicelli. Tamil Nadu is a pioneer in the development of the palm products industry in India. Out of the estimated 8.59 cores of palmyra in India, about 5.10 cores of palmyra are in Tamil Nadu. Tamil Nadu is a potential centre for the growth and development of palm products industry to a greater extent to attract foreign exchange by way of export of palm products.

Impact of Palmyra on Livelihood

A significant proportion of the rural population from the natural ranges of palmyra palm in India is involved in obtaining and preparation of different products from different parts of palmyra palm trees. It is one of the best examples of indigenous value addition and generally does not involve any sophisticated technique or equipment. Therefore, palm-based processing industries seem to be suitable and viable alternative for sustainable livelihood of the poor communities involved in palm growing and processing. Value addition in palmyra palm may assist in the development of rural communities through small-scale investment. It has also contributed to the conservation of elite germplasm, enhanced marketability and increased income. Post-harvest technology of palmyra concerning to value-added products like *neera*, jaggery, palm sugar, candy, based products, tuber based bakery products, pulp based beverages and spongy endosperm needs to be refined and popularised. Many types of value-added products from Palmyra palm are being produced at both household and commercial levels in the natural range of palmyra palm. Women self help groups have demonstrated their capabilities in mobilizing the micro-credit and involving in income-generating activities such as Palmyra crafts, and cottage industries. It is necessary to employ modern methods to extend the storage life of the value-added products from palmyra palm for better distribution and also processing techniques to preserve them for utilization in the off season.

CONCLUSION

Palmyra production and processing industry ensure food security, livelihood security and ecological security of the country. However, the population of this “Kalpavriksha” is been on declining due to globalization, industrialization, urbanization and habitalisation. Despite various benefits and utility these trees are destroyed like never before and never taken care of and were always taken for granted. Real estate industry also plays a major role in the eradication of these natures gift. Palmyra trees are unique in providing us with food and nonfood products, suitable for the typical climate prevalent in Tamil Nadu. It provides an opportunity for the employment and welfare of society. Younger and younger trees are being

cut and the growth of the trees is stunted and weakened because of excessive tapping or cutting of leaves. Efforts should be aimed at planting more number of trees, protecting existing trees, promote self-help groups for palmyra farmers or tappers, promote FPO based approach, encourage more research on developing advanced varieties, production and processing technologies and cultivation of more plant around water bodies to improve the underground water table. The government should focus on the living and health conditions of the tappers and their families. Line departments must take initiatives to create awareness among the people about the health benefits of Palmyra products.

Peer Reviewed Journal

CONSTRAINTS OF COCONUT CULTIVATION AND TRADING PRACTICES IN THENI DISTRICT⁶¹

Dr. N. MANI⁶² & NP. MURUGESAN⁶³

Introduction

Coconut cultivation is a booming and lucrative crop in Tamil Nadu, Kerala, Karnataka and Andhra Pradesh in the past 3 decades and still it has continues. It is a major horticultural crop which extracting tender coconut, Neera, Coir Pith and compost. In this decade, tender coconut growers who increased in western Ghats of Tamil Nadu, particularly, Theni, Dindigul, Coimbatore, Tiruppur districts. The major concern for preference has given to the tender coconut is earned huge profit in the season, short time yield and provide to yield within short days. On the other hand, the growers in this region who faced many challenges for cultivation and sales. In Particular, Theni district has been a larger provider of Tender coconut which is next to Pollachi zone in Tamilnadu. In terms of logistic management, they are facing problems on Trading coconut and tender coconut are within the local zone and out of place.

The coconut cultivation is an important role in the agrarian economy of Tamil Nadu. The horticulture and Coconut Development Board have been promoted coconut cultivation and marketing are huge level in this decade. The growers who engaged the tender coconut is to earn more money from short period any dry coconut is gradual time and a choice for value added product with reasonable profit. Those who engaged mixed or multi crops, they can manage for maintenance expenses from that crops upto yield which is going to starts from the tender coconut. Meanwhile, they are going to face the challenges on marketing order from the retailer or agents, organic manure purchase, water supply (irrigation) labour expenses, marketing constraints. This paper is going to elaborately explains about the issues based on tender coconut and coconut sales in Theni district.

Review of Literature

Deshmukh, Dhawale and Kanade (2020) observed that factors where associate with socio economic background were considered influencing and determinants of cost of cultivation, Such as; family size and age, Marital status. They had no impact on farmers are cultivate permanently sustainable agricultural practices. Education and landholding were found to influence the decision of the farmer to take up sustainable farming practices.

Kishore and Murthy (2016) observed growth in area production and productivity of coconut in Karnataka and provided suitable information in their paper. The study used secondary data from 2000-01 to 2014-15 in all districts of Karnataka state. The results reveal that, the growth rates of area, production and productivity in Karnataka state were positively increased. Tumakuru, Hassan, Chitradurga and Chikamagalur were major coconut growing districts in terms of area and production. The decrease in production and productivity because of droughts and pest and disease incidences happen after 2011-12. The state of Karnataka's coconut economy increased during the above said period.

Karunakaran & Gangadharan (2014) investigated coconut cultivation in Kerala. According to authors during 1960s, 1970s and 1980s coconut crop cultivation took second

⁶¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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place in Kerala state in terms of area expansion and after 1980s coconut area has increased to 56 per cent. The author focused on what are the determinant causes of changes in area coconut in Kerala state by adopting supply response method. The study covered 1960s to 2010. The study divided into six periods, from first 1960-61 period, second 1970-71 period; third period 1980-81; fourth period 1990-91, fifth period 2000-01 and sixth period 2009-10. The study finds that coconut production increase due to area increased. Irrigation and area are influential to increase in coconut cultivation in Kerala state. The rainfall and expected prices are the positive influence on the yield of coconut crop.

Statement of the problem

Coconut cultivation is a complex form of practices and process where adopt by the growers. They are coconut for oil process, tender coconut, coir pith are predominantly occupied by the growers in Tamil Nadu. In case, too produce for tender coconut, there is a adverse affect for oil production. Regarding cultivation, mostly they are preferred mixed crop up to 2 years. After two years, they may have engaged other crops for income generation while Off-Season. Therefore, it leads more expenses for ploughing, maintenance of tree. Besides, trading practices are unsuitable among growers some times; such as, procuring coconut and tender coconut to the market at right time, pricing fluctuation is too always. Are there manure expenses, labour cost are adequate and reasonable for existing Tender coconut Cultivation? How the Growers who adopted to seasons and availability of labour? Is there any impact on organic manure and pesticides for yield? How for it feasible with marketing of coconut and Tender coconut growers? Hence, this study makes an attempt to find out the solution for marketing of coconut and tender coconut growers in the study area.

Objectives

1. To study the socio-economic background of the coconut growers in the study area.
2. To assess the cultivation practices and marketing issues of coconut growers.
3. To examine the trade practices and issues faced by the coconut growers.

Methodology

The primary data were collected from 70 sample farmers in the mass cultivation zone of Cumbum and Periyakulam zone of Theni District in Tamil Nadu. The data were analysed by using Chi-Square test and Linear regression.

Results and Discussion

Table 1 Annual income with farm size

Farm size Annual income	2-5	5-10	11-15	16-20	Total
Below 1 lakhs	7 63.6%	4 36.4%	0 0.0%	0 0.0%	11 100.0%
Upto 2 lakhs	8 29.6%	15 55.6%	0 0.0%	4 14.8%	27 100.0%
Upto 3 lakhs	3 17.6%	10 58.8%	4 23.5%	0 0.0%	17 100.0%
Above 3 lakhs	0 0.0%	4 26.7%	7 46.7%	4 26.7%	15 100.0%
Total	18 25.7%	33 47.1%	11 15.7%	8 11.4%	70 100.0%

Source: Primary Data

The range of 16-20 acre holders have above 3 lakhs of annual income is 26 per cent. The category of 2-5 acre holders who belonged to the range of annual income is below one lakh per annum is 63 per cent. Next to, the category of 5-10 acre holders who belonged to the income range is upto two lakhs (55%). The same category of land holders income range is 3 lakhs covered 58 per cent. Therefore, the land holders income is not equal for the range of land size and its earning. It is inferred that coconut cultivation. Itself not determine the income generation of their family.

Table 2 Farm size and experience in the cultivation of coconut

Farm size Duration of cultivation	2-5	5-10	11-15	16-20	Total
6-10 years	7 63.6%	4 36.4%	0 0.0%	0 0.0%	11 100.0%
11-20 years	0 0.0%	10 47.6%	3 14.3%	8 38.1%	21 100.0%
21-30 years	4 25.0%	8 50.0%	4 25.0%	0 0.0%	16 100.0%
Above 31 years	7 31.8%	11 50.0%	4 18.2%	0 0.0%	22 100.0%
Total	18 25.7%	33 47.1%	11 15.7%	8 11.4%	70 100.0%

Source: Primary Data

The duration of tender coconut cultivation refers to the growers contribution, span of time and investment with profit since the beginning stage are the major component of cultivation and assessment of financial indicator for the range of farm size, more than half of per cent of the (63 per cent) respondents who belonged to the category of below 5 acre have engaged only tender coconut cultivation. The category of 6-10 acre holders who belonged half of them are engaged the tender coconut cultivation is above 21 years and the same duration is covered 18 per cent of them are below 5 acres, therefore, the range of high amount of firm size holder only engaged tender coconut cultivation.

Table 3 Preference of coconut varieties

Sale of coconut Coconut varieties	Coconut sale	Tender coconut sale	Total
Tall	0 0.0%	24 100.0%	24 100.0%
Hybrid	0 0.0%	11 100.0%	11 100.0%
Dwarf	4 50.0%	4 50.0%	8 100.0%
Tall+hybrid	3 27.3%	8 72.7%	11 100.0%
tall+Dwarf	7 53.8%	6 46.2%	13 100.0%
hybrid+dwarf	0 0.0%	3 100.0%	3 100.0%
Total	14 20.0%	56 80.0%	70 100.0%

Source: Primary Data

The coconut growers who preferred the variety of tender coconut are high yielding capacity with shortest duration. In particular, they are cultivating only tender coconut, not for matured coconuts. These who engaged “tender coconut sale” cultivation are preferred only DJ varieties. The respondents who belonged to both coconut sales and tender coconut where there is a variety of “Dwarf” are each 50 per cent.

Table 4 Farm size with preference of marketing channel

Marketing channel / Farm size	Local market	Vendor market + Local traders	Trader itself procured	Sale at oil mills and local market	Total
2-5	0 0.0%	12 66.7%	3 16.7%	3 16.7%	18 100.0%
5-10	0 0.0%	14 42.4%	16 48.5%	3 9.1%	33 100.0%
11-15	4 36.4%	3 27.3%	4 36.4%	0 0.0%	11 100.0%
16-20	4 50.0%	0 0.0%	0 0.0%	4 50.0%	8 100.0%
Total	8 11.4%	29 41.4%	23 32.9%	10 14.3%	70 100.0%

Source: Primary Data

The coconut Development Board has been facilitated for coconut regulated market in order to promotion of coconut sale which comes under business consortium of Tamilnadu Agriculture university and Ministry of Agriculture. Many of the Growers who unable to access with value added product processing at right time. The gate price selling practices are till now continued among the growers. Despite of, trading facilities and practices are exist either direct approach and online. Table explains about 66% of the (12 persons out of 29) small growers (2-5 acre) who approached their selling method through local vendors and local traders. The same category of Growers (3 persons out of 23) who are sold their coconut from their place itself the traders who bought (coconut dry, tender coconut) Half of the (4 person out of 10) growers who sold their coconut (dry) in the oil mills and local traders.

From the regression analysis it was found that the preference of choice on value added product with local sale on coconut and tender coconut of Grower's practices are influence of economic status and cultivation preferences.

Conclusion

The preference of tender coconut cultivation is profit oriented with seasonal attachments. The study area is located in middle part of south west monsoon catchment area. This is one of the challenges to practice for optimum and sufficient yield for tender coconut. According to the observation from data analysis the water source is inadequate for maximum number of pieces of coconut. Secondly, the maintenance expenses are higher than matured coconut in terms of organic manure, water supply, cutting and removal of dry leafs are periodical work. But, the reasonable price of coconut is getting only summer season. Regarding, election of samplings by the growers, they can preferred private nursery is more than horticulture recommended saplings. Besides, the awareness of (CDB) Coconut Development Board has offered subsidies to the tender coconut are very less. The labour cost is more expenses for only those who undertake tender coconut. The horticulture department and CDB have been undertaken more provisions to promote the tender coconut cultivation and sales in this area.

RURAL DEVELOPMENT THROUGH DAIRY SECTOR IN THIRUVANNAMALAI DISTRICT OF TAMILNADU – AN ECONOMIC ANALYSIS⁶⁴

Dr. G. JAYASANKAR⁶⁵ & Mrs. M. VANITHA⁶⁶

INTRODUCTION

Tamil Nadu is one of the frontline states in milk production with a daily milk production of 206 lakh liters, out of this, 25 lakh liters per day (LLPD) is retained for household consumption. About 51% of total milk production i.e., 105 LLPD is procured through unorganized sector and 37% i.e. 76 LLPD is procured through organized sector like dairy co-operatives and private sector dairies.

Dairy Development in Tamil Nadu

During 2018-19, India delivered 187.7 million Tons of milk, which is 19.5% of the world creation. The milk cooperatives have accepted a critical employment in the development of the dairy area in the country. As the helpful milk development flourished and spread the country over, India transformed from a milk lack nation to the greatest maker of milk on earth. Tamil Nadu positions among the best ten milk creating states of the country with a regular creation of 206 lakh liters for consistently. The state has a dynamic milk helpful area with milk makers' agreeable social requests spread transversely over recess and corner of the state. There are 12,585 milk makers' agreeable social requests having 20.30 lakh milk ranchers as individuals.

The typical milk acquisition through 19 Region Co-usable Milk Makers Associations during the year 2018-19 stayed at 33.23 LLPD. On 29.10.2018, obtainment stayed at a record-breaking critical degree of 37.03 lakh litters. The milk creation in Tamil Nadu essentially contains cow-like and wild bull milk. The IMARC Gathering's latest report's examination induces that dairy creatures' milk precludes the all-milk creation, speaking to around 85% of the hard and fast offer. According to the report, the Tamil Nadu dairy market is furthermore expected to develop at a CAGR of nearly XX% during 2019-2024, showing up at a volume of 20 billion Liters by 2024.

Table 1 Milk production in Tamil Nadu

S. NO.	Years	Milk Production (In Lakh Liter)
1	2012-13	6557
2	2013-14	7039
3	2014-15	7132
4	2015-16	7244
5	2016-17	7556
6	2017-18	7742
7	2018-19	7987

Source: Official Report from National Dairy Development Board

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Milk Procurement and Sales

Milk is gotten from the rancher people by the MPCS and pursued for quality and sum. The accumulated milk is delivered to the near to chilling concentrations or Mass Milk Coolers. The milk is chilled and shipped off dairies for additional getting ready. Throughout a period of eight years, the ordinary milk acquisition had extended by 61% from 20.67 LLPD in 2010-2011 to 33.23 LLPD in 2018-2019. There is an extension of 13% in milk obtainment during 2018-2019 when stood out from 2017-2018. Further, a record-breaking, most vital acquirement of 37.03 lakh liters of milk acquisition was refined on 29.10.2018. The milk acquirement all through the latest years:

Table 2 Average Milk Procurement Per Day in Tamil Nadu

S. NO.	Year	In Lakh Litres Per Day
1	2010-11	20.67
2	2011-12	21.40
3	2012-13	24.36
4	2013-14	23.22
5	2014-15	23.68
6	2015-16	28.97
7	2016-17	28.50
8	2017-18	29.46
9	2018-19	33.23

Source: Official Release from Government of Tamil Nadu, 2019.

India presently has irrefutably the world's most prominent dairy industry with respect to drain creation; a year prior, India delivered close to 146.31 million tons of milk, half more than the US, and three crease the measure of as the much-broadcasted new development champ, China. Appropriately, India moreover creates the best list or reference book of any world dairy industry. The dairy area in India has demonstrated groundbreaking improvement in the earlier decade, and India has now gotten probably the greatest maker of milk and worth included milk items on the planet.

Table 3 Milk production scenario of Tamil Nadu

Unorganized Sector	Household Retention	Organized Sector (Private Dairies)	Organized Sector (Co-operative Ambit)
105(51%)	25(12%)	38(18.50%)	38(18.50%)

Source: Official Release from Government of Tamil Nadu, 2019.

Tamil Nadu is one of the front-line States in milk creation with a bit-by-bit milk production of 206 lakhs liters, out of this, 25 Lakh liters for consistently (LLPD) is held for family unit utilization. About 51% of full-scale milk creation, for example, 105 LLPD, is obtained through the dislocated region and 37%; for example, 76 LLPD is ensured about through composed region like Dairy co-specialists and private territory dairies. The piece of co-specialists in all things considered milk creation in the State is around 18.50% for example 38 LLPD. Under the dairy pleasing ambit, there are 12,585 town level crucial Milk Producers Co-Usable Social requests (MPCS) having 20.30 lakh, individuals. Tamil Nadu stands fourth

among the State dairy co-specialists with a common run of the mill milk procurement of 33.23 lakh liters.

Milk Production in Tiruvannamalai District

Dairy sector is important not only as the producer of highly nutritious food products, but also for the sustenance of poor farmers and over all prosperity of the farming community. The district holds about 522 milk societies at various blocks. Among the blocks, Tiruvannamalai block possess the highest number of 84 co-operative societies followed by which, Chengam and Pudhupalayam blocks constitute each 78 milk societies. Jawadhu hills have least number of one milk society in the block. Tiruvannamalai block produced the largest quantity of milk 24,712 liters daily. The least quantity of milk was produced at Jawadhu hills 200 liters per day.

Markets of Milk and Milk Products

Markets of milk a lot items in India developing quick. It is a result of quickly expanding dispensable wages, market advancement, populace development, urbanization, changes in ways of life and dietary inclinations, expanded well being, nourishment and diet concerns. India was present advancement of the dairy area since 1991 has allowed formal, private processors to contend progressively handled milk market. Subsequently, a few private milk handling firms have arisen in the Indian milk market.

Further since late 1990s the significant of stores and retail chains has talented in the Indian food market which incorporates milk likewise in its ambit. The developing working class with expanding growing urbanization are probably going to best the interest for all the more officially handled milk items, which the conventional business sectors for the most part don't provide food for. This will fuel the development of an advanced form a land coordinated milk market. These arising patterns, while characteristic of obliging the extending shopper base with developing wellbeing, have created worries on both the organic market.

Export Markets

During 2019-20, India traded 51,421.85 metric huge loads of dairy items, at an absolute estimation of ₹1,341.03 crore (US\$186.71 million). Significant objections for its fares were Joined Bedouin Emirates, Bhutan, Turkey, Egypt, and the Unified States.[139] Because of an elevated level of home grown utilization combined with world wide costs of a nun-serious nature, India's fares of dairy items are ostensible.

Tamil Nadu is the huge creation region of Dairy Items in India. Fares of Milk constantly Items across India After adequately making intrusion into the Singapore markets with the super high temperature (UHT) milk in November a year back, Aavin is presently taking a gander at passages of dairy items to 15 extra countries. The countries which the Aavin dairy items will surge toward are: Malaysia, England, UAE, Hongkong, Qatar, Bahrain, Kuwait, Saudi Arabia, Sri Lanka, Oman, Africa, Vietnam, China, Cambodia, and Mauritius.

Domestic Market (Aavin)

Homegrown Business sectors in the Express The fundamental for accomplishment in advertising is to ensure the openness of items in spots frequented by a colossal number of people. Keeping this in notification, Aavin items are being sold in huge stores and markets like Huge Bazaar, Dependence New, etc. Further undertakings are on to persuade similar course of action stores masterminded in Metro. Understanding the noticeable quality of free

home movement of items, Aavin has entered on a tie-up with online associations like Huge Bin and Gofers.

- ❖ Aavin is contemplating the naming of too stockiest/passing on and sending administrators for its aged items like curd, buttermilk, lassi, yogurt, pannier, etc. The amount of FROs in the Chennai Metro and its provincial territories will be extended to brace the stock mastermind. Three versatile parlors have been moved for the offer of milk items. It has been needed to open an undeniably number of Aavin sources in colleges, schools, etc. A specific Aavin online business stage will be created through which the business requests, mass solicitations will be procured.
- ❖ Aavin has taken up lively showcasing activities to buildup its retailer base in the State. Suitably it is needed to enroll logically various retailers for selling Aavin milk constantly items broadly.
- ❖ Aavin endeavors to sell milk alot items all things considered reasonable expenses to its customers.
- ❖ Aavin has been proposed to devise another notice and exposure plan for Aavin milk a lot items in various media and social locales to pull in a more youthful age.
- ❖ A point by point market study will be endeavored to recognize purchaser tendency of milk items reliant on which new extent of items will be introduced on the lookout.
- ❖ Having brands go probably as a worth control segment for controlling the market cost of milk constantly items.

CHANGES ON WORKING ENVIRONMENT OF COFFEE PLANTATION LABOUR AND SMALL GROWERS IN TAMIL NADU⁶⁷

Dr. K. BABU⁶⁸ & S. MEYYAPPAN KUMARAN⁶⁹

Introduction

India is one of the largest producers of the plantation crops in the world. About, three fourth of the export earnings are from the agricultural sector and one fourth of the earnings from oil exports, it clearly indicates that the plantation sector is crucial to the Indian economy. The direct employment in this sector is more than 2 million. Coffee plantation alone contributes the employment of nearly 5.94 lakhs workers directly and indirectly.

Coffee cultivation is a highly labour-intensive agricultural activity. 65% of the total cost of cultivation is accounted for by the labour costs in India whereas in Brazil due to high mechanization, the labour costs account for 35 to 40 percent. Labour is required throughout the year; the annual requirement per hectare being 400 man-days for Arabica variety and 300-man days for Robusta. There is mutual interdependent relationship between the planters and the workers. The plantation owners depend on the work force to maintain their plantations in a productive and profitable state. The workers depend on the owners to meet their basis needs such as housing, credit, welfare besides providing gainful employment. A distinct feature of coffee plantation labour is they earn a regular income throughout the year. Low scope for mechanization, does not threaten their job security.

Coffee industry is one of the largest employment providers in Karnataka, Kerala, and Tamilnadu. Paradoxically, after globalization policy had emerged in various sectors, plantation sector was also much affected in the form of labour layout practice by the large size tea and coffee estates. Despite, we have secured provisions by various welfare schemes by the ministry of labour and plantation labour Act 1951; we are unable to fulfil the basic needs of plantation labours. Tremendous changes have occurred in tea, coffee and cardamom plantations.

Coffee is a highly labour intensive crop requiring about 400 man days / hectare per year for Arabica and 300 man days / hectare per year for Robusta. The Parliamentary Standing Committee was informed that in recent years there has been a serious shortage of workers in plantation areas due to employment opportunities generated by MNREGS and also due to migration of workers to urban areas for better avenues. This has adversely affected the timely completion of certain critical operations which is having an impact on production, productivity and quality of coffee. The Committee has noticed two issues pertaining to problems of shortage of labour, one is the decreased availability of labourers willing to work on the coffee estates and the second one is the poor quality of the work force which is willing to work. Besides, the labour wages have also gone up sharply during the last five years which drastically increased the cost of cultivation of coffee especially that of Arabica variety which is highly labour intensive. Many growers have started replacing Arabica coffee with Robusta coffee, which requires less labour, to tide over the labour constraints. The Committee notes

⁶⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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that the Coffee Board has adopted two-pronged approach to address these two issues of availability of labourers: 1) A scheme of mechanization of farm operations has been introduced in the financial year 2010-11. The scheme is intended to reduce the requirement of labour at one hand and tackle the problem of skill deficit on the other as various operations are being performed using machines. 2) Conducting Skill Building Workshops for the workers working in Coffee Estates. The Coffee Board proposes to intensify this activity under a newly proposed scheme viz., "Strengthening of Transfer of Technology and Capacity Building" in the XII Plan. The Committee finds that the use of machinery in carrying out farm operations is in its infant stage in India and there is a need to give major impetus during the XII Plan. The Committee has noted in detail the efforts being made by the Coffee Board in earlier parts of this Report and appreciates the spirit of the Board. Never the less, the Committee is of the considered view that we still have to go a long way before being satisfied. It is learnt that no substantial savings of labour has been found from the existing machines that have been released in coffee sector. More machines will have to be developed and primarily the focus should be on harvesting machines. (Rajya Shaba Report-102, August 2012)

Review of Literature

Andreas Stamm et al. (2002) studied the working and living conditions of workers in the large coffee plantations of Central America in the nations of Costa Rica, Guatemala and Mexico. Three groups of employees are found namely regular, casual and seasonal workers. The study found that living conditions are far from satisfactory below the minimum required standards, wages below required legal standards, lack of schools for the children of workers, employing children at the time of harvest, lack of medical facilities and social security coverage.

Jayanthi and Ravi Aditya (2019) analysed the living conditions, wages, earnings and social security benefits of Small Coffee Plantation Workers in Chikmagalur- Karnataka. It was found that most of the workers are settled or have homes in nearby villages and they use local transport to reach their work place. Majority of workers are working on daily wages but the wages are given on weekly basis and they work on temporary basis. Majority of the workers in the small plantations are not happy about the working conditions. Some of the major reasons

Statement of the problem

The past two decades before, coffee cultivation cum marketing practices were auction method which was adequate economical aspects on adjustability from the growers. It has gradually diverted into cash crop diversification and reduce labour intensive work. Because of Plantation Labour Act was not accurately practiced by the Planters as well as labour law. As a result Labour market changes and shifted to other type of informal works engaged which is nearest and seasonal migration. Therefore, ultimate aim of planters has operated for plantation crops where there is minimum level of output or economically viable and shifted tree planting and other crops or vegetables in their estates. The adverse effect from coffee plantation are wild animals and environmental Act which are constraints for further cultivation on coffee. What are the alternative options for coffee plantation? How for its level of cost of cultivation and expenses are remaining exist or exceed? What are the operational activities after shifted

their crops and marketing channels are supported? Hence, this paper makes an attempt to solve the issues and the challenges of coffee plantation in Tamil Nadu.

Objective

Methodology

Based on baseline survey, we identified the majority of Coffee Plantation areas which were not properly cultivated or idle in Lower Pulneys and the growers were unwilling to engage plantation in Yercaud. Therefore, Dindigul and Salem districts of Tamil Nadu State have been selected for the study.

Thus, institutional supports are effective and suitable to the labourers and Growers. But, the labourer's contribution and willingness towards industrial work in urban areas.

The structural changes have emerged to the plantation labourers in various categories of each estate, such as permanent, contract, regular (casual) labourers, and seasonal labourers. During 1995 the coffee Plantations faced a crisis on price and sales performance (drastic fluctuating trend). Subsequently, most of the coffee estates were closed. A large number of labourers lost their work. In the meantime, the trade union of Plantation was unable to protect the labourers and amicable solution with owners, particularly Coffee Estates. Therefore, the coffee plantation is separated from other major Plantations (Tea) as a large number of the coffee estates are occupied by small growers.

The Trade Union is also unable to take proper decision as well as collective bargaining for wage agreement and settlement of disputes due to the intervention of political issues. A large size companies adopted the approach of multinational companies. It means, the nature of work is specified by the owners. There is no provision of choice for labourers. The practice of labour-lay out was adopted. Most preferably, they had tried to hire minimum number of workers based on their willingness and contractual basis. Here, the structure of existing labour practice has changed in the way of collective forming approach (sometimes small growers also formed as a group of labour with performing work to one grower and getting wage during peak seasons. Besides, the features of Plantation Labour Act and its provisions are diversified. The present situation of the labour practices in the sector is not uniform. The average daily wage is Rs.350 to 450 for men and Rs.200 to 300 for men per day.

Results and Discussion

Table 1 Major crops with issues

Cultivation issues Major crops	Input cost raised	Wild animals & labor shortage	Labor issues and marketing issues	Total
Coffee	5 9.8%	19 37.3%	27 52.9%	51 100.0%
Banana with pepper	6 20.0%	0 0.0%	24 80.0%	30 100.0%
Orange with Banana	6 26.1%	11 47.8%	6 26.1%	23 100.0%
Orange + Avocado + Banana	0 0.0%	0 0.0%	6 100.0%	6 100.0%
Total	17 15.5%	30 27.3%	63 57.3%	110 100.0%

Source: Primary Data

Despite participatory programmes with Coffee growers and training programmes for many interventions, they are unable to stabilize their cultivation practices and sustained Growth. As a result, they shifted to other crops and diversification of seasonal horticulture and agriculture and some of them are shown negligence of cultivation. These changes were made gradually affected environmental issues and Bio Diversity. The reason could behind that consecutive labour issues, wild animals are gong ton affect, pricing factors are affected for continuous cultivation. Table shows that 80% of the growers who are cultivating pepper and banana where faced marketing issues (24 persons out of 63). About 47% of the respondents from the cultivation part of orange and banana referred their about shortage (11 person out of 30). It is inferred that the grower's intention is to continue their cultivation either cash crop or equalent portion of income source whatever issues where emerged.

The small Grower's existence of land is partially cultivated and remaining parts are idle from their occupancy of cultivation. The paradigm shift on labour market and working environment in plantation sector leads collective farming practices were emerged. Nearly 82% of the respondents who belonged to the farm size is below 5 acres. They are cultivating other vegetable instead of coffee (23 persons out of 52). The farm size range is 5-10-acre holders are engaged vegetables upto 45%. (23 persons out of 52) More than half of the Growers (60%) farm size range is 11-15 acre, they are engaged coffee, Avacado, and orange (12 persons out of 17). About 54% of the Growers who kept their land is idle of cultivation (6 persons out of 13).

There is a relationship between annual income and gender for independent with preference of mixed crop and tree planting in order to Grower's survival. The gender-based income is existence of higher level. The pull factor on alternate crop instead of coffee and Tea. Monthly income and gender were correlated with size of Estate (significant .000). The gender basis choices are identified and preferred for other cash crop due to marketing issues and labour shortage.

COST OF ONION CULTIVATION IN PERAMBLUR DISTRICT, TAMIL NADU⁷⁰

Dr. S. BALRAJ⁷¹ & K. SENTHENKUMAR⁷²

Introduction

Onion is one of the important vegetable crops grown in India. In terms of area, India ranks first with an area of 5.54 lakh hectares (2008-09) accounting for around 22.40 per cent of the world onion area. In terms of production, the country occupies second position after China constituting 19 per cent of the global onion production. It is produced for both domestic consumption as well as exports. India stands second larger producer of onion in the world, next only to China. At least 175 countries grow onions. It is used either in raw form or in dehydrated form to add flavour and taste to Indian dishes. Since onion has medicinal value, it is used in some pharmaceutical preparation and in folk remedies. Onion bulb is rich in minerals like phosphorous, calcium and carbohydrate. It also contains proteins and vitamin C. Presently, India has produced 19,415,425 tonnes of onion per year; harvested area is 1,199,850 hectare; and yield 16,182 kg of onion per hectare.

STATEMENT OF THE PROBLEM

Onion producing farmers in Perambalur district have faced many problems in growing small onion like, climate change, unseasonal rainfall, high cost of fertilizers, pesticides and transportation, storage loss, insufficient natural manure, non availability of labour, lack of market information, price fluctuation, irrigation facility, water scarcity, financial support, middlemen interference and non availability of cold storage facilities. Farmers supply plenty of onion to the market through middlemen at lesser price. The requirement of seed onion for next cultivation is increased the current price level. The onion growers face the higher amount of storage loss every year. Further, price changes depend upon the monsoon in the shallot growing districts of Tamil Nadu, demand rose in the local, national and international markets. Therefore, the present study cost of onion cultivation in the study area.

OBJECTIVE

To evaluate the cost of onion cultivation in the study area.

METHODOLOGY

The study is based on primary data collected from 90 farmers by personal interview method. A multistage sampling technique is used to select the farmers from six villages of Alathur Block of Perambalur District. The collected data were, analysed with help of average and ANOVA.

Cost of Cultivation of Onion

The maximum per acre operational cost was found to be Rs.5090 for large farmers and was mainly from family labour. Due to large land area they had to work daily for weeding and manual ploughing of surface soil. The minimum operational cost was found from bullock

⁷⁰ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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labour for small farmers i.e. Rs.1201. In case of material cost, the highest cost was involved in plant protection i.e. Rs.6161 for large farmers. Poaching was the major hazardous problem found in farm area of large type farmers. To overcome these problems they used fencing. The highest fixed cost was recorded from rental value of owned land for large scale farmers i.e. Rs.26066. The total cost involved for onion production was maximum of large farmers i.e. Rs.66743. The net return were found maximum (Rs.420982) for large type of farmers whereas minimum (Rs.450000) was for small farmers.

Table 1 Cost of Onion Cultivation by the Sample Farmers of Different Size Groups

S.I	Particulars	Farm Size		
		Small	Medium	Large
A.	Operational Cost			
1.	Imputed value of family labour	5090.10	5721.11	5155.26
2.	Hired Human labour	4121.25	4361.20	5148.35
3.	Bullock labour	1201.51	1321.25	1720.25
4.	Machine power	2198.08	2420.44	3315.22
	Total	12610.94	13825.00	15339.08
B.	Material Cost			
1.	Seed	3522.03	4123.52	4572.30
2.	Manures and fertilizers	1251.76	1851.54	2236.10
3.	Plant Protection	3150.21	5232.44	6161.20
4.	Irrigation charges (by tube well Diesel + electricity)	3211.05	4151.00	5110.00
5.	Interest on working capital @6% for season	1232.11	1534.33	2107.73
	Transportation	1702.00	2100.00	2200.00
	Total	14069.16	18992.83	22387.33
C.	Fixed Cost			
1.	Rental value of owned land	21000.00	22741.60	26066.62
2.	Land revenue	50.00	50.00	50.00
3.	Depreciation and maintenance of implements and machinery	2113.17	2365.03	2425.23
4.	Interest on owned fixed capital	276.46	373.11	475.75
	Total cost	23439.63	25529.74	29017.6

Source: Primary data

References

1. Immanuelraj TK, Dastagiri MB, Sajesh VK. (2014) Growth and Instability of Onion Production in Maharashtra, Indian Journal of Global Economics, 2(1).
2. Kamble, Tiwari. (2019) Instability in Onion Production and Marketing in Maharashtra, International Journal of Science and Research (IJSR).; 8(2):975-979.
3. Kusuma DK, Rudrapur, Shreeshail. (2016) Production and export performance of Indian onion-Markov chain analysis. Agriculture Update.; 11(1):70-74.
4. Kumar et al. (2006) Performance of Onion Exports from India: A Temporal Analysis, Foreign Trade Review.; 40(4):49-63
5. Meena et al. (2016) Performance of Onion in Bihar - An economic analysis, Economic Affairs, 61(2):299- 304.

ECONOMY OF TAMIL NADU: A VISION⁷³

S. HEMANATH⁷⁴ & Dr. A. MARIMUTHU⁷⁵

Introduction

The state is divided into more than two dozen administrative districts, each administered by a district collector. Lower administrative and revenue units are called talukas, firkas, and villages. Panchayats (village councils) are responsible for local self-government and rural development. Various government agencies sponsor programs to improve the housing, education, and economic status of the Scheduled Castes and other traditionally disadvantaged groups. The state also provides assistance to women, children, and people with disabilities. A special insurance program is available for those with autism, cerebral palsy, and other developmental disabilities.

Agriculture

Agriculture is the mainstay of life for about half the working population of Tamil Nadu. Since very early times, Tamil farmers have skillfully conserved scarce rainwater in small and large irrigation reservoirs, or “tanks.” Government canals, tube wells, and ordinary wells also form part of the irrigation system. Because several of the river valley projects depend for water on rain brought by the erratic northeast monsoon, the government also taps subsoil water sources.

Agriculture, fishing, and forestry

Agriculture is the mainstay of life for about half the working population of Tamil Nadu. Since very early times, Tamil farmers have skillfully conserved scarce rainwater in small and large irrigation reservoirs, or “tanks.” Government canals, tube wells, and ordinary wells also form part of the irrigation system. Because several of the river valley projects depend for water on rain brought by the erratic northeast monsoon, the government also taps subsoil water sources.

Agricultural practices have shown radical improvement since the mid-20th century through multiple cropping, the use of stronger and more productive strains of staple crops, and the application of chemical fertilizers; since the late 1960s the state has been self-sufficient in the production of food grains. The principal crops for domestic consumption are rice, millet, and other cereals, as well as peanuts (groundnuts) and pulses (such as chickpeas); sugarcane, cotton, cashews, and chilies are important cash crops. Many farmers in Tamil Nadu also raise livestock, primarily cows (especially for the dairy industry), poultry, goats, and sheep.

Tamil Nadu is one of India’s top fish producers, with most of the yield coming from marine operations, although there also are many inland fisheries. In addition, the state has an active forestry sector, with pulpwood, babul (a type of acacia that yields valuable tannin),

⁷³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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firewood, bamboo, and teak among the primary products. Rubber, grown largely in plantations, is important as well.

Resources and power

The major minerals mined in Tamil Nadu are limestone, bauxite, gypsum, lignite (brown coal), magnesite, and iron ore. The opencast lignite mine at Neyveli, in the north-central part of the state, is among the largest in India, and its products are used to fuel a thermal-power plant that provides much of the state's electricity. The bulk of Tamil Nadu's energy comes from thermal stations, but hydroelectric plants—especially along the Kaveri River and its tributaries—provide an important secondary source of energy. The state also is a leader in wind-power generation.

Manufacturing

Tamil Nadu is one of the most industrialized of the Indian states, and the manufacturing sector accounts for more than one-third of the state's gross product. Production of heavy vehicles—such as automobiles, agricultural equipment, military vehicles, and railway cars—is among the state's major industries; the railway-coach factory at Perambur (near Chennai) is one of the largest in Asia. There is an oil refinery and petrochemical plant in Chennai. Other prominent manufacturing activities include textile milling, food processing, and the production of pharmaceuticals, chemicals, and electronic parts and equipment. Tamil Nadu also is rich in handicrafts, most notably brass, bronze, and copper ware, leather work, handloomed silk, *kalamkari* (hand-painted fabric, using natural dyes), and articles fashioned from carved wood, palm leaf, and cane.

Services

The services sector has grown especially rapidly since the late 20th century, and by the early 21st century it had become the largest contributor to Tamil Nadu's economy. Expansion of the information-technology industry has been a priority of the state's economic development policies. Tourism also has been an area of emphasis, with ongoing improvements in infrastructure, accommodations, restaurants, and cultural and recreational attractions.

Transportation

The transport system of the southern Indian states converges on Chennai. A well-developed road network makes express bus service available to all major towns and places of interest. Many railways also run through the state.

Two of India's major seaports are located in Tamil Nadu—in the north at Chennai and in the south at Tuticorin. The international airport at Meenambakkam, near Chennai, is one of the largest airports in India. Domestic flights are available from a number of other cities, including Madurai, Coimbatore, and Tuticorin; the airport at Tiruchchirappalli offers domestic and limited international service.

Health

The medical needs of Tamil Nadu's population are served by a large number of public and private hospitals, dispensaries, and primary health centres. Allopathic (Western), Ayurvedic and Siddha (traditional Indian), Unanī (a Muslim system using prescribed herbs and shrubs), and homeopathic medical treatments are all recognized and supported by the government and are available throughout the state. Among Tamil Nadu's primary health

concerns are cholera, malaria, filariasis (disease caused by infestation of the blood and tissues by parasitic worms), and HIV/AIDS infection. The state has largely brought leprosy under control, although thousands of cases are still treated annually.

Various government agencies sponsor programs to improve the housing, education, and economic status of the Scheduled Castes and other traditionally disadvantaged groups. The state also provides assistance to women, children, and people with disabilities. A special insurance program is available for those with autism, cerebral palsy, and other developmental disabilities.

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FARMER PRODUCER ORGANISATIONS IN CAUVERY DELTA REGION – A CASE STUDY OF RAJARAJACHOZHAN FARMER PRODUCER COMPANY LIMITED, THANJAVUR¹

C. KIRUTHIKA² & Dr. S. SENTHAMARAI³

Abstract

There are 146.45 million farmers in India. According to the Agricultural Census 2015-16, the number of small and marginal farmers has increased to 86.08 percent of the total farmers in India. They are the highest group of cultivators in Indian agriculture, but they are still poor. There are increasing number of agricultural suicides among small and marginal farmers. They face a lot of challenges during cropping and harvesting period. The farmer producer organisations have emerged as a broad concept to address the issues of farmers, especially marginal and small farmers. The FPO provided the pre harvest services and also provide the capacity building services like awareness of various farming practices, training on latest agriculture practices, training on production, community leadership programme and provide services like credit services, agricultural advisory services, technology services, value addition services and market access services. The farmer producer organisations help the small and marginal farmers to overcome their problems. In this context, this research paper focuses on the state of Farmer producer organisations in Cauvery delta region and the key achievements, impacts and challenges of Rajaraja Chozhan Farmer Producer Company in Thanjavur.

(Key words: Farmer Producer Organisation, Small farmers, Marginal farmers, Pre-harvest services, Capacity building services)

Introduction

There are 146.45 million farmers in India. The farmers in India are divided into five categories, viz., marginal farmers (below 1 hectare), small farmers (1-2 hectares), medium farmers (4-6 hectares) and large farmers (10 hectare and above). According to the agricultural census (2015-2016), the small and marginal farmers constitute 86.08 percent of total farmers in India. The semi-medium and medium farmers in 2015-2016 were only 13.35 percent and 0.57 percent respectively. The small and marginal farmers are the highest group of cultivators in Indian agriculture. But the small and marginal farmers are still poor. There are increasing number of agricultural suicides among small and marginal farmers. They face a lot of challenges during cropping and harvesting period. The small-scale producers have many disadvantaged because of the investments is less, they largely depend on their family, use traditional techniques, and lack of connections with the world trade and traders. The Companies Act 1956 brought new institution in the basic principles of cooperatives. In India there are many producer companies mainly dealing with the agricultural works, veterinary

¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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services, dairy products, meat, plantation crops, poultry and handicrafts. The producer companies in India are promoted by the National Bank for Agricultural and Rural Development (NABARD), Small Farmers Agribusiness Consortium (SFAC), Central Government, State Government, World Bank, Non-Government Organisations, United Nations Development Programme (UNDP), International Development Agencies, Food and Agriculture Organisation (FAO). Large number of producer companies are established through the producer organisation development fund.

Farmer Producer Organisation (FPOs)

The Farmer Producer Organisations help farmers to overcome from the issue especially the marginal and small farmers. The FPOs provide the input supply services, financial services, marketing services, technical services, pre harvest services like selection of crops, crop diversification, soil test facility, micro nutrients, seeds distribution, fertilizers and pesticides. FPOs will create the awareness among the farmers related to farming activities, production training and community leadership programme. All major centrally sponsored schemes of the Department of Agriculture and Cooperation (DAC) have incorporated special provisions for promotion and development of FPOs during the 12th plan. SFAC address the challenges faced by the marginal and small farmers in terms of access to investment, technology and markets. It coordinates with the state governments, civil society, private sector, resource persons, financial institutions and with the other stakeholders to enhance the productivity of the small and marginal farmers. FPO also financed by NABARD through Producer Organisation Development Fund (PODF).

Research issues

The small and marginal farmers ranged highest percentage in the majority of the Farmer Producer Company. The many FPOs have lack of technology and their problem will be sort out through banks, government agencies, development organisation. FPOs can increase the profit through the value addition. Farmer Producer Organisation have interested in the adopting new technology, modern agricultural marketing channel for selling the output directly to the consumers (Thomas et al., 2018; Gangana et al 2021). Capacity building programmes on the management aspects to different stakeholders of FPC are able to be continuously provided. Purchase of products of FPCs may be scaled up through public programmes. Development of business and value chains would result the profitability of business and sustainability of the Farmer Producer Companies (Balamohan 2019).

Objectives

1. To study the state of Farmer Producer Organisations in Cauvery delta region.
2. To understand the key achievements, impacts and challenges of Rajaraja Chozhan Farmer Producer Company, Thanjavur.

Methodology

The study was conducted at the Rajaraja Chozhan Farmer Producer Company in Thanjavur district. The study is mainly based on the personal interview with the management of Rajaraja Chozhan Farmer Producer Company.

Results and discussion

All the Farmer Producer Companies in Cauvery Delta Districts are registered under the Companies Act, 2013. There are 70 Farmer Producer Companies in Cauvery Delta

District. Only farmers are eligible to become the members of FPC and they contribute Rs.1000 towards the share capital. Since 2014, the Farmer Producer Companies have started functioning in the Cauvery Delta Region. The Majority of the Farmer Producer companies deal with more than two crops.

Table 1 FPCs in Cauvery delta region

NAME OF THE FPC	COMMODITIES DEALT	DATE OF INCORPORATION
ARIYALUR		
Sri Kaliyuga Varadharaja Perumal Collective Farm Producer Corporation Ltd	Maize and Groundnut	2018
Sendurai Collective Farming FPC Ltd	Cashew	2018
Jayamkondam collective FPC Ltd	Maize and Groundnut	2020
Vaalviyaluzhavan collective FPC Ltd	Cashew, Groundnut, Maize	2020
Vriksham collective farming PC Ltd	Groundnut, pulses and maize	2020
TNIAMP II Lower Kollidam FPC Ltd	Groundnut, pulses	2021
TNIAMP II Sri Annapoorani FPC Ltd	Pulses and maize	2021
NAGAPATTINAM		
Cauvery FPC Ltd	Paddy, Pulses	2014
Verrachozhanuzhavan FPC Ltd	Paddy, pulses	2015
Mayiladuthurai Kamban collective FPC Ltd	Paddy, Black gram, Green gram, Groundnut	2018
Valanadu Sustainable Agriculture FPC	Paddy, pulses	2013
Poompuharcuvery delta FPC Ltd	Paddy, pulses	2014
Samuthra India FPC Ltd	Paddy	2012
Vennaru Collective Farming FPC Ltd	Paddy, pulses	2020
Nagai collective FPC	Paddy, pulses	2021
Thirumaraikadu collective farming FPC	Paddy, pulses	2021
Ponni Nadhi FPC Ltd	Pulses, Groundnut	2020
Thamizhisaimoovar FPC Ltd	Pulses	2021
PERAMBALUR		
Perambalur District Maize and small onion producers company Ltd	Small onion	2016
Kurumbalur Collective Farming FPC limited	Small onion, Maize	2018
Veppurperali millet FPC Ltd	Maize	2017
Veppur collective FPC Ltd	Maize	2020
TNIAMP 2019-20 Perambalur velar FPC Ltd	Maize	2020
Veppanthattai CFFPCL	Maize	2020
Alathur Collective FPC Ltd	Small onion, maize	2020
PUDUKKOTTAI		
Pudukkottai coconut FPC Ltd	Coconut	2014
Illuppur agriculture FPC Ltd	Pulses, paddy, milk, country chicken	2015
Pudukkottai organic FPC Ltd	Millets	2014

NAME OF THE FPC	COMMODITIES DEALT	DATE OF INCORPORATION
Nakeerar coconut collective farm PC ltd	Coconut	2018
Aranthai collective farm PC ltd	Milletts, oilseeds	2018
Ambuilaaru Agricultural PC ltd	Groundnut, Blackgram, maize	2016
Mukkanicholai agriculture PC ltd	Groundnut, Blackgram, Maize	2016
Karambakudipasumai agriculture PC limited	Groundnut, Blackgram, maize	2017
Ponnamaravathy organic collective FPC ltd	Paddy, groundnut, gingelly, mangos, lemon, milk	2020
Puduppunal coconut collective FPC ltd	Coconut, paddy, vegetables	2020
Viralimalaiponnaniyar FPC	Groundnut, pulses	2020
THANJAVUR		
Rajarajachozan FPC ltd	Pulses, paddy, black gram, sugarcane	2014
Peravurani coconut agro producer company ltd	Coconut	2020
Pattukottai CFFPCL	Coconut	2020
Peravuranimarutham CFFPCL	Coconut, pulses	2020
Nerkalanjiam CFFPCL	Pulses	2016
Thanjavur CFFPCL	Pulses	2018
New delta FPC	Coconut, pulses	2020
Thirunadu collective FPC ltd	Coconut, pulses	2020
Kumbakonam delta collective FPC ltd	Pulses	2021
Peravuraniponni CFFPCL	Coconut	2021
Nandhi collective FPC ltd	Pulses, sugarcane	2014
TNIAMP Pragadeeshwarar FPC ltd	Pulses, oilseeds	2020
TNIAMP Kumbakonam FPC ltd	Pulses, oilseeds	2020
TIRUCHIRAPPALLI		
Tamilnadu Banana PC ltd	Banana	2014
TrichyPasumai Groundnut PC ltd	Groundnut	2017
Tiruchirappalli Malaikottai collective FPC ltd	Paddy	2018
Tiruchirappalli Horticulture collective FPC ltd	Small onion, Banana	2018
Vasantham CFFPCL	Small onion, Paddy	2020
TNIAMP Manvasam FPC ltd	Paddy, banana, millets	2021
Thuraiyur Women FPC ltd	Small onion	2021
TNIAMP Pullambadi FPC ltd	Maize, cotton	2021
Manaparai collective farming FPC ltd	Groundnut	2021
Lalgudi Thendral collective faming FPC ltd	Banana, Paddy	2021
Marungapuri collective farming FPC ltd	Milletts, groundnut	2021
TNIAMP Trichy FPC ltd	Groundnut	2015

NAME OF THE FPC	COMMODITIES DEALT	DATE OF INCORPORATION
TIRUVARUR		
Thiruvavarur FPC ltd	Pulses, paddy	2014
Mannargudi Rajagopalaswamy collective farming PC ltd	Paddy, pulses	2018
Karikalan pulses FPC ltd	Pulses, paddy, groundnut	2016
Kodavasal CFFPC	Paddy, pulses	2021
Thaaiman traditional Agri related PC ltd	Paddy, pulses, vegetables, oilseeds, cash crops	2017
Needamangalam Collective farming FPC limited	Paddy, pulses, cotton	2020
South Indian FPC ltd	Black gram	2020
Thiruthuraipoondi collective FPC ltd	Traditional paddy	2020
Arooran collective faming PC ltd	Pulses	2021

Source: Department of Agri Marketing and Agri Business

Benefits to the Farmers

- Farmer Producer Companies in Cauvery Delta Districts help the farmers through its Input Supply Services like provision of seeds, fertilizers and machinery at reasonable price.
- They enhance the productivity and profitability among the small and marginal farmers.
- They provide the marketing and technical services like procurement under minimum support price and contract farming.
- The FPOs provide the information regarding the arrival of new seeds, fertilizers, policies, insurance etc.

Table 2 Rajaraja Chozan Farmers Producer Company Limited (RRCFPCL)

Company/LLP Name	Rajaraja Chozan Farmers Producer Company Ltd
CIN	U01409TN2014PTC097586
ROC	RoC – Chennai
Registration Number	097586
Company Category	Company limited by Shares
Company sub category	Non- Govt company
Class of Company	Private
Authorised Capital	2500000
Paid up Capital	2066000
Date of Incorporation	07/10/2014
Date of last Annual General Meeting	30/10/2020
Date of Balance sheet	31/03/2020
Company status	Active

Source: Primary data

The company has seven Board of Directors, who are involved in mobilisation of farmers to enrol as shareholders in the company. RRCFPCL has been adopted by Department of Agri Marketing and Agri business, Thanjavur during 2014 and Centre for Indian Knowledge systems (CIKS) has empanelled as resource Institution during April 2015.

Vision and mission of RRFPCCL

Vision: To increase the income level of small farmers through sustainable agriculture in Thanjavur District.

Mission: To reduce total cost of cultivation, increase production and income through market support.

Company Profile and Logic

The RRFPCCL has been in operation since the year 2014 and the efforts of RRFPCCL and Department of Agri marketing has been successful in uplifting the farmers and enhancing their quality of their life. Shareholders are organised Farmer Interesting Groups. While these collectives and the members have been seeing progress at individual level and in their group level, they felt the need of a system and legal format to synergize the efforts of these groups to see higher level of growth and better bargain in the value chain.

The producer company has both men and women as its members. There are already 50 FIG Groups and there are plans to mobilize more farmers and primary producers. With an average of 15 to 20 members per group, currently there are over 1033 members and the company targets a total membership of 1500 members both men and women.

Key achievements of RRCFPCL

- They made an agreement with NAFED (National Agricultural Cooperative Marketing Federation of India) for assured market, based on the detailed discussion, MOU was signed between the FPO and NAFED during August 2016. Total black gram procured under NAFED-118 tonnes in 2017-2018.
- Market tie up made with Jasmine Enterprise, Chennai for sale of black gram during February 2017. Total quantity sold-277 tones. Turnover of the company has reached Rs.3.4 crores during the period of 2016-2017. In that procurement totally 350 farmers are benefited. The Input shops has been opened at Ammapettai and Thozhavanniyan Kudikadu.
- Totally 55 tonnes of Paddy seeds and 1,12,000 sets of sugarcane were sold under the company. Total turnover of the above activity was Rs.50.30 lakhs for the period June 2016 to September 2016.
- The company has converted procured black gram to whole white black gram and started retail sales through a shop at Ammapettai. Apart from blackgram, the company procures green gram, thoordhall and other items on whole sale and sell at retail price to consumers. This has fetched good income to the company and also gained confidence among consumers. The company has opened a outlet at Ammapettai for sale of pulses, organic food items and vegetables.
- With the help of TNIAMP Scheme we installed Oil extraction unit, masala powder making unit, Papad making unit in Ammapettai.

Impact of RRCFPCL on the lives of farmers

Producer companies can help smallholder farmers participate in emerging high- value markets such as the unfolding modern retail sector. Small farmers livelihoods are being threatened due to liberalisation and privatisation and the increasing interest of private capital in the agribusiness sector. They provide the fertilizers and pesticides at discount price. In this environment of greater instability and competition, organisation and collective action can help

to enhance farmers competitiveness and increasing their advantage in emerging market opportunities. They build on the ideas of value chain governance and collective action literature and introduce the functions and organisational structure of producer companies within the context. Assured price with correct weight for harvested produce. This has created impact among the shareholders and this has resulted in increase in membership under the company.

Challenges faced by RRCFPCL

- The main challenge faced by the Rajaraja Chozan Farmer Producer Company Limited is marketing their product. They cannot beat the large farmers. The RRCFPCL enter into the market, the large farmers sold their product at low price. So, the RRCFPCL cannot sale their product at low price.
- During harvesting time, the RRCFPCL supply the machineries through dealers. The members of the farmers farmland are not close to another farmland. So, it is difficult to shift the harvesting machinery from one place to another and also rent of the machinery is high.
- The fund provided to the RRCFPCL is insufficient and is not able to satisfy their needs.

Conclusion

The percentage of small and marginal farmers is the highest in India but they face many problems and difficulties. The Farmer Producer Organisations are helping the farmers to overcome their problems and also it provides the input supply services, market access services and also provide the information regarding the Agriculture Marketing. Rajaraja Chozhan Farmer Producer Company Limited helped the small and marginal farmers to participate in modern retail sector and also it provides the fertilizers, pesticides, seeds at reasonable price. Many farmers are benefited through the procurement and also the PC procured the product directly from the farmers and sale at their retail shop. The members of the farmers are more benefited through Rajaraja Chozhan Farmer Producer Company. Hence, concerted efforts could be made by the Government to strengthen the functioning of existing FPOs and establish new FPOs wherever necessary.

References

1. Balamohan T.N, et al. (2019). The development of linkages and value chains for sustainable Farmer Producer Companies: Evidences from southern districts of Tamil Nadu, India. *Indian Journal of Agricultural Science and Research* 1 (4), 265- 272.
2. Challuri, B., & Sudheer Patoju, S. K. (2021). Impact of Farmer Producer Companies on Marginal and Small Farmers: A Study of Osmanabad District of Maharashtra. *Grassroots Journal of Natural Resources*, 4(2), 23-33.
3. Gagana, D.S., & Velmurugan, P.S. (2021). Case study on Farmer Producer Companies in Cauvery Delta Region. *ANGRAU*, 48(2), 126- 132.
4. Thomas, S., & George, A. J. (2018). The role of value addition in farmer producer organisations: benefits and challenges. *International Journal of Research and Development*, 3(10), 32-39.
5. Vignesh. T., & Yoganandhan (2020). A study on farmers hard work and Farmers Producer Organisation in Salem districts Tamil Nadu. *International Journal of Scientific and Technology Research*, 9(2), 1466-1472.

AN ECONOMIC ANALYSIS OF PADDY PRODUCTION IN TAMIL NADU WITH SPECIAL REFERENCE TO THIRUVARUR DISTRICT⁴

P. NAGARAJ⁵

Introduction

Agriculture plays an important role in the Indian economy. Its share in the Gross Domestic Product (GDP) has exhibited a declining trend from 55.4 percent in 1950-51 to 14.3 percent in 2010-11. But, still about 38 percent of food items are exported to foreign countries and a sizable work force is depending on agriculture. There has been significant progress in agricultural production during past six decades in India. Food grain production increased from 50 MT in 1950-51 to 241 MT in 2010-11. The increased food production is mainly due to the use of High Yielding Varieties (HYV), fertilizers and modern technology. The Green Revolution has played a significant role in increasing agricultural productivity. The benefits of Green Revolution did not reach the marginal farmers. The important natural resources, land and water are becoming increasingly scarce due to multiple uses, it has become difficult to extend the intensive cultivation and cultivated area is reduced due to the development of other sectors over a period of time. We have to explore alternative to increase the agricultural production and to meet the growing demand for food grains. Food is essential for future generations.

Statement of the Problems

Tamil Nadu is the second biggest producer of paddy and is historically known for its agriculture from ancient times. The major food crop like paddy is grown in large excess because rice is the main staple food of the State. There are three crops based on duration, the first one is the Kuruvai (Korowai) the short term crop with duration of there and a help to four months from June to July to October to November. The second crop is called the Taladi that is Samba and has adorations of almost six months from August to January. The major source of irrigation is the rivers, tanks and wells. The cost of cultivation of paddy has consistently been increasing owing to the increased costs of seeds, fertilizers and labor with increasing owing to the increased costs of seeds, fertilizers and labor with increasing labor scarcity due to urbanization, sustaining. The interest of farmers on rice cultivation has become a challenge thus there is an urgent need to produce more output with a drop of water owing water scarcity.

Objective

1. To assess the District wise paddy production in Tiruvarur District of Tamil Nadu.

⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Results and discussion

Table 1 Paddy Production in Tiruvarur District

Year	Area	Production LMT	Productivity (kg/ha) LMT	Marketable Surplus
2010-2011	161582	18.0256(100.00)	0.0001	10.81536
2011-2012	17.3842	13.90736(129.6)	0.8	8.344416
2012-2013	158011	2.3401(594.306)	0.00001	1.4041
2013-2014	175813	15.3539(15.241)	0.00009	9.2123
2014-2015	193961	13.0614(117.552)	0.00007	7.83687

Source: District Statistics Department, Tiruvarur

As the above table shows that the paddy production of Tiruvarur district is showing on increasing trend with some fluctuation in the increasing year during 2010-11 the area under paddy cultivation was 161582 hectares and its was in created to 17.3842 during 2011-12 only during the year 2012-13 the area under cultivation of paddy was observes to 178011 hectares the production of paddy in this accounted to 18.0256 LMT. During 2011-12 it was decreased to 13.90736 LMT. During 2011-12, 2013-14 and 2014-15 only the production of paddy was less the 15.3339-13.0614. 23401 LMT during the 2012-13 one minimum production of paddy was the yield was observed to be maximum of 18.0256 LMT during the year 2010-11.

Findings

- There was tremendous increase in the production of paddy in Tamil Nadu, in the following years 6063400 tonnes in 1989-1990, 6805720 tonnes in 1992-1993, 7558710 tonnes in 1994-1995, 8141300 tonnes in 1998-1999, 7532100 tonnes in 1999-2000, 7366320 tonnes in 2000-2001, 6583630 tonnes in 2001-2002 and 6610607 tonnes in 2006-2007.
- Among the Districts of Tamil Nadu Krishnagiri was one of the leading Districts in production with an ACGR of 6.21 percent during 2000-2010, followed by Thoothukudi (3.59%), Thiruvannamalai (2.77%) and Thirunelveli (0.49%).
- On the other hand, out of 32 Districts in four Districts, the production of paddy had exhibited increasing trend during the last ten years (2000-2010). The dynamics of cultivation of paddy crop in Tamil Nadu show that there are wide variations are in area, production of paddy among Districts. Study of the period of 25 years shows that during the earlier period of 1985-1990, because most of the Districts in Tamil Nadu in terms of area and production in paddy cultivation had shown increasing trend than the latter period 2000-2010, during which the average annual growth rate of production declined in majority of the Districts in Tamil Nadu, except Krishnagiri, Thoothukudi, Thiruvannamalai and Trichy. Among the Districts, the average annual growth rate of yield in paddy crop in Tamil Nadu, Krishnagiri had highest yielding rate at 7.39 percent during 2000-2010, followed by Dharmapuri at 1.40 percent and Theni (1.31%) and Thoothukudi (1.29%).
- The operational cost accounts for a major share of the cost of cultivation of paddy in 2007-2008, within operational costs, the cost of human labour accounts for (31.28%) followed by machine power (15.14%) and fertilizers accounts for 10.03 percent during the same year.

- The share of operational cost increased to 75.55 percent in 2011-2012, out of which the cost of human labour accounts for 41 percent. On the other hand, costs of machine power, fertilizers, irrigation charges, fixed cost had shown declining trend in 2011-2012. But the cost and plant protection charges increased due to inflationary trend in the economy.
- Tamil Nadu is one of the major paddy producing States in India. Production of paddy has increased from 5370490 tonnes in 1985-1986 to 5665258 tonnes in 2009-2010 due to High Yielding Varieties (HYV). But the area under cultivation of paddy has marginally declined over the years from 2264293 ha. In 1985-1986 to 1845553 ha. In 2009-2010. Districts like Thanjavur, Tiruvarur, Vilupuram, Nagapattinam, Ramanathapuram, Cuddalore, Vellore, Tirunelveli and Kancheepuram has shown an extension in the area in paddy cultivation but still production has declined in these areas. It is noted that due to urbanization, a majority of cultivated land was converted into real estates.
- Paddy is produced in almost all 31 Districts of Tamil Nadu except Chennai. Districts like Nilgiris, Coimbatore, Namakkal are the lowest producing Districts in Tamil Nadu. In almost all Districts in the Tamil Nadu, the area and production of paddy generally exhibited a declining trend owing to urbanization, industrial development, real estate's most of the cultivable land has become uncultivable and farmers feel agriculture has become an unprofitable occupation.
- The highest yield rate of 5056 kg/ha was recorded in Theni District during 2009-2010 followed by Thoothukudi District (4945 kg/ha), Dindugal District (4737 kg/ha) and Kanyakumari District (4405 kg/ha). The highest annual growth rate was recorded of Sivagangai (4.11%) followed by Nilgiris (3.59%) and Ramanathapuram (3.23%), Dindugal (2.36%), Kanniyakumari (2.21%), Dharmapuri (1.42%), Vellore (1.39%), Madurai (1.34%), Theni (1.31%), Tirunelveli (1.28%), Erode (1.07%), Thanjavur (1.01%), Perambalur (0.91%), Virudhunagar (0.61%) and Thoodhukudi (0.23%).
- In Tamil Nadu the Annual Compound Growth Rate (ACGR) has declined by -2.81 percent during 1985-1986 to 1989-1990 and -1.19 percent during 2000-2001 to 2009-2010 whereas, during 1990-1991 to 1999-2000, there was positive growth rate of 1.55 percent in Tamil Nadu.
- It is noted that there is an extension in the area of paddy crop during that period due to availability of water sources, good rainfall and use of hybrid variety seeds in the farm field. Krishnagiri was a leading District in production with 6.21 percent of ACGR during 2000-2010 followed by Thoothukudi (3.59%), Thiruvannamalai (2.77%) and Tirunelveli (0.49%). On the other hand, out of 32 Districts only four Districts increased the production during the ten years (2000-2010). It is observed that there are wide variations in area, production of paddy among the Districts of Tamil Nadu.
- The period of 1985-1990 is the most significant one, because most of the Districts in Tamil Nadu in terms of area and production in paddy cultivation exhibited an increasing trend than the later period of 2000-2010. The average annual growth rate of paddy production has declined in majority of the Districts of Tamil Nadu, except Krishnagiri, Thoothukudi, Thiruvannamalai and Trichy.
- Production cost plays an important role in determining the agricultural growth in the State. Different parts of States realize different cost variations in their production process. Operational cost has also increased from Rs.25024 per ha. In 2007-2008 to Rs.44952 per ha. in 2011-2012. It shows an increase of 8.95 percent (Rs.19928) during the five-year

period. Within operational cost, the human labour cost has also increased to Rs.24395 in 2011-2012 against to Rs.11754 per ha. in 2007-2008, which shows a 10 percent increase (Rs.12644).

- The study area and production of paddy cultivation in Thiruvarur District during period of 2010-2011 to 2014-2015 the area under the paddy cultivation was highest production during the period on 2010-2011 lowest productions of period of 2012-2013.
- Among the block wise paddy production of Thiruvarur District the study period of during 2010-2011 to 2014-2015 the out of 10 blocks in the Thiruvarur District the mostly contribution of paddy production in Needamangalam, Kottur, Mannargudi and Valangaiman the second only the lowest contribution of Thiruvarur District the block area of Thiruvarur, Thiruthuraipoondi and Muthupettai.

Peer Reviewed Journal

A STUDY ON THE STATUS OF SANITATION AND HYGIENE FACILITIES IN UPPER PRIMARY SCHOOLS OF THIRUVARUR BLOCK, THIRUVARUR DISTRICT⁶

Ms. SANDRA SURENDRAN⁷ & Dr. M. SOUNDARAPANDIAN⁸

Introduction

Education is one of the main pillars of the human development index (HDI). The calculations of the EFA* Global Monitoring Report team show that if all students in low-income countries left school with basic reading skills, 171 million people could be lifted out of poverty, which would be equivalent to a 12% cut in world poverty. In the year 2000, the Indian government started advancing general essential training through the Sarva Shiksha Abhiyan (SSA) program, but there are a lot of burdens faced by the students to attain education in developing countries (World Bank, 2012). In numerous nations there exists a high predominance of water and sanitation-related maladies, causing many individuals, kids specifically, to become sick or even bite the dust. Improved cleanliness rehearses are fundamental if transmission courses of water and sanitation-related infections are to be cut.

The need for sanitation and cleanliness rehearsals is extremely important, the economic benefits include an overall estimated gain of 1.5% of global gross domestic product and almost US\$ 5 return on every dollar invested in water and sanitation services* (WHO). As a rule, schools are regularly something other than places for learning and conduct change. If school sanitation and cleanliness facilities are missing, or are severely kept up and utilized, schools become unsafe places where ailments are transmitted. Schools can likewise contaminate the common habitat in such a way that it causes wellbeing dangers for the network on the loose. It is along these lines significant that schools have appropriate facilities.

Objective

1. To study the status of sanitation and hygiene facilities in the selected Government schools.

Methodology

The study used primary data. Twelve Government schools in Thiruvapur block have been selected for the study. The study involved children in the ninth and tenth grades. Information about the facilities is gathered and analysed from the headmaster, staff, and children. Thiruvapur Block has a total of 45 schools (private schools, 33 and government schools 12). For this study, all the government schools were chosen.

⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Analysis and Discussion

The analyses part was done by the primary data, about sanitation and hygiene. It broadly covers the aspect of understanding the present status of sanitation and hygiene facilities of Government Schools in Thiruvavur block.

Toilet facilities

Table 1. Toilet facilities in the schools

Availability of Toilet	Yes	No	Total
	11	1	12
Types of toilet facilities for the children	Plain with slab	Pit latrine without a slab	Total
	11(91.7%)	1(8.3%)	12
Number of times of cleaning of the toilet per week	At least once per day	Less than once per week	Total
	7(58.3%)	5(41.7%)	12 (100%)
Permitted time for the usage of toilets	At all time during school time	Specific interval	Total
	4(33.3%)	8(66.7%)	12 (100%)

Table 1 shows information about the toilet facilities of the schools. It is noted that among the total schools, one boy's school does not have any toilet facilities. Ninety-one per cent (91%) toilets are pit latrines and remaining are without slabs. Fifty-eight percentages (58%) of the toilet clean at least once per day and 41% toilets in less than once per week. Specific times (Regular interval) in a day is prescribed by 58.0% of the schools for the use of the toilet by the children and no such time prescribed by the remaining schools.

- Those students who stay nearby location rarely use toilet facilities of the school.
- Toilets for boy's are not maintained properly when compared to that of toilets for girls.
- Few toilets are not cleaned properly is a matter of worry
- There are cases which students damaged the toilet facilities. Such problems occur in boys' schools. This shows the poor awareness of the students regarding the usage of toilet facilities and the need for infrastructure.
- Lack of proper staff resulted in the poor maintenance of the toilet facilities in schools. At present Rs.200 is given as daily wages for the scavengers to clean the toilets, which is less remunerative. It is also very hard to get those labourers.
- It is important to use modern equipment facilities to clean the toilets. This highlights the importance of allotting more funds.

1.2. Availability of drinking water facilities

Drinking water facilities are in terms of daily availability of water and its source.

Table 1 Average taken in the availability of drinking water facility in the schools

Availability of drinking water	Yes	No	Total
Daily availability of drinking water	11(91.7%)	1(8.3%)	12(100%)
Availability of drinking water facilities from its main source throughout the school year	11(91.7%)	1(8.3%)	12(100%)

Availability of drinking water	Yes	No	Total
Safe drinking water facilities	11(91.7%)	1(8.3%)	12(100%)
Water purifying method	Filtration 3 (25%)	Chlorination 9 (75%)	100%

Drinking water facilities are available in 91.7% of the total schools. But it is to be noted that one school doesn't have such facilities. The majority (91.7%) schools ensure safe drinking water facilities. The treatment methods followed are mainly Chlorination by 75% of the total schools and the remaining use filtration.

Observation-based on qualitative information

- Students use the same water facility for drinking and hand wash.
- Filtration facility is accessible only for the staffs for few schools
- Students use chlorine mix water quite often.

Table 3 Source of water supply

Source	Number of Schools
Protected well or Spring	10(83.3%)
Both tanker/well	1(8.30%)
Piped water supply	1(8.30%)
Total	12 (100.0%)

The 83.3% of schools use water from protected well or spring 8.30% each depend on the tanker and well and piped water supply.

Observation-based on qualitative information

The qualitative information is categorized as follows

- Water supply affects due to frequent power cut.
- Many schools take precautionary measures like pumping enough water before a power cut and they make water tanks inside the toilets
- The water tanks need to be cleaned properly.
- Other school children and people from nearby places use water facilities of some schools.

1.4. Awareness Programmes on Sanitation and Hygiene

Table 4 Awareness programmes on sanitation and hygiene practices

Awareness programme conducted	Yes 10(83.3%)	No 2(16.7%)	Total of 100%	
Type of awareness programme	Class 8(66.7%)	Drama/art 1(8.3%)	Other 1(8.3)	No programme 2(16.7%)

It is noted that 83.3% of the schools conduct awareness programmes regarding sanitation and hygiene practices. The types of these programmes mainly include awareness class.

Observation-based on qualitative information

- Students generally sensitise regarding healthy hygiene practices/personal hygiene during the morning assembly sessions.

1.5. Functional Status of Sanitation and hygiene

Table 5 Functional status of sanitation and hygiene facilities in the school

Facility	YES	NO	Total
Toilet	86	14	100
Separate sex toilets	88	12	100
Use of water	82	18	100
Use of bucket and mug	82	18	100
Drinking water	92	8	100
Hand wash	97	3	100
Use of soap	4	96	100
Use of water	96	4	100
Daily bathing	100	0	100
Daily brushing	99	1	100
Classroom cleaning	100	0	100
Teacher support for cleaning	96	4	100
Environment cleaning	97	3	100

All the schools try to maintain hygiene and provide good sanitation facilities. The status of those facilities is also found good. At the same time, effective steps must take to encourage students to use soap effectively.

Table 6 Awareness on sanitation and hygiene facilities by the children

Facility	Aware	Not aware	Total
Toilet	100	0	100
Separate sex toilet	100	0	100
Use of soap	100	0	100
Use of water	100	0	100
Use of bucket and mug	100	0	100
Drinking water	100	0	100
Hand wash	100	0	100
Use of soap	100	0	100
Use of water	100	0	100
Daily bathing	100	0	100
Daily brushing	100	0	100
Classroom cleaning	100	0	100
Teacher support for cleaning	100	0	100
Environment cleaning	100	0	100

All the students are aware of the sanitation and hygiene practices (Table 6).

The Expenditure Details on Sanitation

Table 7 Expenditure Pattern

12 schools (2018-2019)	Average	Total
Spend on sanitation	29506.9	354083
Expected fund requirements	6941.6	83300

All the government schools are getting RMSA funds according to the total number of children studying that particular school. monthly each school getting 3000 rupees for sanitation purpose. One of the school build a separate toilet for physically disabled students in the past year. However, the government is providing funds to maintain sanitation facilities in the schools it's not sufficient. The average expected fund for maintaining sanitation is Rs.29506.9 and hygiene facilities in the schools are Rs.6941 (monthly), this is the twofold measure of what the schools are getting from government. Actually school authority use PTA fund to keep up sanitation facilities in the schools, for that purpose in the admission time students are paying the high amount of Admission fee, that is contrasted with a high amount that they truly need to pay for admission.

Problems related to sanitation and hygiene practices in Government Schools

- Lack of proper maintenance of toilets. (the number of the useable toilet for both girls and boys are 50% of total school surveyed) the following table shows how clean the student's toilets are.

Table 8 Maintenance of toilets

Not good	Good	Very good	Total
2	8	2	12
16.7	66.7	16.7	100.0

- Shortage of scavengers due to fewer wages.
- For boy's toilet facilities are poor, the infrastructure itself damaged
- Dirty water tanks
- Most of the toilets are not having a bucket and mug.
- Some of the students are coming by the nearby areas of schools they are not using school toilets mostly girls.
- Pad ventilator machine is not available for the schools. The following table gave information regarding the status of pad disposal in schools.
- None of the toilets having anal cleansing material. Following table shows the details regarding this.
- Every school lacking soap in the toilet and handwashing areas.

Table 9

Machine, functioning	Machine, not functioning	Waste basket	Total
2	3	7	12
16.70%	25%	58.30%	100%

Table 10

Covered bin for pad disposal	Open basket for pad disposal	Total
1	11	12
8.3	91.7	100.0

- Lack of proper drinking water and drinking water points in the schools. The following table gave the details about drinking water points in the schools.

Table 11 Details about water drinking points

Number of drinking water points	Number of schools	Percentage
0	1	8.3
1	4	33.3
2	5	41.7
3	1	8.3
4	1	8.3
Total	12	100.0

The drinking water purification method adopted by most of the schools were chlorination, but chlorinated drinking water causes other diseases in students.

Findings

- Sanitation status of government schools understood in terms of toilet and drinking water facilities. Toilet facilities are accessible in all surveyed schools.
- There is poor maintenance of the toilet in the majority of the schools due to the shortage of scavengers. The scavengers are also not ready to work with the present remuneration of Rs.200 (Two hundred). The expenditure of the Government on this is also very minimal. The Parent-Teacher Association fund is also not sufficient in this regard.
- It is noted that students are fully aware of the sanitation and hygiene practices and they are engaging the sanitation works in the school premises.

Limited toiletries in schools are a matter of worry. Though the staff use aqua-clean drinking water facilities, students use chlorinated drinking water. The use of the same water facilities by the students for drinking and hand washing is a matter of worry.

Though the school provides proper toilet facilities, this has been mainly used by the girl students. There are cases in which many boys use open defecation in the school.

Suggestions

1. It is required to appoint permanent staff for maintaining the sanitation and hygiene in the schools.
2. Through RMSA, with the circulation of books and other scholastic stuff, the sanitation materials are likewise given to the schools.
3. Orchestrate appropriate review in schools in continuous time regarding cleanliness and sanitation through the legitimate channel and propose the assistance of Panchayats, it should be possible efficiently.

In short, the sanitation and hygiene facilities in the government schools of Thiruvavur block need to be improved. There is good awareness among the students and staff regarding the importance of sanitation and hygiene. Boys should be encouraged more to utilise sanitation facilities of the Schools. It is important to mobilise sufficient funds for improving sanitation and hygiene facilities of the schools.

References

1. Bhagavatheeswaran, L., Nair, S., Stone, H., Isac, S., Hiremath, T., Raghavendra, T., ... & Watts, C. (2016). The barriers and enablers to education among scheduled caste and scheduled tribe adolescent girls in northern Karnataka, South India: A qualitative study. *International journal of educational development*, 49, 262-270.

2. WHO. 2004. "Meeting the MDG drinking water and sanitation target: a mid-term assessment of progress."
3. UNICEF. 2005. "Lack of safe water and sanitation in schools jeopardizes quality education." Roundtable on Water, Sanitation and Hygiene Education for Schools.
4. Building toilets in rural schools is not enough, they must be usable too. (n.d.). Retrieved March 10, 2020, from <https://www.downtoearth.org.in/news/waste/building-toilets-in-rural-schools-is-not-enough-they-have-to-be-usable-too-63017#:~:text=The%20ASER%20report%20says%20the,in%20the%20last%20four%20years>
5. UNICEF, SSA. (2012, March). An overview of the status of drinking water and sanitation in schools in India. Retrieved April 5, 2020, <http://www.dise.in/Downloads/best%20practices/An%20overview%20of%20status%20of%20drinking%20water%20and%20sanitation%20in%20schools%20in%20India.pdf>
6. UNICEF. (2012, April). WASH IN ALL SCHOOLS: Making it a Reality. Retrieved April 3, 2020, from https://www.unicef.org/wash/schools/files/ROSA_WASH_in_Schools_Conference_Report_UNICEF_India.pdf
7. J. Balamurugan and M. Ravichandran. (2014). Environmental Sanitation Index for the State of Tamilnadu, India. *International Research Journal of Environment Sciences*, Vol. 3(5), 54-59, 01. Retrieved from <http://www.isca.in/IJENS/Archive/v3/i5/9.ISCA-irjevs-2014-70.pdf>

A STUDY ON SOCIO-ECONOMIC CONDITION OF MEMBERS IN SELF HELP GROUP (SHG) IN VALAMARKOTTAIAT THANJAVUR DISTRICT⁹

Dr. S. THENNARASU¹⁰

INTRODUCTION

Women play a key role in development, both in the context of the family and society at large, including the economy and social system. Women are in a strategic position in human resource development as they are the ones who are primarily involved in the upbringing of the young and manage households. They safeguard children's health and nutrition. They also tend to be better household managers and more informed producers, consumers, and Traders. Women are becoming a great force in the present-day world. The increasing female participation in all fields of activities, whether it is in the family or in the community is a visible attempt to reduce male domination. This increased participation gives them a sense of belonging, Satisfaction, and partnership in the development process. (1) It also increases the sense of 'Self-worth' which promoted the productive activity of women and calls for greater in putting in their education, Skill, Training, Health, Production of rights and employment opportunities. Enhancing women's participation. In economic development is the key to development. According to a recent World Bank report, investing in women not only results in proportionate payoffs but also promotes quicker general development.

When women move forward the family moves, the village moves. These words of Pandit Jawaharlal Nehru are often repeated because it is on the accepted fact that only when the women are in the mainstream of progress can any economic and social development be meaningful. (2) In The planned economy of India, our government was deeply concerned with the Improvement of socio-economic status of women. The five-year plans have consistency placed special emphasis to improve the conditions of women and integrate them in economic development process. In the ninth plan also attention was given to the empowerment of women and socially disadvantaged groups as agents of socio economic change and development. By introducing various schemes, government created self-employment among women when women are economically free, they will have an individual status of their own and intellectual creative abilities are also fulfilled.

As women rise in economic status, they will gain greater social standing in the household and the village and will have greater voice. As women gain influence and consciousness, they will make stronger claims to their entitlements gaining further training better access to credit and high incomes and command attention of police and courts when attacked. (4) If India is to march into the new millennium as a progressive nation, half of its population comprising women must grow and have position self-image. Without the all-round development of women nothing can be achieved points Nehru rightly observed that the status of women reflects the character of the country. Today the women's concern in all sectors has been flagged.

⁹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Objectives of the study

- ❖ To examine the role of SHGs in promoting economic empowerment through members.
- ❖ To study the socio-economic condition of members in SHG in the study area.
- ❖ To summarize the findings of the study and provide suggestions for improving socioeconomic development of rural women through SHGs.

Methodology

The present study analyze the socioeconomic condition of member in a study on socio-economic condition of members in self-help group (SHG) in Valamarkottai at Thanjavur district. The study has relied both on primary and secondary data, present study is conducted on Valamarkottai village the total respondents are 20, collected non-randomly from Self-help Group members.

Results and Discussion

Age

Age of the respondents is an important demographic variable that determines an individual's physical and mental maturity. It also determines whether one is economically active or dependent upon others. The decision-making ability of women is determined through her experienced come acrossed in the life with various difficulties as well as sweet and bitter experiences. In this chapter, the classification of the respondents according to age has been studied and the details are shown in the following table.

Table 1: Age wise classification of the respondents

S. No.	Age in Years	No. of respondents	Percentage
1	20-25	2	6.67
2	26-30	5	16.66
3	31-35	4	13.33
4	36-40	8	26.67
5	40 Years and above	11	36.67
Total		30	100.00

Source: Primary data

Table 1 gives age details of the selected respondents. It is observed that the SHG members belong to the age group of 20-25 years to 40 years and above. Among the respondents, 36.67 percent belong to the age group of 40 years and above, 26.67 per cent of them to the age group of 36-40 years and 16.66 percent of them are in the age group of 26-30 years.

Table 2: Community wise classification of the respondents

S. No.	Community	No. of respondents	Percentage
2	Backward Caste	2	6.67
3	Most Backward Caste	28	93.33
Total		30	100.00

Source: Primary data

The above table reveals the social group caste wise classification of the respondents. Among the selected respondent's 6.67 percent belong to Backward Class (BC) 93.33 percent respondent percent belong to Most Backward Class (MBC).

Table 3: Distribution of respondents based on their education

S. No.	Level of Education	No. of respondents	Percentage
1	Illiterate	7	23.3
2	Primary	5	16.67
3	Secondary	11	36.67
4	Higher Secondary	6	20
5	Graduate	1	3.33
Total		30	100.00

Source: Primary data

The above table reveals the Educational wise classification of the respondents among the selected respondents 36.67 percent belong to secondary. 20 respondents are coming order primary education 16.67 percent, 3.33 per cent have studied up to undergraduate, 23.3 per cent are illiterates.

Table 4: Classification of income per month of the respondents

S. No.	Income in range (Rs.)	No. of respondents	Percentage
1	5000-10000	9	30
2	10000-20000	21	70
Total		30	100.0

Source: Primary data

The above table reveals the income-wise classification of the respondent majority of the respondents that 30 percent are earning income between Rs.5000-10000, 70 percent of the respondents are earning income Rs.10000-20000, The main inference is that the economic status of the respondents is good

Table 5: Classification of per month expenditure the respondents

S. No.	Income in range (Rs.)	No. of respondents	Percentage
1	1000-5000	5	16.67
2	5000-10000	25	83.33
Total		30	100.0

Source: Primary data

The above table reveals the per month expenditure wise classification of the respondents. Among the selected respondents 16.67 percentage respondents belong to Rs.1000-5000, 83.33 percent respondents belong to Rs.5000-10000.

Table 10: Savings of amount wise classification of the respondents

S. No.	Saving in range (Rs.)	No. of respondents	Percentage
1	500-1000	11	36.67
2	1000-10000	6	20
3	10000-20000	13	43.33
Total		30	100.0

Source: Primary data

The above reveals the savings of the respondent among the selected respondents 43.33 percent belong to (Rs.500-1000), 36.67 percent respondents belong to (Rs.10000-20000), 20 percent respondents belong (Rs.1000-10000).

CONCLUSION

On the basis of the findings of the studies it can be contended that though both the SHG and non-SHG respondents belong to the same socio-economic background, the SHG respondents are more empowered than the non-SHG respondents. The empowerment of women through SHGs shows that the respondents have become economically self-reliant. They have built leadership qualities and have become more confident after joining SHGs. SHG members have gained societal respect and an improvement in the decision making of the family. The respondents have also increased their assets after joining the group. However, from the data, on the empowerment of non-SHG respondents it is evident the respondents have not joined SHG as they cannot manage time for the various activities within SHG. Their non-membership made 95% respondents totally dependent on husband and family for income. They do not have savings of their own and depend on money lenders. 90% of 91 the non-SHG respondents do not participate in social activities and have no knowledge about social issues. As they lack exposure and participation they are not confident enough. The former is more empowered because their participation in SHGs has made them more knowledgeable, confident, and assertive which is mostly lacking among the latter.

Suggestions

1. All the SHG members must be trained properly because their potential can be maximum used.
2. The stipend for the training of SHG members must be given appropriately because it works as motivational amount.
3. Timely inspection of SHGs should be for the betterment of the functioning of SHG.
4. Bank has to inform the SHG about the new schemes or plan.

THANJAVUR DISTRICT EDUCATIONAL PROFILE¹¹

Dr. S. RAJARAJESWARI¹²

INTRODUCTION

Education is the true essence of human development. Education provides a foundation for development, the groundwork on which much of our economic and social well being is built. It is the key to increasing economic efficiency and social consistency. Education increases the accessibility of people to modern and scientific ideas. It increases the efficiency and ability of people to absorb new technology. It creates awareness of the available opportunities and mobility of Labour. Investment in education is one of the main sources of human capital which facilitates inventors and innovations. Available educated labour force facilitates adaptation of advanced technology in a country. Education in every sense is one of the fundamental factors of development. No country can achieve sustainable economic development without substantial investment in human capital. Education enriches people's understanding of themselves and world. It improves quality of their lives and leads to broad social benefits to individuals and society.

Education raises people's productivity and creativity and promotes entrepreneurship and technological advances. In addition it plays a very essential role in securing economic and social progress and improving income distribution. The paper mainly attempts to explain the educational profile of Thanjavur Dt. Thanjavur District is one of the 38 districts of the state of Tamil Nadu, in Southeastern India. Its head quarters is Thanjavur. The district is located in the delta of the Cauvery River and is mostly agrarian. As per the 2021 data Thanjavur District had a population of 25.42 lakhs. There are 9 taluks are included in this district. Namely Kumbakonam, Papanasam, Pattukkottai, Peravurani, Orathanadu, Thiruvaidaimaruthur, Thiruvaiyaru and Budalur official language is Tamil. Census is the process by which the information of a given population is calculated on the basis of economical, educational and social records in a given period of time. So this paper analyze the census data of Thanjavur District.

CENSUS WISE POPULATION IN THANJAVUR DT.

Year	Male	Female	Total
2001	1,096,638	1119500	21.16 lakhs
2011	1,182,416	1,223,474	24.06 lakhs
2021	1,371,721	1,419,352	27.91 lakhs

Source: Indiacensus.net

The above table explains that the total population growth is 3.31% in 2001 to 2021 census. Present metropolitan area population of Thanjavur District in 2021 was 27.91 lakhs. Population density of Thanjavur District is 691 Per.Sq.km. In Thanjavur Educational district, **281 Primary schools, 67 Middle schools, 59 High schools, 58 Higher secondary schools** are functioning. In Pattukkottai Educational district, 461 Primary schools, 98 Middle schools, 90 High schools, 77 Higher secondary schools are functioning.

¹¹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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All the Schools in Thanjavur district under the control of Department of School Education and Elementary Education, are functioning as usual for the classes from 1st Standard to 12th Standard. The schools include Primary/Middle/High/Higher Secondary. For administrative purpose these schools are classified as Govt. (Municipal/Corporation, Adi Dravida Welfare, Social Welfare, Aided, Self finance, and Matriculation Schools.

For all the High and Higher Secondary schools located in the revenue district of Thanjavur, the CEO is the administrative head and the three Educational districts of Thanjavur, Pattukkottai, Kumbakonam are functioning under the control of DEOs respectively. In Elementary Education, all the primary and Middle schools are functioning under the control of respective AEOs at the Union/Block level. For these schools at the revenue district level, the DEEO is the controlling officer.

TAMIL NADU LITERACY RATE

S. No.	District Name	Population	Literates	Literacy
1.	Kanyakumari	1,870,374	1,548,738	91.75%
2.	Chennai	4,646,732	3,776,276	90.18%
3.	Thoothukudi	1,750,176	1,349,697	86.16%
4.	The Nilgiris	735,394	569,647	85.20%
5.	Kanchipuram	3,998,252	3,013,382	84.49%
6.	Tiruvallur	3,728,104	2,791,721	84.03%
7.	Coimbatore	3,458,045	2,635,907	83.98%
8.	Nagapattinam	1,616,450	1,213,008	83.59%
9.	Madurai	3,038,252	2,273,430	83.45%
10.	Tiruchirappalli	2,722,290	2,038,981	83.23%
11.	Tiruvarur	1,264,277	946,471	82.86%
12.	Thanjavur	2,405,890	1,790,998	82.64%
13.	Tirunelveli	3,077,233	2,273,457	82.50%
14.	Ramanathapuram	1,353,445	978,946	80.72%
15.	Virudhunagar	1,942,288	1,398,788	80.15%
16.	Sivaganga	1,339,101	959,744	79.85%
17.	Vellore	3,936,331	2,773,928	79.17%
18.	Tirupur	2,479,052	1,760,566	78.68%
19.	Cuddalore	2,605,914	1,815,281	78.04%
20.	Theni	1,245,899	870,080	77.26%
21.	Pudukkottai	1,618,345	1,110,545	77.19%
22.	Dindigul	2,159,775	1,481,834	76.26%
23.	Karur	1,064,493	727,044	75.60%
24.	Namakkal	1,726,601	1,176,131	74.63%
25.	Perambalur	565,223	375,823	74.32%
26.	Tiruvannamalai	2,464,875	1,626,813	74.21%
27.	Salem	3,482,056	2,285,562	72.86%
28.	Erode	2,251,744	1,492,662	72.58%
29.	Viluppuram	3,458,873	2,195,776	71.88%
30.	Krishnagiri	1,879,809	1,187,958	71.46%
31.	Ariyalur	754,894	480,604	71.34%
32.	Dharmapuri	1,506,843	917,709	68.54%
Literacy rate in Tamil Nadu				80.09%

Source: indiaCensus.net

- Average Literacy rate of TN in 2021 – 80.09%.
- Highest Literacy Rate District is Kanyakumari – 92.14%
- Lowest Literacy Rate District is Dharmapuri – 68.54%
- Thanjavur Literacy Rate is 82.64% in the place of 12th.
- There are 9 Taluks in Thanjavur District namely Kumbakonam, Papanasam, Pattukkottai, Peravurani, Orathanadu, Thiruvudaimaruthur, Thiruvaiyaru and Budalur.

LITERACY RATE OF THANJAVUR DISTRICT

Sl. No.	Year	Male	Female	Average
1	2001	84.47%	66.70%	75.48
2	2011	89.04%	76.50%	82.64
3	2021	94.80%	87.92%	91.26

STANDARD WISE ENROLLMENT OF STUDENTS IN THANJAVUR- 2021

Standard	Government	Other Schools	Overall
1	12088	21847	33935
2	12112	20921	3033
3	12873	20397	33270
4	13518	19934	33452
5	13798	20757	34555
6	13992	19729	33721
7	13501	19522	33023
8	13334	19813	33147
9	14326	20448	34774
10	13671	30771	34442
11	12711	18574	31285
12	11164	18407	29571
	157088	241120	398208

The above table shows the Students Enrollment of Government School and Private School standard wise in Thanjavur District in the year of 2021. Overall the enrollment of students at different standard is more or less remain constant around Thirty Thousand. When compare to the enrollment of students at Private school is higher than Government School. The main inference of the table is that during pandemic period also enrollment is high at Private School Compared to Government School.

The type educational institutions in Thanjavur District are as follows:

S. No.	Types of Colleges	Numbers
1.	Arts and Science Colleges	32
2.	Medical College	1
3.	Engineering College	50
4.	Teachers Training College	36
5.	College of Arts and Crafts	1
6.	College of Music	1
7.	Polytechnics	17
8.	Teachers Training Institutions	36
9.	Industrial Training Institutions (MSMEs)	6781
	Large Scale Units	9

Schemes and Beneficences Implementation of Schemes for the betterment of students welfare.

Year	Name of the Scheme	Standard of Students of Beneficiaries
2016-17	Distribution of Crayons and colour pencils	III std to V std
2016-17	Free School Bag Distribution	
2016-17	Free Geometry Box Distribution	VI Std only
2016-17	Free Chappal to school distribution	I td to X std
2016-17	Atlas – Map Distribution	VI std only
2017-18	Distribution of Crayons and colour pencils	I std to V std
2017-18	Free School Bag Distribution	
2017-18	Free Geometry Box Distribution	VI Std only
2017-18	Free Chappal to school distribution	I td to X std
2017-18	Atlas – Map Distribution	VI std only
	Mobile Psychological Counseling Centre	IX to XII std

ROLE OF SELF HELP GROUPS IN EMPOWERING WOMEN IN THANJAVUR DISTRICT¹³

Dr. S. RAJESWART¹⁴ & Prof. V. VALARMATHY¹⁵

Introduction

India lives in her 6,38,345 villages with 24 crore poor engaged in micro enterprises. The credit needs and other financial services are provided to the rural masses in general and to the poor in particular through the rural financial markets comprising an unorganized sector 'consisting of commission agents, moneylenders, landlords, etc., and an organized sector consisting of pyramid type cooperative credit institution broadly classified into urban credit cooperatives and rural credit cooperatives. In order to enlarge the flow of credit to the hard-core poor, NABARD launched a scheme of organizing them in self-help groups (SHGs) and linking the SHGs with banks, in 1992.

The scheme is broadly on the pattern devised by Bangladesh Grameen Bank. Under the scheme, poor, preferably the women are organized in SHGs and banks financing these SHGs for on lending to poor are eligible for concessional refinance from NABARD. Women represent 50 per cent of the world's population, produce half the world's food supply, account for 60 per cent of the working force, contribute upto 33.3 per cent of the official labour force, perform nearly 66.6 per cent of all working.

Concept of Self Help Groups

The concept of Self Help Groups serves to underline the principle "for the people, by the people and of the people". The Self Help Groups is the brainchild of Grameen Bank of Bangladesh, which was founded by Prof. Mohammed Yunus of Chittagong University in the year 1975. The Self Help Groups scheme was introduced in Tamilnadu in 1989. The activism within the women movement has influenced the government to frame policies and plan for the betterment of the country. The empowerment of women through Self Help Groups (SHGs) would lead to benefits not only to the individual women, but also for the family and community as a whole through collective action for development. Self Help Groups have linkages with NGOs (Non-Government Organizations) and banks to get finance for development. In turn it will promote the economy of the country by its contribution to rural economy. Self Help Groups are small voluntary associations of rural people, preferably women folk from the same socio-economic background. They come together for the purpose of solving the common problems through self-help and mutual help in the Self Help Groups

Objectives

1. To study the socio-economic background of the women beneficiaries and their family characteristics.
2. To analyse the income, expenditure and savings pattern of the Self Help Groups members.
3. To study the level of satisfaction of members of Self Help Group.

¹³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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4. To find out the problems faced by the members of Self Help Groups.
5. To explore future strategies and to suggest measures for the better management of Self Help Groups.

Research Methodology

Both primary data and secondary data have been for analysis. Primary data were collected by interview schedule method. Secondary data were collected from websites and subject books. Simple frequency tables and charts were constructed for the purposes of analysis of data. Convenient sampling method is used to select the respondents. The present study has covered the Thanjavur District. It was selected for this study, because of the Self Help Groups members are functioning in a successful manner. The Research Questions formulated are given below.

Findings of the Study

1. Majority (37.5 Percent) of the respondents of the Self Help Group members are belonging to age group of 31 to 40 years.
2. Majority (76 Percent) of the members are literate in self help groups.
3. Majority (67.5 Percent) of the respondents are nuclear family.
4. Majority (79 Percent) of the respondents are married.
5. Majority (29 Percent) of the respondents fall under category of house wife in the occupation status.
6. Majority (42 Percent) of the Self Help Group members family earning members are two.
7. Majority (62 Percent) of the Self Help Group respondents family members between 3 to 5.
8. Majority (45 Percent) of the respondents monthly income are below Rs.5000.
9. Majority (39 Percent) of the respondents opinion regarding for enriching the saving for joining self help group.
10. Majority (46 Percent) of the respondents have membership for more than 4 years.
11. Majority (47 Percent) of the respondents attend the meeting weekly once.
12. Majority (34 Percent) of the Self help group members Self Help Group are linked with the State bank of India.
13. Majority (46 Percent) of the respondents have invested less than Rs.10,000 in their venture.
14. Majority (31 Percent) have started small petty shop through self help group.
15. Majority 80 Percent of the respondents are motivating others to join Self Help Group.
16. Majority 52 Percent of the respondents have attended the training programme.

Suggestions

1. Steps must be taken to create awareness about Self Help Groups among students.
2. Self Help Group is a powerful tool to enrich the savings activities and poverty alleviation. In this context support by the government and uplift the women through Self Help Group oriented developments, is essential.
3. In order to strength the women empowerment, female literacy has to be promoted
4. Rotation of responsibility has to be made compulsory, so that it will lead to participation by all members.
5. The group leader educates the entire team to manage the groups and maintain accounts and other record of the groups. It may lead to lopsided empowerment and not empowerment in the full sense.

Conclusion

The study was undertaken to identify women empowerment through Self Help Group in Thanjavur District. It is found that the socio- economic factor has been changed after joining the Self Help Groups. But the saving is increasing at earlier stage of life. There are emerging issues that need to be addressed to make the role of women in the long run. It is clear that by involving voluntary organizations in social mobilization and creating an enabling policy environment, micro finance can achieve a vast scale and can become a rational movement. The self help group is important in re-strengthening and bringing together of the human race. We may conclude that the economic activities of Self Help Group are quite successful. The new millennium has thrown many challenges subjecting many nations to undergo transformation cutting across their established tradition and culture. New issues have to be addressed to effect social and economical progress of our nation. The most important one is women's empowerment through Self-help groups. SHGs have undoubtedly begun to make a significant contribution in poverty alleviation and empowerment of poor, especially women in rural areas of our country. Women are the vital infrastructure and their empowerment would hasten the pace of social development. Investing in women's capabilities and empowering them to achieve their choices and opportunities is the definite way to contribute to economic growth and overall development. The empowerment of rural women leads to benefit not only of individual women and women groups, but also the families and the community as a whole.

The present study is an attempt to analyse the socio-economic development of members and the performance of SHGs in this district. The performance of SHGs was good. Self Help Groups created greater impact on the lives of women.

Women's participation in SHGs has enabled them to discover inner strength, gain self-confidence, social, economic, political and psychological empowerment and capacity building. If the aforesaid suggestions are carried out by the authorities concerned, the SHGs will improve in future.

Reference

1. Gupta, S.P. (2006). Statistical Methods, Sultanhand and Sons Educational Publisher, New Delhi.
2. Kothari, C.R. (2004). Research Methodology Method and Techniques, New Age International.

A STUDY ON AWARENESS OF INVESTORS ABOUT THE MUTUAL FUND INVESTMENTS IN THIRUVARUR TOWN¹⁶

Dr. P. RAGU¹⁷

Introduction

A Mutual Fund is a trust that pools the savings of a number of investors who share a common financial goal. The money, thus collected, is then invested in capital market instruments such as shares, debentures and other securities. The income earned through these investments and the capital appreciation realized is shared by its unit holders in proportion to the number of units owned by them. Thus, a Mutual Fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost. Monthly income plans invest maximum of their total corpus in debt instruments while they take minimum exposure in equities. It gets benefit of both equity and debt market. These schemes rank slightly high on the risk return matrix when compared with other debt schemes. There is considerable amount of research being done regarding investment in mutual funds. However, very little research has been done to study the perception of investors regarding investment in mutual funds especially monthly income plans funds.

Mutual Fund

A mutual fund is a company that pools money from many investors and invests the money in securities such as stocks, bonds, and short-term debt. The combined holdings of the mutual fund are known as its portfolio. Each share represents an investor's part ownership in the fund and the income it generates.

Indian Financial System

Indian financial system is based on four components: financial market, financial institutions, financial services and financial instruments. Out of which financial markets are the backbone of the economy and it attracts more investors to invest in the financial market. The small investors also invest money in the financial market through the mutual funds.

Benefits of Investing in Mutual Funds

- Professional Management
- Diversification
- Liquidity
- Flexibility
- Low Transaction Cost
- Transparency
- Well Regulated

¹⁶ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Statement of the Problem

The importance of a study regarding the perception of investors towards an investment avenue does not need an emphasis. How does an investor perceive an investment avenue? What factors influence the perception levels of the investors? How does an investor perceive and mitigate risk in an investment avenue? How does an investor perceive the mutual fund as an investment avenue? How does an investor perceive the mutual fund in relation with equity shares? How different demographic factors like gender, age, income level, occupation, experience, aggression, investment pattern of investors influence the perception of the mutual funds and equity shares? To answer these questions, this study is a humble attempt to gauge the awareness and knowledge of mutual funds amongst the B-15 cities in India with reference to Thiruvavarur town.

Importance of the Study

Now a day mutual fund investments are the good source of investments and it is more useful for the salary class people for getting tax benefit. Mutual fund industries are gaining importance because the salaried class people and the middle income people prefer their investment preferable avenue for their investment destination. There is traditional investment option are available like gold investment, Government bonds, real estates, post office savings schemes, insurances and fixed deposits. Even though irrespective of their age, gender and their income most of the investors are gaining awareness about the mutual funds. Thus indirectly help to mobilize the capital formation. Yet there are a lot of hurdles faced by the investors to invest in mutual funds because of lack of awareness. In fact, many a times, people investing in mutual funds too are unclear about how they function and how one can manage them. So the organizations which are offering mutual funds have to provide complete information to the prospective investors relating to mutual funds main reason for the study.

Objectives of the Study

1. To find out the factors influencing the investors in selecting mutual fund and equity.
2. To study the awareness, satisfaction and preference towards the schemes of mutual funds.

Methodology

A descriptive research has been conducted by reviewing the literature on the subject followed by a survey method to elicit information from investors and investment consultants dealing with mutual funds and equity. The primary data are collected from 50 respondents who invested in mutual funds in Thiruvavarur.

Results and Discussion

Among the 50 sample respondents, 20 (40%) have chosen the mutual funds for portfolio diversification, 17 (33%) for the professional management of the fund managers are closely associated with mutual funds and the rest 13 (26%) have said that the risk reduction as the benefits associated with the mutual fund investments.

Among the 50, 13 (26%) said that they have high confidence in mutual funds, 19 (38%) said that they have a moderate level of confidence in mutual funds and the rest 18 (36%) found having have a low level of confidence in mutual funds.

Findings

- Seventeen respondents (34%) found earning Rs.5 to 10 lakhs per annum.
- Twenty-three respondents planned their investments with Tata Mutual Funds.
- Given importance to low cost, high benefit and safety.
- Only 20 respondents (40%) felt that it was risky to invest in mutual funds.
- Accepted that the funds offer the flexibility and convenience for investments.
- Diversification of portfolio is the benefit associated with the mutual funds.
- Majority of them are aware of the tax plan, that render the benefit to the people at the time of return submission with IT department. The next preference of the respondents is children savings plans (26%).
- Mostly 5 to 10% of their income has been invested in mutual funds.
- Mostly expected 5 to 10% return for their investment.
- A level of high awareness on the protection mechanism of Government has been observed.

Conclusion

In the dynamic environment a lot of investment opportunities are available to the investors in the financial markets. Investors can invest in shares, bonds, debentures, gold, bank deposits, post office savings schemes, chit funds etc. But nowadays investors prefer to diversify their risks and the returns should be high, tax exemptions etc. Today many institutions are busy in providing wealth management services to its investors. But these services are very costly. Due to this reasons the mutual fund industries gaining importance and attracts more investors.

References

1. Binod Kumar Singh, (2011), A Study on Investors Attitude towards Mutual Funds as an Investment Option, Journal of ASIAN Business Strategy, Vol.1(2), 8-15.
2. Vennila. V & Nandhagopal. R, (2012), Investors Preference towards Mutual Funds in Coimbatore City, European Journal of Social Sciences ISSN-1450-2267, Vol.29, No.1, PP.115-125.
3. Rathnamani.V, (2013), Investors Preferences towards Mutual Fund Industry in Trichy, IOSR Journal of Business and Management, Vol.6(6), 48-55.

Three Farm Laws

Peer Reviewed Journal

Peer Reviewed Journal

THE THREE FARM LAWS – PROS & CONS¹

Dr. G. KAVITHA² & Dr. S. SHAFINA BANU³

INTRODUCTION

The recent political scenario of the India has been too heated up, owing to the enactment of three legislative pieces concerning the farm activities in India. Agriculture in India concerns everyone, occupation wise more than half of the Indian population of India is connected with agriculture directly or indirectly and it has approximate 17 %share in GDP of India. It is naturally expected that any major reform in such a hectic economic activity is sure to bring strong reactions from the stockholders. The traditional society of our country is generally less adaptable to reforms. It is not that they are totally averse to any change but it only means that their views about the change of any established norms are, “skeptical”. As the discourse is to be zeroed-in about the recent farm laws enacted in 2020 i.e. 1. The Farmer’s Produce Trade and Commerce (Promotion and Facilitation) Act, 2. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Service Act, and 3. The Essential Commodities (Amendment) Act, in the upcoming paragraphs, we shall be presenting a neutral analysis of the pros and cons of the acts. We shall also be forwarding our viewpoints as to what minimum amendment should be made in order to make them viable and acceptable to the masses at large.

THE THREE LAWS

1. The Farmer’s Produce Trade and Commerce (Promotion and Facilitation) Act, 2020.

The act was promulgated in the form of ordinance and came into effect on 05th June, 2020. The act is primarily aimed at giving freedom to the farmers to sell their product outside the present *Mandis* as established under the respective States APMC (Agricultural produce marketing committee). This is aimed at liberalizing and expanding the farmers’ capacities and is intended to provide them benefits of free trade. A brief projected pros and cons along with the suggested measures are given below:

Pros

- The farmer shall be free to sell their product anywhere in India, where he is getting the best price for their produce. This will also give a boost to previously implemented NAM (National Agriculture Market) by Government of India, (GoI), which is an online platform for agricultural commodity price discovery.
- Removal of intermediary is the most impressive outcome, as it is well known fact that these intermediaries used to get the profit just by trade at the cost of the producer, without engaging in any kind of agricultural activity. Thus the direct link will be created between the producer and buyer and thus, the profits of former will increase and the purchasing cost for the latter will decrease.

¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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- To some extent, it will remove the corruption and the time delay which the earlier inter-state trade used to do, although, GST act of 2017, has already addressed the issue of time laps in inter-state trade.
- The farmers are free to continue to sell their produce to the prevailing structure of APMCs and there is no denying the fact that the scope and the freedom to the farmers actually has been widened and for some farmers an arena of floodgate of opportunities has been opened.
- The resultant reduced price of agri-commodities for agro-processing units will further strengthen the consumer welfare through reduced costs delivery to consumer at large. It will also enhance the competitive position of the processing industrial units due factors like short period delivery, widened scope to choose produce from and cost effectiveness.
- Last but not the least being that the farmers will not be levied any charge or market fees for selling their produce and they shall not be required to pay for transportation as well.

Cons

So far so good but the critics have their own views. The law is ideologically perfect but is strange when we explore the ground realities of the Indian agriculture scenario. India is a country where more than 80 percent of the farmers are small and marginal. They have land holding which are not even economical and are insufficient to even rare their own facilities not to talk about the residual produce to provide for the market. There is a fear in the mind of public at large that in the long run the *mandis* established under State APMC will be closed through a well thought plan of the traders' community and once this happens the system of the guaranteed MSP shall be automatically eradicated and in a few years the whole of the agricultural output will be managed and sold at the mercy of the trader's community, who can play havoc without the intervention of the government.

2. The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Service Act, 2020

The act is aimed at giving legitimate status to a farm contract to be entered between the farmers and sponsors. The purpose of the act is to make the farming an assured profit-making occupation as it is conceived that the sponsors shall contract with the farmers in advance for producing the crop and the price of which shall be agreed upon before the cropping process initiates. This way the farmers shall be able to have assured income and the risk of market which in general parlance called, "Poverty midst adequacy", shall be mitigated.

Pros

- As the provisions entail an exhaustive contract which shall be covering most of the foreseen condition in advance, so there shall be surety of the income to the farmer. It is also expected and as learned from the past experience that when the sponsors (companies) contract for the farm produce they additionally adopt the mentoring roll along with aiding the farmers with expert supervision, provisioning quality seeds and other ancillary inputs like pesticides, and also aid by such additive measures like advance credit, training and procurement of farming equipment's.
- The farmers shall be buffered from the fluctuation as caused by the free play of the market forces and additionally be compensated from the unforeseen events like natural disasters or destruction of the crop due "*Force Majeure*", due provision of the insurance

in the contract. Thus, this is a win-win situation to both the farmer and sponsors, as the farmers' income is protected and at the same time the sponsors shall be able to get the desired quality, grade and standard farm produce which shall suit to his further process.

- The government has endeavored to protect the interest of the farmers by way of denying any kind of contract terms jeopardizing the ownership or the chances of partial treatment with the farmers by proposing of third-party grade certification for ensuring transparency.
- The interest of the farmers has further been protected in the dispute Redressal mechanism where the maximum amount to be recovered has clearly been mentioned, further stating that no order for recovery due default from the farmer shall be passed if the default is due to *Force Majeure* (natural calamities or any factor out of control of farmer). This provision of the act clearly gives a tilt in favor of the farmers.
- Other important provision is that the dispute redressing power is provided to Sub divisional officer having all the powers of civil court. There is also provision for appeal for both the parties (farmer and sponsor) and same is to be resolved within a period of 30 days. This will definitely remove the fear of future uncertainties and undue delay caused by sluggish justice delivery system in India. There is a clear provision that no recovery of dues should tantamount to selling the land of farmers in any of its forms besides farming activity.

Cons

The drawbacks of this act seem to be both for farmers as well as sponsor. The major issue with the farmers is with their lower literacy levels. Their vulnerability multiplies with the status of land holding as more than 80 per cent of these are marginal in nature. In such scenario, it is to be assured that farmers may get the immediate legal help in case of dispute. There are various infrastructures available with the Government e.g. District Legal Service Authority which can be among helping hands in getting more awareness with acts and resultant rights. The drawback for the sponsor is when it has to deal with large number of smallholders which seems to be infeasible. The apparent solution seems to be given in the FPO concept. It is worth noting that in a society like India, had such concept like the accepting the group terms been successful idea, then the menace of small holding and the entire associated problem could have been eradicated long back by adopting to the co-operative farming. It is explicitly clear that in India where cooperative farming is unacceptable, the concept like FPO is also doomed to meet the utter failure in medium to long term. Thus, in the present ground realities if this act is to be applicable then it is applicable only in relation to the handful prosperous farmers. FPOs need to be made more popular and feasible.

Further, the capability and the capacity of the contracting parties also raise a serious concern. Though equality before law is part of Right to Equality and is explicitly mentioned as fundamental right (Article 14) in the constitution, but delivery of justice also demand certain resources and competencies, thus, the sponsor will be in comparative stronger position in case of dispute redressal. It is but obvious that the sponsor is likely to have the greater say in contract performance. This vulnerability should be sensitized to the officers dealing in dispute redressal from time to time.

3. The Essential Commodities (Amendment) Act 2020

This piece of legislation has been enacted in order to amend the original Essential Commodities Act 1955 and came into force from 05th June 2020.

Pros

As contrary to the prevailing misconception of the public at large, this act has not taken out all the powers of the government intervention in case of any of the foul play of the forces of the market. In case of severe price rise, the act explicitly puts the cap on the storage limits barring a few exceptions. Further in case of any unusual price rise of the commodities mentioned in the act i.e., cereals, pulses, oilseeds, edible oils, onion, potatoes etc. a clear-cut formula for holding capacities has been devised, thus, while on one hand it gives free play to the market forces and boosts business by removing unnecessary government intervention on the other hand it keeps space for the intervention if the stock holding cause the artificial price uprising by creating deficiency of the commodity in the market. Due the amendment the sponsors shall be promoted to have contracts with the farmers to their full capacity and the road blocks for effusive flow of the business activity have been removed without jeopardizing the interest of the farmers.

Cons

The legislation is not beyond all criticism and it needs to be criticized on the ground that the present legislation is reactive in nature. Firstly, it allows those conditions which can lead to an ailment then it suggests the measure to cure the menace. One serious question keeps on haunting is that why the unlimited stocks have been allowed to be kept. What an entity will do with the stocks of farm products which are beyond their processing/exporting capacity. Besides profiteering, what shall be the motive of holding such extra stocks. Thus, every such entity will try to artificially create market supply shortfall in order to boost the market price. This will eventually exploit the Indian consumers and the government will intervene only when the cost of the horticulture products raises two times the average price and that of non-perishable agricultural food stuff 1.50 times, thus in every case consumer is allowed to be exploited to the extent of 1.99 times and the 1.49 times the average price respectively.

Remedy

Legislation should be created to avoid the disorders and not to create the stimulus for it initially and to swing into action to streamline the things at the later stage. It is what the present amendment seems to be doing. So being proactive it should put a cap on the maximum stockpiling capacity to the certain extent. It may be two times or catering to the eventuality of repeated crop failure three times of the processing capacity/expected export possibility of the year. If the government aims at promoting warehousing and cold storage chain in order to avoid the waste of the food produce then it may take up the venture in the PPP (Public private partnership) model separately and should not merge the two different things. The PPP venture in storage capacity building itself likely to be a mega success story as India has witnessed in other departments of India.

A STUDY ON LAW OF FARMER'S PRODUCE TRADE AND COMMERCE (PROMOTION AND FACILITATION) BILL 2020 RELATING TO DIGITALIZATION THE MARKETING OF AGRICULTURAL PRODUCTS⁴

R. VIGNESH⁵ & Dr. M. SOUNDARAPANDIAN⁶

Introduction

Agricultural business sectors in India are primarily managed by state Agriculture Produce Marketing Committee (APMC) regulations. APMCs were set up with the goal of guaranteeing fair exchange among purchasers and merchants for powerful value revelation of farmers' produce. On 14th September 2020, The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020 were introduced in Lok Sabha by Union Minister of Agriculture & Farmers' Welfare, Rural Development & Panchayati Raj, Shri Narendra Singh Tomar, to replace ordinances promulgated on 5th June 2020. On 17th September 2020, Lok Sabha passed. The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020. It allows intra-state and inter-state digital trade of farmers' products beyond the physical premises of Agriculture Produce Marketing Committee (APMC) markets, so the state governments are prohibited from levying any market fee, cess, or levy outside APMC areas. This paper discusses The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020, in detail.

According to the Union Minister of Agriculture & Farmers' Welfare Shri Narendra Singh Tomar, farmers will now have freedom for direct marketing of their products and will be able to get better prices, Minimum Support Price (MSP) procurement system will continue, consumers also will benefit. This paper reviews the information about the pros and cons of the law of The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020. (The Gazette of India, 2020)

Objectives

The main Objective is to find out the pros and cons of the law of Farmers Produce Trade and Commerce (Promotion and Facilitation) Bill 2020 from the farmer's perspective.

Methodology

Secondary data have been collected and used to determine the pros and cons of Farmer's Produce Trade and Commerce (Promotion and Facilitation) Bill 2020 in India. The data was collected from the Annual Report of the Ministry of Agriculture and Farmers Welfare, Government of India, Gazette of India, Ministry of Law and Justice (Legislative Department) The collected data are analyzed.

⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Result and Discussion

The data review was presented in these sections. It deals with the pros and cons of Farmer's Produce Trade and Commerce (Promotion and Facilitation) Bill 2020 in India.

Farmers Produce Trade and Commerce (Promotion and Facilitation) Bill 2020

This act provides for the creation of an ecosystem where the farmers and traders enjoy the freedom of choice relating to the sale and purchase of farmers' produce, which facilitates remunerative prices through competitive alternative trading channels; to promote efficient, transparent, and barrier-free inter-State and intra-State trade and commerce of farmers' produce outside the physical premises of markets or deemed markets notified under various State agricultural produce market legislations; to provide a facilitative framework for digital trading and for matters connected therewith or incidental thereto. (National & Pillars, 2017; The Gazette of India, 2020)

Pros and Cons

The benefits of the law to the farming community are

Farmers have got a new option in that they will have the freedom to sell their produce outside the APMC (agricultural produce market committee) market, and there will be no tax on such trade, which will give a higher price to the farmers. Farmers can sell their produce within the state or anywhere else in the country, and there will be no restriction on this type of trade. This will benefit the farmers that they will be able to sell their produce to the merchant wherever they get a higher price. There will be no need for any kind of license for traders to purchase agricultural produce of farmers in the trade area outside the APMC mandi. However, also those holding PAN cards or any other document notified by the Central government can join this trade. This will facilitate trade in agricultural products and will benefit the farmers.

In case of any dispute arising in such business, the matter will be settled within 30 days by the Sub-Divisional Magistrate. There are also provisions of heavy penalty for violation of rules and regulations.

The drawbacks of the law to the farming community are

With this law, mandis operated under the APMC law of the states will be abolished. After the end of the APMC mandis, the farmers will be forced to sell the crop to corporate companies at the one-and-a-half price. Due to the abolition of the mandi system, there will be no purchase of crops on MSP. Farmers' products have been going from one state to another in the past, and the provisions of the new law are only for the benefit of the corporate and not for the benefit of the farmers. Farmers will be exposed to the risk of fraud due to the entry of people without licenses or registration. In case of any dispute in the business with the corporate buyer, there will be a danger of ignoring farmers' interests.

Covid-19, Impact on the Economy

Peer Reviewed Journal

Peer Reviewed Journal

IMPACT OF COVID-19 ON THE INDIAN ECONOMY¹

Dr. S. MANAVALAN²

INDIAN ECONOMY IN PRE COVID-19 PERIOD

The shock is playing out in almost a similar manner in all countries of the world in terms of demand and supply disruptions and the consequent economic slowdown. In case of India however the problem might be more acute and longer lasting owing to the state the economy was in, in the pre-Covid-19 period. By the time the first Covid-19 case was reported in India, the economy had deteriorated significantly after years of feeble performance.

GDP (gross domestic product) growth rate has been on a downward trajectory since 2015-16. According to the official statistics, GDP growth slowed down to 4.2% in 2019-20, the lowest level since 2002-03. Industry, which accounts for 30% of GDP, *shrank* by 0.58% in Q4, 2019-20. Unemployment reached a 45-year high. A major driver of growth in any economy is investment by the private corporate sector. In the pre-Covid19 period, nominal values of private sector investment have been declining. The total outstanding investment projects between 2015-16 and 2019-20 declined by 2.4%, whereas new projects announced fell by 4%, as per data from the CMIE (Centre for Monitoring Indian Economy). Consumption expenditure had also been falling, for the first time in several decades.

Table 1: Key Fiscal Indicators – Central Government Finances

Indicator	2019-20 (BE)	2019-20 (RE)	2020-21 (BE)
1. Revenue Receipts	9.3	9.1	9.0
2. Non-Debt Capital Revenue	7.8	7.4	7.3
3. Revenue Expenditure	1.5	1.7	1.7
4. Capital Expenditure	0.6	0.4	1.0
5. Total Expenditure	11.6	11.5	11.7
6. Gross Fiscal Deficit	1.6	1.7	1.8
7. Revenue Deficit	13.2	13.2	13.5
8. Primary Deficit	3.3	3.8	3.5

Source: RBI (2020)

Monetary policy transmission in India has been weak owing to structural deficiencies such as illiquid bond market, large sections of the population left out of the formal financial system etc. In addition, an impaired banking system and lackluster investment demand from the private corporate sector, will further hamper the transmission of a policy rate cut to aggregate demand and hence growth. In other words, the combination of demand and supply shocks are hitting the Indian economy at a time when the tools to deal with the crisis are mostly ineffective, namely fiscal, monetary and financial. Over and above this, the external sector of the economy has been weakening as well. The nominal value of exports of goods and services - another important driver of growth - witnessed a *decline* by 8.49% in Q4, 2019-20.

¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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IMPACT OF THE CRISIS

OVERALL MACRO IMPACT

The countrywide lockdown has brought nearly all economic activities to an abrupt halt. The disruption of demand and supply forces are likely to continue even after the lockdown is lifted. It will take time for the economy to return to a normal state and even then social distancing measures will continue for as long as the health shock plays out. Hence demand is unlikely to get restored in the next several months, especially demand for non-essential goods and services. Three major components of aggregate demand- consumption, investment, and exports are likely to stay subdued for a prolonged period of time.

In addition to the unprecedented collapse in demand, widespread supply chain disruptions will continue for a while due to the unavailability of raw materials, exodus of millions of migrant workers from urban areas, slowing global trade, and shipment and travel related restrictions imposed by nearly all affected countries. The supply chains are unlikely to normalize for some time to come. Already several industries are struggling owing to complete disruption of supply chains from China. The longer the crisis lasts, the more difficult it will be for firms to stay afloat. This will negatively affect production in almost all domestic industries. This in turn will have further spillover effects on investment, employment, income and consumption, pulling down the aggregate growth rate of the economy.

AGRICULTURE AND RURAL ACTIVITIES

The agriculture sector is critical as large number of workers and the entire country's population are dependent on this sector. The performance of agriculture is also key to the state of rural demand. In the pre-Covid-19 period, agricultural GDP experienced an average growth rate of 3.3% per year in the six-year period 2014-15 to 2019-20 with intermittent fluctuations. The provisional estimates of the National Statistical Office (NSO) show that GDP growth in agriculture has increased from 2.4% in FY19 to 4% in FY20. It was also relatively better at 3.5% in Q3 of FY20. However, the terms of trade have moved against agriculture during 2016-17 to 2018-19 due to bumper crop and horticultural production which caused a decline in food prices. Terms of trade for agriculture seems to have improved in 2019-20 as the nominal agricultural GDP growth was 11.4% as compared to real growth of 4%.

INFORMAL SECTOR

India has a very high share of informal employment in total employment. The share, which includes agricultural workers, has declined marginally from 94% in 2004-05 to 91% in 2017-18 (table 2). Out of a total of 465 million workers, 422 million were informal workers in 2017-18. Even in non-farm sector (manufacturing and services), the share of informal workers was around 84% in the same year.

Table 2: Informal Sector

	Total Employment (in millions)	Informal Employment (in millions)	% Share of Informal workers in total employment
2004-05	459.4	430.9	93.8
2011-12	474.2	436.6	92.5
2017-18	465.1	421.9	90.7

There are significant inequalities between informal and formal sector workers. The informal/unorganized workers do not have access to any social security benefits and also face uncertainty of work. Out of the total workers, the shares of self-employed, casual and regular workers respectively were 51.3%, 23.3%, and 23.4%. Most of the self-employed and casual employees are informal workers.

MSMES

The micro, small and medium enterprises as a whole form a major chunk of manufacturing in India and play an important role in providing large scale employment. Recent annual reports on MSMEs indicate that the sector contributes around 30% of India's GDP, and based on conservative estimates, employs around 50% of industrial workers and contributes half of the overall exports. Over 98% of MSMEs can be classified as micro firms, and 94% remain unregistered with the government. Many of the micro enterprises are small, household-run businesses. However, many aspects of government policy are at best scale neutral and do not explicitly favor these enterprises. This sector does not have access to adequate, timely and affordable institutional credit. More than 81% MSMEs are self-financed with only around 7% borrowing from formal institutions and government sources (Economic Census, 2013).

FINANCIAL MARKETS AND INSTITUTIONS

As the ramifications of the health shock and the repercussions of the country-wide lockdown become clear with each passing day, the risk aversion of the banking system will get significantly aggravated. As more and more firms struggle to stay afloat and are unable to repay their dues amidst the massive demand and supply disruptions, corporate delinquencies will go up and the level of NPAs in the already fragile banking system will increase precipitously.

In the 2011-2019 periods, bulk of the NPAs originated in the private corporate sector. These were secured loans where some recoveries are possible especially given the IBC. With Covid-19 disrupting jobs and income sources of millions of people, defaults from the retail sector are also likely to soar. Indian households were already highly leveraged going into the current crisis. Once unemployment goes up and source of income disappears especially for those connected to the informal sector, they will find it difficult to repay existing loans, let alone make new expenditures. All these are unsecured loans which make the situation worse. India does not have a personal insolvency law yet. In other words, there is no recourse for either the defaulting individuals or the banking system when personal loan defaults start rising, both from urban and rural regions of the country.

CONCLUSION

Covid-19 has posed an unprecedented challenge for India. Given the large size of the population, the precarious situation of the economy, especially of the financial sector in the pre-Covid-19 period, and the economy's dependence on informal labor, lockdowns and other social distancing measures are turning out to be hugely disruptive. The central and state governments have recognized the challenge and have responded but this response should be just the beginning. The eventual damage to the economy is likely to be significantly worse than the current estimates. On the demand side, the government needs to balance the income support required with the need to ensure the fiscal situation does not spin out of control. The

balance struck so far seems to be a reasonable one but the government needs to find a greater scope for supporting the incomes of the poor. Involvement of the state and local governments may also be crucial in the effective implementation of further fiscal initiatives.

REFERENCES

1. Carlsson-Szlezak, Martin Reeves and Paul Swartz “What Coronavirus means for the Global Economy”, BCG Henderson Institute, <https://hbr.org/2020/03/what-coronavirus-could-mean-for-the-global-economy>.
2. Chaddha, N, A Das, S Gangopadhyay and N Mehta (2017), ‘Reassessing the Impact of Demonetisation on Agriculture and Informal Sector’, India Development Foundation (IDF), New Delhi, January.
3. Duflo, Esther, Abhijit Banerjee (2020), “A prescription for action: Nine steps after the next 21 days”, IndianExpress, March 29, 2020.
4. Dev, S, Mahendra (2020), “Addressing COVID-19 impacts on agriculture, food security, and livelihoods in India”, IFPRI Blog, April 8. <https://www.ifpri.org/blog/addressing-covid-19-impacts-agriculture-food-security-and-livelihoods-india>
5. FAO (2020), “Covid-19 Pandemic: Impact on Food and Agriculture”, Food and Agricultural Organisation, Rome, <http://www.fao.org/2019-ncov/q-and-a/en/>
6. Himanshu (2019), “India’s farm crisis: decades old and with deep roots”, The India Forum, <https://www.theindiaforum.in/article/farm-crisis-runs-deep-higher-msps-and-cash-handouts-are-not-enough>
7. IMF (2020), “Policy responses to Covid-19”, International Monetary Fund, Washington DC. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#I>
8. Kapur, Dev and Subramanian, Arvind (2020), “How coronavirus crisis can be converted to opportunity to fundamentally strengthen Indian economy”, Indian Express, April 3, 2020.
9. Khera, Reetika (2020) “Covid-19: What can be done immediately to help vulnerable population”, Ideas for India. <https://www.ideasforindia.in/topics/poverty-inequality/covid-19-what-can-be-done-immediately-to-help-vulnerable-population.html>

IMPACT OF COVID-19 PANDEMIC ON EDUCATION SYSTEM³

R. SARAIVANAN⁴

Introduction

The World Health Organization declared COVID-19 a pandemic on March 11, 2020. This epidemic began in China's Wuhan city and has spread to a number of countries. The pandemic has had a severe impact on the economies of countries where novel corona virus cases have been identified. Countries are implementing a variety of methods to minimize crowding, including lockdowns, workplace non-attendance, school closures, and the suspension of transportation services, among others. Most governments throughout the world have temporarily closed educational institutions in order to halt the spread of the COVID- 19 epidemic. This shutdown has an impact on more than 90% of the world's student population. The virus has spread to India as well. The Indian government has taken numerous efforts to combat COVID- 19 infection, including the first Janta Curfew, which was proclaimed by India's Prime Minister on March 22, 2020. After that, India's prime minister imposed a 21- day lockdown to manage COVID-19 incidents. The Indian government prolonged the lockdown till May 3, 2020 on April 14, 2020. This decision has an impact on the country's numerous industries. The lockdown has an impact on the education sector, which is a crucial predictor of the country's economic future. All schools, colleges, and institutions are closed due to government directives. The entire educational system has been thrown into disarray COVID-19.

Objective of the Study

The objective of this paper is to find out the impact of lockdown on schools, universities, teachers and parents.

Impact of COVID-19 on education system

State governments began closing schools and colleges across the country to combat the spread of the new corona virus. It was announced as a temporary measure to prevent the crowds in the second week of March. The government initially declared the suspension of schools for a month, but the time frame was steadily extended, and it is unclear when they will return. Various activities that are very important take place during this period, such as competitive exams and entrance tests for various universities, board examinations and semester examinations at universities, nursery school admissions, and university admissions. No immediate solution has been identified to stop the COVID- 19 outbreak. The closing of schools and universities in India would not only have a short-term impact on the continuity of learning for young learners, but it will also have a significant influence on the country's economic growth as well as society.

³ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Impact of COVID-19 on Schools

Going to school is the best public policy tool available for improving abilities. School is a place where kids can have fun while also improving their social awareness and skills. The primary goal of attending to school or staying in school is to improve a child's abilities. Schooling for a relatively short amount of time improves skills and abilities. On the other hand, missing school or failing to attend school will have a detrimental impact on skill development. The structure of learning and schooling has been changed by the closing of schools. To begin with, it had an impact on teaching and assessment methods. Only a few private schools use online teaching methods, and they are few in taking online programmes. Children at those schools take classes online. Low-income private and public schools, on the other hand, have been closed down and do not have access to an e-learning option. It is interfering with kids' ability to learn. The change in teaching approach has caused as new problems for parents.

Impact of COVID-19 on Higher Education

The closure of universities has had an impact on university students' learning. One immediate solution is required to ensure continuation in institutes and universities. The online teaching style is used to keep the class running smoothly. Universities use learning management software and open-source digital learning solutions to run online classes. Higher education is a major driver of the country's economic destiny, and the pandemic has had a substantial impact on the higher education industry. Many Indian students study at universities abroad. The demand for foreign higher education is predicted to decrease as a result of the global closure of institutes and universities.

1. Impacts COVID-19 on online classes on Parents

Children are expected to continue their schooling at home in order to maintain attendance or avoid missing out too much, and they are rarely sent out to play. Families, according to Bjorklund and Salvanes (2011), give important inputs on a child's learning since they are treated as central to education. Parents are having difficulty comprehending the new teaching technique. Some parents aren't particularly tech-savvy. As a result, they are unable to assist their child in enrolling in online programmers. Internet connectivity is also a significant concern for all teachers, students, and parents. Because of the inadequate connectivity, there are numerous disruptions.

2. Assessments

The shutdown of schools, colleges, and universities does not just disrupt students' education. The lockdown had an impact on student evaluations all throughout the world. Because of the closure of educational institutions, several tests and assessments have been cancelled or postponed. This is a new era of education for both students and teachers. Many colleges and universities have switched from traditional classrooms to online classrooms, and the examination system has also transitioned from paper to digital. For evaluation, they use online assessment tools. Online assessment tools have their own set of constraints. In comparison to traditional measuring, several measurement mistakes have been identified in online assessment systems. Employers use educational credentials such as grade point averages and degree categories to analyses applicants, as Piopiunik et al. (2020) demonstrated in their research. As a result, the lockdown is having an impact on the placement of new

graduates on the labour market. Because of the increased disruptions in applicants' signals, new graduates' matching efficiency is dwindling, resulting in higher job separation rates and slower earnings growth. This, according to Fredriks Sonand Ihlen (2018), is costly to both individuals and society as a whole.

3. Conclusion

Students' learning is being disrupted by the closing of schools, colleges, and universities, as well as internal and public tests for qualifications. The traditional mode of instruction has been supplanted by online instruction. On the one hand, online teaching provides students with the opportunity to study; on the other hand, there are a number of challenges associated with the new teaching style. Education institutions are looking for solutions to the problems that have arisen as a result of the lockdown, as well as putting up efforts to compensate for the loss of learning. Schools will require resources to help them recover from the loss of learning when they reopen. Many issues confronting schools, such as how to target pupils and how to best employ these resources, must be addressed. The students' internal assessment of their learning should not be overlooked. It should be rescheduled. To avoid new graduates experiencing extended periods of unemployment, new policies supporting their entry into the labour market should be developed.

REFERENCES

1. Bjorklund, A and K Salvanes (2011), "Education and Family Background: Mechanisms and Policies", in E Hanushek, S Machin and L Woessmann (eds), Handbook of the Economics of Education, Vol.3.
2. Fredriksson, M., & Ihlen, Ø. (2018). Introduction: Public Relations and Social Theory 1. In Public Relations and Social Theory (pp.1-16). Routledge.
3. Piopiunik, M, G Schwerdt, L Simon and L Woessman (2020), "Skills, signals, and employability: An experimental investigation", European Economic Review 123: 103374.
4. World Health Organization. (2020). WHO Director- General's opening remarks at the media briefing on COVID-19-11 March 2020. Geneva, Switzerland.

IMPACT OF COVID-19 ON INDIAN ECONOMY GROWTH, MANUFACTURING TRADE AND MSME SECTOR⁵

Dr. A. PRABAKARAN⁶

INTRODUCTION

The COVID-19 pandemic has probably given the biggest blow to the world economy after the great depression of 1930s. Around 60 per cent of the world population is either under severe or partial lockdown without having medical solution to the corona virus and economic activity across countries has either stalled or significantly decelerated taking away millions of livelihoods. As a result of the pandemic, the global economy is projected to contract sharply by -4.9 per cent in 2020, much worse than during the 2008–2009 financial crisis (International Monetary Fund [IMF], 2020). 1 India being densely populated country with inadequate medical facilities was left with no option but to follow the policy of lockdown. World economy is heading for a recession and India is no exception. The current pandemic is working its way through a highly globalized world with interconnected production networks and financial markets. The fall out of the COVID-19 on Indian economy is going to be huge because of its own lockdown, which was necessary to contain the spread of corona virus, and also because of India's integration with the rest of the world. Here is an assessment of the likely fall out of lockdown and restrictive policy measures owing to the pandemic on India's gross value added (GVA), manufacturing, trade and micro, small and medium enterprises (MSME) sector. The study has five sections which are as follows: the second section presents the review of literature; the third section covers the research methodology; the fourth section discusses the impact assessment; and the fifth section concludes with policy implications.

METHODOLOGY

The present study relies on the secondary data to make an impact assessment of COVID-19 on Indian economy. The data sources are reports of National Account Statistics, a publication of ministry of statistics and program implementation (MOSPI); Handbook of Statistics on Indian Economy and Monthly Bulletin, Reserve Bank of India; Export–Import Database, Ministry of Commerce, Government of India; and annual reports (various issues), Ministry of Micro Small and Medium Enterprise.

Table 1. List of Sectors and Impact Assessment

Sector	Impact Assessment
Agriculture, forestry and fishing	Excluded
Mining and quarrying	Full impact
Manufacturing	Full impact except household manufacturing, manufacture of food products, beverages and tobacco and manufacture of pharmaceutical, medicinal chemicals and botanical products

⁵ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Sector	Impact Assessment
Electricity, gas, water supply and other utility services	Excluded
Construction	Full impact
Trade, hotels, transport, communication and broadcasting	Full impact except the communication and services related to broadcasting
Financial, real estate and professional services	Full impact except assuming that banks; insurance services; ICT, Scientific, R&D and other administrative services are working with 50% capacity utilization
Public administration, defense and other services	Excluded

Source: Authors' own assessment.

INTERNATIONAL TRADE

Aggregate trade: We compute the loss of trade in two formats: first, we describe the exposure of India's exports and imports with the severe corona virus-affected countries. Second, we compute while following the similar practice as of GVA loss computation. We are given the values of exports and imports till the first quarter of 2020. Here we estimate the exports and imports from Q2 to Q4 for year 2020 by applying the quarterly growth (YoY) of past year 2019. Then we compute the loss for Q2 and Q3 under scenarios A–D. We do not compute the loss for Q1 of 2020 as the data are already released wherein significant decline is observed due to COVID-19. In case of scenario A, we would be having the loss in exports and imports for only second quarter. With this loss of Q2 we compute the percentage of overall exports/imports of year 2020. Similarly, we calculate the loss of exports for the remaining scenarios. We follow this approach for all the scenarios except scenario E. In fact, all the scenarios A–D are relevant from India's trade perspective. However, it is equally important to see the impact on trade when world trade is also experiencing a massive decline. In order to account for the issue, we take the hypothetical scenario E wherein the percentage decline in quarters during the global financial crisis is taken as reference point assuming that the corresponding decline was tuned to the fall in global trade. Exports saw the highest decline of 31.9 per cent in 2009–2010 Q1 and imports of 31.7 in the next quarter. We consider the lowest decline as weight factor for Q1 of 2020 and then give highest decline as weight to the Q2 and then apply the weights in declining order to the subsequent quarters (Q3 and Q4) of 2020. Then the loss in exports is computed with the weighted average of exports of Q1–Q4 of 2020. Similar exercise is performed for imports while taking the percentage decline in imports of corresponding period of GFC.

MICRO, SMALL AND MEDIUM ENTERPRISES SECTOR

We compute the estimated loss in MSME sector using the latest data of MSMEs' real GVA for the year 2016–2017. The real GVA is obtained by applying the GVA deflator of base year 2011–2012. The impact assessment for MSME sector is based on two step process. First we compute the GVA for manufacturing and services sector by applying the weights of shares in the number of total establishments under the two segments (manufacturing and services). After computing the GVA of these two sectors we find the percentage share of each in the national manufacturing and services GVA. Then using the estimated values of percentage decline of these two sectors computed using the quarterly data for 2020 in the first section, we compute the corresponding decline for MSME. The aggregate impact on MSME is computed through weighted average of MSMEs' manufacturing and services sectors' losses. Presentation is

made as (a) percentage decline in GVA of MSME sector using the reference loss of aggregate GVA of India.

IMPACT ON GROWTH

COVID-19 pandemic has hit the Indian economy when it is at its lowest point of growth trajectory over last 6 years due to lack of aggregate demand—consumption, private investment and exports witnessing deceleration over the last few years. When all were expecting a turnaround in the economy, the COVID-19 pandemic has almost given a knocking punch affecting economic activity across the sectors and added a supply shock to the economy. The quarterly growth (YoY) of GVA has been consistently declining (Figure 1) since first quarter of 2018 (from approximately 8% in Q1 in calendar year (CY) 2018 to 4.5% in Q4 CY 2019). Mining and quarrying witnessed the highest fall in recent quarters followed by manufacturing and construction sector.

IMPACT ON MANUFACTURING

In this section we explore the economic loss to the industries due to the epidemic across industries using ASI data for registered manufacturing sector. The economic loss is calculated by adding the wages cost and fixed cost—interest and rent expenses—to the NVA of respective industry. The analysis section first covers the normal behavior of industry without COVID-19. Then we discuss the impact on two fronts—percentage decline in base NVA at aggregate level as well as across industries (Figure 11) as compared to previous comparable period. Second we present the loss as per cent of NVA of the base year—both at aggregate level and across industries. The manufacturing industries would have reported the growth rate of around 4.7 per cent in terms of NVA over the benchmark period (average NVA of 2014–2017) without COVID-19. Across these industries, it is expected that the basic metal industries would have grown with a rate of 19 per cent, followed by non-metallic mineral products (13%); machinery and equipment (9%); and textiles (5.2%), among others. The deceleration in terms of economic cost to the NVA for all industries, the estimated values are 5.5 per cent and 19.8 per cent for base case and worst case scenario, respectively (Figure 9). The expected deceleration in the NVA is 10.2 per cent under scenario B. The loss in industrial NVA (all industries) as percentage of the base NVA is estimated at 13.5 per cent to 27.8 per cent for base case scenario (scenario C) and worst case scenario (scenario D). Interestingly the top 10 industries which contribute around two thirds of the total industrial NVA, bear the loss in NVA in the range of 11.1–19.6 per cent of the total NVA of base year. Top 10 industries contribute 65 per cent of total industrial sector NVA, absorb 55 percent of all industrial workers (55%) and bear significant fixed cost, around 70 per cent of total interest and rent cost of all industries. With COVID-19, the largest decline (% as compared to previous benchmark period—average NVA of 2014–2017) is expected for basic metals and electric equipment (approximately 21% for each), followed by textiles (18%); coke and refined petroleum products and motor vehicles (approximately 15%, each); and rubber and plastic products and other non-metallic products (approximately 11% each), among others.

CONCLUSION

Our assessment is that Indian economy may have 0.4 per cent growth this calendar year 2020 in most realistic scenario and a negative growth of around 3 per cent in worst case scenario with 50 per cent over utilization of public sector and defense services (PAD). The impact of COVID-19 on India's trade is going to be huge. The estimated fall in India's

exports is going to be 13.7–20.8 per cent in 2020 over 2019 under scenarios A–D. The estimated fall in imports ranges from 17.3 to 25 per cent. With regard to percentage decline in exports and imports across commodities due to COVID-19, it is estimated that products such as petroleum products, chemical products, machinery, electronics and plastic and rubber would suffer a loss of more than the national average of 20 per cent. As per estimation, India's MSME sector can expect a decline of 2.1 per cent under base scenario and this loss can increase to 5.7 per cent in case of worst case scenario. The loss is more skewed in manufacturing sector to the tune of 3.5 per cent in scenario A and 8.3 per cent in the scenario D. The MSMEs dealing in trade and other services activities can bear the decline in GVA in the range of 1.4–4.5 per cent. It is evident from the analysis that the impact of the pandemic across sectors and in different scenarios of complete, extended and partial lockdown and at different levels of capacity utilization is massive on the Indian economy. The impact is particularly severe on trade, manufacturing and the MSME sector which contribute substantially to India's employment and growth.

References

1. Garg, B., & Sahoo, P. (2020). *Corona crash: Need global efforts to tackle global crisis* (Policy Brief, No. 12).
2. Institute of Economic Growth. Gupta, M., & Minai, M. H. (2019). An empirical analysis of forecast performance of the GDP growth in India. *Global Business Review*, 20(2), 368–386.
3. International Labour Organization (ILO). (2020, March 18). *COVID-19 and the world of work: Impact and policy responses*. International Labour Organization.
4. International Monetary Fund (IMF). (2020, April 2020). *World economic outlook: The great lockdown*. International Monetary Fund.
5. McKibbin, W., & Fernando, R. (2020, March 2). *The global macroeconomic impacts of COVID-19: Seven scenarios*. Brookings. <https://www.brookings.edu/research/the-global-macroeconomic-impacts-of-covid-19-seven-scenarios/>
6. Mishra, B. R. (2019). Role of external and domestic demand in economic growth: A study of BRICS countries. *Global Business Review*, 21(2), 547–566.

THE ECONOMIC IMPACT OF COVID-19 PANDEMIC ON VARIOUS SECTORS OF INDIA⁷

Dr. B. YASODHA JAGADEESWARI⁸

INTRODUCTION

“For a developing nation like ours with a large population the growing challenge of corona virus is not a normal situation. In such a time, only one mantra works – ‘The world is healthy when we are healthy’.”

~ Prime Minister Narendra Modi

The World Health Organization (WHO) declared CORONA (COVID-19) outbreak a pandemic in the month of March 2020 (2nd Week). The global Covid-19 pandemic, which is inflicting two kinds of shocks on countries: a health shock and an economic shock. Given the nature of the disease which is highly contagious, the ways to contain the spread include policy actions such as imposition of social distancing, self-isolation at home, closure of institutions, and public facilities, restrictions on mobility and even lockdown of an entire country. Pandemics are large-scale flare-ups of irresistible illness that can enormously increase dreariness and mortality throughout the world and cause critical financial, social and political disturbance. Facts recommends that the probability of pandemics has expanded over the past century since of expanded worldwide travel and integration, urbanization and noteworthy misuse of the common environment. The global economy has come to a near standstill owing to the disruptive impact of the pandemic across economies. The economic impact of the COVID-19 pandemic in India has been largely disruptive. The enforced lockdowns and economic shutdowns implemented in nations across the India are unprecedented and will entail huge economic costs and burdens. India's GDP shrank 7.3% in 2020-21. This was the worst performance of the Indian economy in any year since independence. In the post-Independence period, India's national income has declined only four times before 2020 – in 1958, 1966, 1973 and 1980 – with the largest drop being in 1980 (5.2%). This means that 2020-'21 is the worst year in terms of economic contraction in the country's history and much worse than the overall contraction in the world.

OBJECTIVE OF THE STUDY

The objective of the present paper is to analyze the sectoral impact of COVID-19 pandemic on Indian Economy.

METHODS AND MATERIALS

The present Research Paper is using Secondary Data by collecting Information on the present issue like websites, newspaper articles, magazines, Government reports, journals, etc. Overall, this exploratory research tries to explore the Economic Impact of COVID-19 Pandemic on Various Sectors of India. Qualitative research approaches and procedures have

⁷ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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been applied to explore pertinent information for this study. They serve and present solid grounds for future investigation.

SECTOR-WISE IMPACT OF COVID-19

Hospitality Sector

As many states have imposed localized lockdowns, the hospitality sector is facing a repeat of 2020. The hospitality sector includes many businesses like restaurants, beds and breakfast, pubs, bars, night clubs and more. The sector that has contributed to a large portion of India's annual GDP has been hit hard by restrictions and curfews imposed by the states.

Food & Agriculture

Since agriculture is the backbone of the country and a part of the government announced essential category, the impact is likely to be low on both primary agricultural production and usage of agro-inputs. Several state governments have already allowed free movement of fruits, vegetables, milk etc. Online food grocery platforms are heavily impact due to unclear restrictions on movements and stoppage of logistics vehicles. RBI and Finance Minister announced measures will help the industry and the employees in the short term. Insulating the rural food production areas in the coming weeks will hold a great answer to the macro impact of COVID-19 on Indian food sector as well as larger economy.

Tourism Sector

The hospitality sector is linked to the tourism sector. The sector that employs millions of Indians started bouncing back after the first wave, but the second wave of covid was back for the devastation! The tourism sector contributes nearly 7% to India's annual GDP.

It comprises hotels, home stays, motels and more. The restrictions due to the second wave have crippled the tourism sector, which was already struggling to recover from the initial loss suffered by the businesses in 2020.

Aviation and Travel sector

Aviation and other sector establishments faced a massive struggle during the second wave of the pandemic. The larger travel sector is also taking a hit as people are scared to step out of their homes. For airlines and the broader travel sector, its recovery will depend on whether people in future will opt for such services. At present, the outlook for the aviation and broader travel sector does not look good.

Automobile sector

The automobile sector is expected to remain under pressure in the near term due to the covid-19 situation in India.

Real Estate and Construction sector

The real estate and construction activities have started facing a disruption during the second wave as a large number of migrant workers have left the urban areas. The situation has not been grave as of 2020 for this sector.

Telecom

There has been a significant amount of changes in the telecom sector of India even before the COVID-19 due to brief price wars between the service providers. Most essential services and sectors have continued to run during the pandemic thanks to the implementation

of the 'work from home' due to restrictions. With over 1 billion connections as of 2019, the telecom sector contributes about 6.5 per cent of GDP and employs almost 4 million people. Increased broadband usage had a direct impact and resulted in pressure on the network. Demand has been increased by about 10%. However, the Telco's are bracing for a sharp drop in adding new subscribers. As a policy recommendation, the government can aid the sector by relaxing the regulatory compliances and provide moratorium for spectrum dues, which can be used for network expansions by the companies.

Pharmaceuticals

The pharmaceutical industry has been on the rise since the start of the Covid-19 pandemic, especially in India, the largest producer of generic drugs globally. With a market size of \$55 billion during the beginning of 2020, it has been surging in India, exporting Hydroxychloroquine to the world, esp. to the US, UK, Canada, and the Middle-East. There has been a recent rise in the prices of raw materials imported from China due to the pandemic. Generic drugs are the most impacted due to heavy reliance on imports, disrupted supply-chain, and labour unavailability in the industry, caused by social distancing. Simultaneously, the pharmaceutical industry is struggling because of the government-imposed bans on the export of critical drugs, equipment, and PPE kits to ensure sufficient quantities for the country. The increasing demand for these drugs, coupled with hindered accessibility is making things harder. Easing the financial stress on the pharmaceutical companies, tax-relaxations, and addressing the labour force shortage could be the differentiating factors in such a desperate time.

Oil & Gas

The Indian Oil & Gas industry is quite significant in the global context it is the third largest energy consumer only behind USA and China and contributes to 5.2% of the global oil demand. The complete lockdown across the country slowed down the demand of transport fuels (accounting for 2/3rd demand in oil & gas sector) as auto & industrial manufacturing declined and goods & passenger movement (both bulk & personal) fell. Though the crude prices dipped in this period, the government increased the excise and special excise duty to make up for the revenue loss, additionally, road cess was raised too. As a policy recommendation, the government may think of passing on the benefits of decreased crude prices to end consumers at retail outlets to stimulate demand.

Stock markets

Stock markets in India post worst losses in history. SENSEX fell 4000 points (13.15%) and NSE NIFTY fell 1150 points (12.98%). However, on 25 March, one day after a complete 21-day lock-down was announced by the Prime Minister, SENSEX posted its biggest gains in 11 years, adding a value of ₹4.7 lakh crore (US\$66 billion) crore for investors. On 8 April, following positive indication from the Wall Street that the pandemic may have reached its peak in the US, the stock markets in India rose steeply once again. By 29 April 2020, Nifty held the 9500 mark.

E-commerce

In the third week of March, Amazon announced that it would stop sale of non-essential items in India so that it could focus on essential needs. Amazon followed the same strategy in Italy and France. On 25 March 2020, Walmart-owned Flip kart temporarily suspended some of its services on its e-commerce platform and would only be selling and distributing

essentials. Big Basket and Grofers also ran restricted services, facing disruptions due to the lockdown. Delhi Police began issuing delivery agents curfew passes to make it easier for them to keep the supply chain open. E-commerce companies also sought legal clarity related to defining "essentials".

Fiscal Deficit

The Covid-19 pandemic has not affected our fiscal deficit and disinvestment target much. In this year's union budget, Finance minister Nirmala Sitharaman announced a fiscal deficit target of 6.8% for 2021 to 2022. India's fiscal deficit for 2020-21 zoomed to 9.5% of GDP as against 3.5% projected earlier. Our finance minister has promised to achieve a fiscal deficit of 4.5% of GDP by 2025-26 by increasing the steaming tax revenues through increased tax compliance as well as asset monetization over the years. According to the medium-term fiscal policy statement that the government had presented in February 2020, the fiscal deficit for 2021-22 and 2022-23 was at 3.3% and 3.1% respectively.

CONCLUSION

COVID-19 has posed an unprecedented challenge for India. Given the large size of the population, the precarious situation of the economy, especially of the financial sector in the pre-COVID-19 period, and the economy's dependence on informal labour, lockdowns and other social distancing measures would be hugely disruptive. The central and state governments have recognized the challenge and have responded but this response should be just the beginning. Policy makers need to be prepared to scale up the response as the events unfold so as to minimize the impact of the shock on both the formal and informal sectors and pave the way for a V-shaped recovery. At the same time, they must ensure that the responses remain enshrined in a rules-based framework and limit the exercise of discretion in order to avoid long-term damage to the economy.

REFERENCES

1. "PM Narendra Modi forms economic response task force, calls for 'Janata Curfew'". *The Economic Times*. 20 March 2020.
2. "Lockdown hurts economy but saving life is more important: PM Modi". *India Today*. 14 April 2020.
3. Sharma, Yogima Seth (24 June 2020). "Unemployment rate falls to pre-lockdown level: CMIE". *The Economic Times*.
4. Goyal, Malini (22 March 2020). "Covid-19: How the deadly virus hints at a looming financial crisis". *The Economic Times*.
5. PTI (25 March 2020). "Experts peg India's cost of corona virus lockdown at USD 120 bn". *The Hindu @business line*.
6. John, Mark (6 May 2020). "How is the world dealing with lockdown? This poll has captured the public's mood". *World Economic Forum*.
7. Moon S, Sridhar D, Pate M A, Jha J K, Clinton C., and others. 2015. "Will Ebola Change the Game? Ten Essential Reforms before the Next Pandemic. The Report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola." *The Lancet* 386 (10009): 2204-21.
8. Pathmanathan I, O'Connor K A, Adams M L, Rao C Y, Kilmarx PH., and others. 2014. "Rapid Assessment of Ebola Infection Prevention and Control Needs—Six Districts, Sierra Leone, October 2015." *Morbidity and Mortality Weekly Report (MMWR)* 63(49): 1172-74.

COVID-19 IMPACTS ON ECONOMY⁹

Dr. S. PRABAKARAN¹⁰

Introduction

Covid-19 pandemic activation causes throughout the world, still many countries are trying to relief itself but it was van, still they are taking necessary steps to improve in economic development by our Government, through this slow down, many industries field destroyed and could not continue their business yet, bank sector mostly crises the also as per the bank norms they collecting their penalty according them. Covid-19 uncountable business come to closed, this problem spread out all over the world, many labours lost their jobs and struggle their lively food, many business sector new manufacturing goods could not export their goods to various country because of lockdown period. The world trade organization announced GDP ratio on pandemic period very downfall also belief in shortly. It may re growth. Again some more viruses may causes and downfall our economic ratio, already our country economic ratio too downward, now the pandemic reason also one of the major down fall in economic sector. Such agricultures, manufacturing industry and shipping transport, textiles industry are lost its originally and shutter closed their manufacturing. Even Lorry and Bus transport also stop their trips impact of Covid-19.

OBJECTIVES OF THE STUDY

- To find the impact of industrial economy during pandemic period.
- To find various analysis causes of Covid-19.
- To analyse solutions for recovery activities.
- To find GDP development activities to growth Indian Economy.

IMPACT OF COVID 19 ON GDP RATIOS

Major companies in India such as Larsen & Toubro, Bharat Forge, Ultra Tech Cement, Grasim Industries, Aditya Birla Group, BHEL and Tata Motors temporarily suspended or significantly reduced operations. Young start ups have been impacted as funding has fallen Fast-moving consumer goods companies in the country have significantly reduced operations and are focusing on essentials. Stock markets in India posted their worst losses in history on 23 March 2020. However, on 25 March, one day after a complete 21-day lockdown was announced by the Prime Minister, SENSEX and NIFTY posted their biggest gains in 11 years.

The impact of COVID-19 on small business outcomes and expectations

To explore the impact of corona virus disease 2019 (COVID-19) on small businesses, we conducted a survey of more than 5,800 small businesses between March 28 and April 4, 2020. Several themes emerged. First, mass layoffs and closures had already occurred—just a few weeks into the crisis. Second, the risk of closure was negatively associated with the

⁹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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expected length of the crisis. Moreover, businesses had widely varying beliefs about the likely duration of COVID-related disruptions. Third, many small businesses are financially fragile: The median business with more than \$10,000 in monthly expenses had only about 2 wk of cash on hand at the time of the survey. Fourth, the majority of businesses planned to seek funding through the Corona virus Aid, Relief, and Economic Security (CARES) Act. However, many anticipated problems with accessing the program, such as bureaucratic hassles and difficulties establishing eligibility. Using experimental variation, we also assess take-up rates and business resilience effects for loans relative to grants-based programs

Migration labour

During the pandemic period uncountable migration labour lost their jobs, so many family members starved foodless, even could not pay their tenant payment, also Government announced through by Law, the house owner should not compel and hurry for their tenant amount, but the most of my house owner did not follow they regulation. Some organization offers half of salary to their employees for the lively food, not only business sector many education sectors also does not offer salary to tutors. Due to this pandemic some teachers changed their profession such as product selling, marketing executive and many tutors start up new food preparation on the road side as motel.

Manufacturing industries

Many manufacturing industries completely shutter locked and terminate the employees job. Because of this impact of Covid-19 many manufactured goods simply stored in store room long life, due to this idle of the goods in store room product lost its originality and damaged soon. So many cores of rupees might be lost by this pandemic situation.

Impact of Airways during the pandemic

Even Domestic and International airways stopped the service between the countries and its domestic trip. So many flights lost the daily collection and airhost lost their job and salary, in this manner their family members suffered in poverty according to the report.

Software industries on Covid-19 Period

India and Foreign country consisting many software companies also specially Indian software business totally suffered impact of Covid-19, many software engineers, technical person are tally affected in the period, also many companies offered half of salary to their family, due to this problem many employees got torture and ignored in guidance of family way.

Cellular Net works

Cellular net works during the pandemic period offered some GB free as well as Google Meeting, Zoom meeting, Microsoft class are offers free GB for certain period with certain hours free meetings purpose for educational purpose.

Work from Home

During the pandemic period many organization employees most software people work from home for to complete to their target. Lakhs and lakhs of company employees lost their current work and switched over their professional according to the PTI report.

Impact of Transportation through Covid-19

During the pandemic period many transport vehicles does not operated still they are struggle to repayment their bank dues, because as per Government takes necessary steps to resolve the problem, airways and railway totally shutdown and passer a

Conclusion

Throughout the world wide Trading has been downward impact of Covid-19, such transport, and all manufacturing, trading business lost its originally and combines business concept succeed in the business sector such Hotel Parcel, service, Hospital service, milk products, medicine are regular activities and day to day utilizes products in the business sectors, through this study many facts are explained and few sector could not get their invested cost also. Many sector investors lost their machines and investment activities accordingly. Many Aavin products and milk products rotten, and agricultures vegetables got not sold, many trading process stopped. Overall manufacturing goods, and edible products are wasted. Also forthcoming fiscal year it may correct and set path in upgrade process in Indian economics.

References

1. Jump up to: a b "India's economic activity almost at pre-lockdown levels but Covid looms: Nomura". The Economic Times. 15 September 2020. Retrieved 15 September 2020.
2. Jump up to: a b c Vyas, Mahesh (21 April 2020). "Unemployment rate touches 26%". Centre for Monitoring Indian Economy. Retrieved 24 April 2020.
3. Jump up to: a b Sharma, Yogima Seth (24 June 2020). "Unemployment rate falls to pre-lockdown level: CMIE". The Economic Times. Retrieved 24 June 2020.
4. Jump up to: a b c Goyal, Malini (22 March 2020). "Covid-19: How the deadly virus hints at a looming financial crisis". The Economic Times. Retrieved 23 March 2020.
5. Jump up to: a b Research, Centre for Policy. "Podcast: How has India's lockdown impacted unemployment rates and income levels?". Scroll.in. Retrieved 24 April 2020. {{cite web}}: |first1= has generic name (help).
6. Jump up to: a b "Covid-19 lockdown estimated to cost India \$4.5 billion a day: Acuité Ratings". Business Line. 2 April 2020. Retrieved 11 April 2020.

COVID-19 AND HEALTH SECTOR CHALLENGES IN TAMIL NADU¹¹

C. PRABU¹²

1. Introduction

On 31 December 2019, WHO was informed of cases of pneumonia of unknown cause in Wuhan City, China. A novel coronavirus was identified as the cause by Chinese authorities on 7 January 2020 and was temporarily named “2019-CoV”. Coronaviruses (CoV) are a large family of viruses that cause illness ranging from the common cold to more severe diseases. A novel corona virus CoV is a new strain that has not been previously identified in humans. The new virus was subsequently named the “COVID-19 virus”. On 30 January 2020, Dr. Tedros Adhanom Ghebreyesus, WHO Director-General declared the novel coronavirus outbreak a public health emergency of international concern (PHEIC), WHO's highest level of alarm. At that time there were 98 cases and no deaths in 18 countries outside China. On 11 March 2020, the rapid increase in the number of cases outside China led the WHO Director-General to announce that the outbreak could be characterized as a pandemic. By then more than 118 000 cases had been reported in 114 countries and 4291 deaths had been recorded. By mid-March 2020, the WHO European Region had become the epicenter of the epidemic, reporting over 40% of globally confirmed cases. As of 28 April 2020, 63% of global mortality from the virus was from the Region.

India's total tally of COVID-19 cases rose to 4,03,71,500, according to the Union Health Ministry data updated on February 2022. The death toll has climbed to 4,91,700. The outbreak of the COVID-19 pandemic in India led to a nation-wide lockdown starting from March 25, 2020. The pandemic and the lockdown involved restricted mobility of people as well as goods and services. This created severe challenges for vulnerable families due to the closure of shops, factories, and offices, and restricted access to public services. One of the biggest impacts of the lockdown was the loss of livelihoods, especially in urban locations, as a result of which millions of workers across India moved back to their villages. The post-lockdown challenges encompassed practically all sectors, including not only livelihoods, but also food availability, health and nutrition, education, and access to public facilities for people. The children were also severely impacted in terms of food shortage, healthcare, disruption in education, and increase in risk of child marriage and child labour.

2. COVID-19 in Tamil Nadu

The first case of coronavirus was confirmed on 7 March in a resident from Kanchipuram in Chennai. He had returned from Oman and started developing symptoms including fever and cough. He was isolated in Rajiv Gandhi Government General Hospital. Later, on 10 March, he recovered and tested negative. After more than a week without new cases, on 18 March, the second person who had travelled by train from Delhi to Chennai confirmed

¹¹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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positive. On January 17, 2020, the Ministry of Health and Family Welfare acknowledged the emergence of COVID-19 pandemic that was spreading across China. Tamil Nadu reported its first confirmed case of COVID-19 on March 7, 2020. As of April 28, the state has 1,937 confirmed cases of COVID-19 (seventh highest in the country). Of these, 1,101 have recovered (third highest rate of recovery in the country among states with 100 or more cases) and 24 have died. The state government has taken several actions to contain the spread and impact of COVID-19.

Table 1: Cases of COVID-19 in Tamil Nadu, India and World as on January 24, 2022

	Cases	Death	Recovered
Tamil Nadu	31,33,990	3,7636	28,95808
India	3,95,43328	4,89,896	3,68,04145
World	35,2,144283	56,14862	27,98,55,753

Source: mygov.in (India), www.Worldmetersinfo

Table 1 present the cases of COVID-19 in Tamil Nadu, India and World. It shows the cumulative figures of total confirmed cases, total recovered and death cases. It reflects how the situation is as on January 24, 2022 when 31,33,990 were reported to be infected by the virus as against 3.95 corer in the country and 35 corer around the world. The recovery rate of 27.98 corer, which is higher than that in the country and the world is quite satisfactory, but the speed with which the disease is spreading keeps the state administration on their toes and the general public in a panic. Table concludes that the state total number of death cases low due to improving medical condition Satisfactory.

The state was already equipped with a set of health infrastructure facilities as detailed in Table-3. As shown in the table, the number of hospitals in different forms in the state adequate to extend health assistance to the patients. There are 30 district hospitals, 385 CHCs, 1204 PHCs, 231 SDHs, 8706 SCs and 91312 beds, extending service to a population of 7.88 crores. Almost district head quarters hospitals have ICUs. So far as doctor-population ratio is concerned, "WHO has recommended a doctor-patient ratio of 1:1,000. This is high in Tamil Nadu which has a ratio of 1.6:1,000. Tamil Nadu has 1.3 lakh doctors and just compare the number of doctors with the population, Tamil Nadu is far better than any other state. Nearly one in eight doctors in the country is from Tamil Nadu.

Table 2: District wise Health Infrastructure in Tamil Nadu as on 31st March, 2017

District	Number of Sub Centres	Number of Primary Health Centres	Number of Community Health Centres	Sub Divisional Hospital	District Hospital
Coimbatore	328	35	12	8	1
Cuddalore	319	47	13	7	1
Dharmapuri	218	28	8	3	1
Dindigul	311	43	14	11	1
Erode	311	38	14	7	1
Kancheepuram	364	44	13	7	1
Kanniyakumari (Nagarcoil)	267	27	9	8	1
Karur	168	23	8	5	1

District	Number of Sub Centres	Number of Primary Health Centres	Number of Community Health Centres	Sub Divisional Hospital	District Hospital
Krishnagiri	238	29	10	5	1
Madurai	314	38	13	5	1
Nagapattinam	258	39	11	11	1
Namakkal	240	37	15	7	1
Perambalur	203	51	10	6	1
Pudukkottai	240	42	13	11	1
Ramanathapuram (Ramand)	244	41	11	9	1
Salem	398	59	20	8	1
Sivaganga	275	36	12	9	1
Thanjavur	309	49	14	12	1
The Nilgiris	194	26	4	5	1
Theni	162	22	8	5	1
Thiruvallur	303	34	14	10	1
Thiruvavur	195	32	10	6	1
Tiruchirappalli (Trichy)	307	42	14	8	1
Tirunelveli	383	50	19	12	1
Tiruppur	242	30	13	7	1
Tiruvanamalai	410	73	18	6	1
Toothukudi	249	36	12	8	1
Vellore	454	55	20	9	1
Viluppuram	557	68	22	8	1
Virudhunagar	245	30	11	8	1
Total	8706	1204	385	231	30

Source: Tamil Nadu Economic Survey 2019.

Table 3: Covid Health Facility in Tamil Nadu

S. No.	Description	Details
1.	Number of Government COVID-19 testing facilities	69
2.	Number of Private COVID-19 testing facilities	257
Total	Total number of COVID-19 testing facilities	326

Source: tn.data gov.in

Table 3 explain covid health facility in Tamil Nadu, 69 Government COVID-19 testing facilities, 257 Private COVID-19 testing facilities, 326 total number of COVID-19 testing facilities. The study reveals that testing and treatment have been provided free of cost in the entire testing centre and earmarked hospitals is spread all over the state. The expenditure is borne by the state exchequer. As a result, the state is now equipped with massive COVID healthcare facilities spread over all the state.

4. Conclusion

The paper concludes that the state total number of death cases low due to improving medical condition Satisfactory. However they found that Chennai, Chengalpattu and Coimbatore districts being the worst in state. Tamil Nadu is far better than any other state. Nearly one in eight doctors in the country is from Tamil Nadu. The study found that number of beds occupied all most of districts vacancies; this is reason for number of cases falling rate. The state is now equipped with massive COVID healthcare facilities spread over all the state.

COVID-19 pandemic caused enormous distress in the lives of the people, particularly on vulnerable group. In the beginning of the pandemic, the state government was facing a lot of challenges to equip the health infrastructure. This Covid-19 situation has brought drastic changes in the day to day human lives viz., job and business losses, education. The disease had high impact old age persons, severe health problems for the people already facing chronic diseases. Lack of awareness like not taking government regulations seriously, not ready to take self Quarantine, social stigma that to deliberately avoid them to go hospitals especially among rural illiterates. In fact most of the people had lost their lives due to the lack of awareness, where people go to hospital at the final stage of disease that cost their lives even if the proper treatment is given to them at the latter stage of the disease. In the first wave, it was difficult to cope by the government whereas in the second wave, government has taken stringent measures that have somehow reduced the impact; still there were high death cases. But in the third wave government initiatives like (compulsory vaccination and mass test campaigning) in addition with people awareness able to restrict the impact of the Covid-19 disease. This has reduced the death rate in the state in manifold. This also shows Tamil Nadu stand on the better position comparing to the other states.

References

1. Minati Mallick, Himani Majhi, "COVID-19 and Health Sector Challenges in Odisha", *Orissa Economic Journal* 52(4) 2020. pp. 6-20.
2. Tamil Nadu Government's Response to COVID-19 (prsindia.org)-online
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7431238/>-online
4. https://en.wikipedia.org/wiki/COVID-19_pandemic_in_Tamil_Nadu - online
5. <https://covid19.who.int/table> - online
6. Times of India .COM / Updated: February 2022-online.

IMPACT OF COVID-19 PANDEMIC ON BANKING INDUSTRY OF INDIA¹³

VIJAYALAKSHMI S.¹⁴

INTRODUCTION

In January 2020, the Covid-19, also termed as the Novel Corona virus, has been the headlines in most newspapers, news networks, and other media outlets. According to reports in the media, it began in the People's Republic of China and quickly spread to other regions of the world. None of the countries throughout the world, including China, were prepared for such a pandemic. Because of its ability to pass from one person to another via many modes, it became increasingly fatal and uncontrollable. As a precaution, the Indian government acted quickly and made some tough decisions, such as banning international flights and other modes of travel from the affected countries, such as China, Greece, Italy, and the United Kingdom, for an indefinite period of time, and requiring thermal scanning of every passenger from other countries. Further, the Indian government planned to impose more restrictions, which led to the decision to implement a complete lockdown beginning March 25, 2020. On March 24, 2020, the Honourable Prime Minister announced a complete lockdown for 21 days. Because there is no vaccine or therapy to cure this disease, it is more dangerous due to its tendency to spread. After a series of discussions, it was concluded that the only way to stop the Covid-19 from spreading was to break the transmission chain, which could only be done by complete lockdown.

The announcement of the lockdown was met with a slew of questions and doubts. These doubts were later dispelled by explicit instructions released by the Ministry of Home Affairs of the Indian government. The instructions declared bank services to be essential, and all banks in India were instructed to continue operating throughout the lockdown.

STATEMENT OF PROBLEM

The rapid spread of epidemics like covid-19 has resulted in a sharp drop in key indices, indicating a significant impact on GDP growth. On December 31, 2019, Wuhan, China, received the first report of a novel corona virus outbreak. This corona virus is a novel virus that has yet to be discovered in humans. According to the literature, the corona virus belongs to a large virus family. It spreads extremely quickly. This corona virus can cause anything from a common cold to autism syndrome. To prevent this from spreading throughout the country, the Indian government declared a lockout on March 24, 2020, which was later extended to May 3, 2020. Many actions were taken by many governments around the world, and WHO praised the timely action taken by Indian Prime Minister Narendra Modi and many people as a lockdown, because the cure of the disease or in the absence of a vaccine to prevent the virus from spreading was the best option. In addition, various institutions such as the IMF and World Bank, Central Banks, economists, fund managers, and consulting firms from various countries have expressed their concerns about the devastating effect of

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lockdown in GDP world and financial sectors especially in general and emerging economics like India.

OBJECTIVES OF THE STUDY

- To identify the key challenges related to banking operations during the COVID-19 pandemic.
- To know the role of Government and stakeholders during the COVID-19.
- To highlight the various policy measures taken by govt. of India and RBI to recover from this pandemic.

DATA AND METHODOLOGY

As previously stated, the current study is entirely based on secondary data in order to evaluate the effect of COVID-19 on the Indian banking industry. This secondary data was obtained from reputable English newspapers, magazines, various websites on the internet, other published research journals in this field, as well as international institutions such as the World Bank and the International Monetary Fund. This article identifies the level of information available and relates published materials regarding the challenges of the COVID-19 pandemic in the banking industry. The purpose is to understand how the banking business can cope with multifaceted crises and to highlight the various policy measure encounter managerial practices in the banking industry.

I. THE KEY CHALLENGES RELATED TO BANKING OPERATIONS DURING THE COVID-19

Branch Operations

This is the most vital challenge as banking being in indispensable services, the bank has to ensure continuous banking services across its branches. Besides that, the bank has to confirm the safety of its employees and avoid its branches from flatterring a hot spot for spreading of the disease. The bank runs danger of losing its status in command area if it cannot take appropriate safety measures in the safety of its staffs and its customers. Many staffs may be trapped at different places who had availed consent for going out of their present place of post.

Liquidity

The bank may face challenges on the liquidity obverse also as a large number of customers during this stage of ambiguity would like to take out their money, and rare would go for depositing of money. Likewise, reimbursement of loans, which is another cause of the funds, would not be offered to the bank on account of the suspension extended by the bank. The bank may have to appearance after ALM (asset liability management) in wake of the pause as the bank accepts regular funds from credit prolonged by the bank while find out its ALM position. Any disparity in asset and liability can lead to a liquidity emergency.

Employee Morale

The other issue relates to the self-esteem of the employees as they have to toil in an environment of ambiguity, where they can also get infested from the virus. The mainstream of the staffs feel that they are being treated unethically during this period of crises. Just like other staffs, they also want to stay privileged during the lockdown period. Apart from their security, they are anxious about the safety of their family members as there are chances of

getting infested while dealing with clients. Since the statement of the lockdown, many of the workers in different branches want to avail their leave, just to evade any prospect of getting infected. Thus, keeping the drive of the employee's high is a frightening challenge already the bank's management.

Vendor Management

Nationalized Bank has farm out a figure of its services like ATM operations and maintenance, Card operations, hardware maintenance, safety services, call centre operations, data centre and software support, to name a few. The bank will face challenges with reverence to ensuring continuous services from its vendors and their control. The services from these vendors are indispensable for ensuring near service transfer by the bank. The vendors, just like the bank, are facing footraces on account of lockdown in as long as services to their clients.

Recovery & Asset Quality

National Bank is already wrestling with mounting NPAs (non-performing assets) as its GNPA (gross NPA) is winged around 21%. With limitations on movement and operations, the position on the recovery front appears to be very forbidding. However, the moratorium offered is only for typical assets, it will have a bearing on recaptures from non-performing assets. The top management is predicting a further drop in asset quality in the post moratorium stage on account of the drain on repaying capacity. The calculation of loans is done on the base of repaying capacity and cash flows of the enterprises, which is going to receive a severe upset on account of this ambiguity. Loss of employment and shutting of small business units will lead to financial anxiety, which will affect loan service by the customers. The moratorium approved for loans in the pandemic will have a bearing on financial discipline and their routine of paying their instalments may be broken. The Nationalized Bank will face challenges with respect to keeping its asset quality, which is previously in bad outline on account of its merger with other Banks.

Post-meeting, Mr. Swami ended one report based on advice received from his team and progressed the same to Mr. Raju Laxman, care other officials in loop. He knew that they want a proper roadmap on an energetic basis to overcome the COVID-19 or Novel Corona virus pandemic.

Stake Reduction

In banking sector besides IDBI Bank government will reduce stake in two more public sector banks and one general insurance company. This clearly shows the commitment of the government to bold reforms.

The union Government holds over 70 percent stake in at least 10 banks as on December 2020. There are 8 banks where the government holds over 80 percent stake and in three banks government holds over 90 percent stake. These three banks are Punjab & Sind Bank, Indian Overseas Bank and UCO Bank.

Nationalized Banks - Government Shareholding %, as of 30 June 2021

Sl. No.	Name of the Bank	Government Shareholding %
1	Punjab and Sind Bank	98.07%
2	Indian Overseas Bank	96.40%
3	UCO Bank	95.39%
4	Bank of Maharashtra	93.33%

Sl. No.	Name of the Bank	Government Shareholding %
5	Central Bank of India	93.08%
6	Union Bank of India	83.50%
7	Bank of India	81.41%
8	Indian Bank	78.86%
9	Punjab National Bank	73.10%
10	Canara Bank	69.33%
11	Bank of Baroda	64%
12	State Bank of India	55%

In 2014, an RBI appointed panel PJ Nayak Committee recommended that government must exist ownership of state-owned banks. But, the report of P J Nayak Committee was ignored and no action was taken on the report.

Privatisation of two public sector banks by reducing government stake in them will be a good and welcome step and those measure of reform is the pressing need today. Gradually many more banks should also be privatised as there is no need for so many banks and public sector.

III. VARIOUS POLICIES MEASURES TAKEN BY RBI AND THE GOVERNMENT OF INDIA

The Reserve Bank of India has taken steps to provide some relief to lending institutions. The RBI has implemented credit risk assessment, which provides borrowers with certain waivers such as a moratorium on principal and interest payments as well as relaxation on their repayment obligations. This has allowed the borrower to be classified as a non-performing asset or a restructured asset, this has given to borrower to aid provisional financial difficulties. Banks will have to encounter the borrowers who are facing temporary or long-term financial problems.

- With effect from March 28, 2020, the RBI has reduced all banks' cash reserve ratios by 100 basis points to 3 percent net demand and time liability.
- The minimum daily CRR balance maintenance requirement has been reduced from 90 percent to 80 percent as of 28 March 2020, and this one-time exemption is valid until 26 June 2020.
- The RBI's Marginal Standing Facility (MSF) allows banks to borrow overnight at their discretion by deducting up to 2% from their Statutory Liquidity Ratio. With immediate effect, this limit has been raised to 3%. This measure will be in effect until June 30, 2020.
- The central bank has increased the existing policy rate corridor from 50 basis points to 65 basis points.
- The reverse repo rate under the liquidity adjustment facility (LAF) would be 40 basis points (bps) lower than the policy repo rate under the new corridor. The MSF rate would remain 25 basis points above the policy repo rate. Furthermore, as a result of the LAF corridor expansion, the reverse repo rate under the LAF has been reduced by 90 basis points to 4.0 percent. The widening of the reference rate corridor is expected to reduce short-term volatility and bring stability to money markets.

- Under the LAF, the policy repo rate has also been reduced from 5.15 percent to 4.40 percent (a 75-basis point reduction) with immediate effect. As a result, the MSF and bank rates will be reduced from 5.40 percent to 4.65 percent.
- The government takes the lead by announcing a Rs. 1.7 trillion relief packages for the poor, which includes cash transfers and food security.
- Larger corporate bailout packages are announced by financial institutions.
- The government imposes emergency or drastic measures to ensure economic survival.
- The Indian government is strengthening its administrative machinery in order to more effectively distribute the benefits of welfare programmes.
- The Indian government is increasing the empowerment of local governments in order to facilitate effective crisis management.
- The government pushes priority sectors by leveraging bank lending.

CONCLUSION

The covid-19 pandemic has a quite negative impact on the Indian economy and banking industry, and it is still impossible to determine the exact scope and depth of the virus's impact. The situation will become clear once the pandemic has passed. However, the government and the RBI have taken some steps to mitigate the impact of this virus on the economy, but there are still many things that need to be done, and they will not be sufficient until the virus is eradicated. To protect the Indian economy from long-term damage, this pandemic situation demands strong and resilient leadership.

REFERENCES

1. Vikas Kumar, Sanjeev Kumar "Impact of Covid-19 on Indian Economy with Special Reference to Banking Sector: An Indian Perspective" International Journal of Law Management & Humanities [ISSN 2581-5369] Volume 4, Issue 1 2021
2. C. Sohrabi, Z. Alsafi, N. O'Neill, M. Khan, A. Kerwan, A. Al-Jabir, et al., "World health organization declares global emergency: A review of the 2019 novel corona virus (COVID-19)", Int. J. Surg., vol. 76, pp. 7,1-76, Apr. 2020
3. H. Li, S.-M. Liu, X.-H. Yu, S.-L. Tang and C.-K. Tang, "Corona virus disease 2019 (COVID-19): Current status and future perspectives", Int. J. Antimicrobial Agents, vol. 55, May 2020
4. Yusuf Perwej, Firoj Parwej, M. M. Mohamed Hassan, Nikhat Akhtar, "The Internet-of-Things (Io T) Security: A Technological Perspective and Review", International Journal of Scientific Research in Computer Science Engineering and Information Technology, Volume 5, Issue 1, Pages 462-482, 2019, DOI: 10.32628/CSEIT195193

ASSESS ON THE ROLE OF RAG PICKERS AND SOLID WASTE MANAGEMENT, POST PANDEMIC IN PUDUCHERRY¹⁵

Ms. T. DHIVYA¹⁶

INTRODUCTION

In developing countries, the ever-increasing human population and the associated anthropogenic activities have accelerated the phenomenon of urbanization in the past decade. In India, the rate of increase of urban population shot from 11% in 1901 to about 26% in 2001. Puducherry Union Territory has a population of 12.48 Lacs, an increase from 9.74 Lakh (census 2011). The rapid growth rates of the cities, combined with their huge population base, have left many Indian cities lacking in basic infrastructural facilities like water supply, sanitation, sewerage, and solid waste management. The total quantity of Solid waste generated in the country is 150761 TPD of which 145957 TPD of waste is collected as per which overall collection efficiency of waste collection works out to 96.8%. 70881 TPD (47.01%) of waste is treated and 40952 (27.16%) TPD is land-filled. 38928 TPD which is 25.8% of the total waste generated remains unaccounted for. (CPCB, 2019 – 2020).

In spite of the increasing stress towards the waste reduction at source as well as recovery and recycling of the solid waste, disposal of solid waste through landfills remain the most commonly employed method. Landfill incorporates an engineered method of disposal of solid waste on land in a manner that minimizes environmental hazards by spreading the solid waste in thin layers, compacting the solid waste to the smallest practical volume, and applying a cover at the end of the operating day. Several key considerations are required to be taken into account to ensure its overall sustainability.

SOLID WASTE MANAGEMENT AND ROLE OF RAG PICKERS IN PUDUCHERRY

The total quantity of waste generated in Pondicherry works out to 300 tons/day (CPCB-2019-2020). The average per capita solid waste generation in Pondicherry town is around 450 gm/day. The projected rate of waste generation by 2026 as per the population growth would be 0.198 million tons (CPHEEO, 2000). At present, the primary collection mechanism is devoid of systematic planning. Inventory of major and minor streets is not maintained. The work schedule, allotment of streets to particular conservancy labor are being done on an Adhoc basis rather than a need basis. In such a scenario, few streets get more attention and few others are neglected. Similarly, there is a gross inadequacy in placing dustbins. This leads to indiscriminate dumping of solid waste in the streets and lanes of the towns. Rag pickers are the people who go through the garbage bin to pick out the rags. These rag pickers are women, children, and men from the lowest position in society. At present, no formal segregation of recyclable waste is practiced either at the residence or at the commercial spots. Though rag picking supports the recycling industries, it makes the waste storage area uglier and the rag pickers are exposed to various health hazards. The rag pickers are classified into two categories one is organized waste workers and another one is non-organized waste

¹⁵ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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workers. The organized workers are working on a contract basis under municipal and the non-organized workers are working in private. 550 to 600 to 800 people are working on a contract basis and they are earning 200 per day. The non-organized workers can earn 30 to 50 to 80 rupees.

OBJECTIVES

The objectives of the present work are as follows:

- To examine the solid waste management in Puducherry.
- To focus on rag pickers profile of solid waste management in Puducherry.

NEED OF THE STUDY

The exponential rise in the urban population in the past few decades and the resulting accelerated urbanization phenomenon have brought to the fore the necessity to develop environmentally sustainable and efficient waste management systems. The study aims to analyze solid waste management and the role of rag pickers in the Puducherry.

STEPS ADOPTED IN THE PRESENT STUDY

The methodology in the present study was organized into two stages. In the first stage, environmental problems of the existing dumpsites and the composition of the present waste generation were analyzed. Hence to assess the environmental pollution, monitoring of groundwater quality and ambient air quality were carried out around the dumpsites for all seasons. The various steps adopted in the present study are as follows.

Proposed routing for waste transportation

Streets maps were collected from the municipalities of Pondicherry and Oulgaret. The maps were digitized and transformed to GIS. Based on the criteria viz., traffic volume, distance, and time, the optimal route between transit stations and proposed disposal site were determined using Arc View 3.3 version with Network Analyst. Transit stations for the suggested routing were identified based on picking up the waste. The number of transit stations was arrived based on the aerial extent. The area of Pondicherry and Oulgaret municipalities is 20.6 sq. km and 36.6 sq. km. respectively.

Evaluation of solid waste management options

Based on the environmental problems of the existing dumpsites, characteristics and composition of solid waste assessed in the study, available technologies of waste disposal were evaluated. The feasibility of each technology such as sanitary land-filling, windrow composting, vermi-composting, and incineration/pyrolysis was studied regarding their environmental conditions and sustainability. Generations of power and methane gas through municipal solid waste were also assessed.

IMPACT OF RAG PICKERS IN POST PANDEMIC

The first case of the Covid in India was reported on 30 January 2020, It was discovered from (Wuhan city) China, Slowly, the pandemic spread to various cities and states, and union territories including the union territory of Puducherry. The first case was recorded in this region on 17 March. In the hospital waste was disposing and segregated - yellow bags and the placed names in the rag have Covid-19. Without proper awareness. They take out all rags and segregation without wearing masks, gloves. This type of situation leads to affected by covid-19, many of the rag pickers were affected. There is the total case in Puducherry

overall 1,21,665, recoveries cases 1,19,031, and death 1,800, active cases 834. When we consider only in Puducherry the total cases are 94,992 and the recoveries are 92,968, deaths are 1,426, active cases are 598 (Covid cases source).

The rag pickers always look uglier because they come under the poverty line and stayed near the railway station, roadside - eating and sleeping near the dustbins. They are mainly engaging in the recycling work. They don't have much money to sustain their needs. Even in the lockdown ration shop are also closed. The unorganized rag pickers don't have food, shelter, proper awareness in the covid-19 pandemic time.

KEY AND SUGGESTIONS FOR RAG PICKERS IN THE PANDEMIC

In the local bodies, urban, rural areas, and union territory many of the rag pickers were surviving. Measures to be promoted to make awareness to Rag Pickers: The government should be facilitated to give wear masks, gloves, sanitizer, etc., (mandatory) to the rag pickers. During this pandemic, most of the rag pickers may be affected by covid 19 so the government should arrange and give remuneration. The supervisor of this contract basis should collect the data about the rag pickers who are affected by covid-19 and provide the data to the government so that the government can help the rag pickers. Most of the rag pickers are found on the roadside, railway stations, etc., the organization body or local government should form an organization for the rag pickers. The organization may be divided into ward wise, Area wise and through this organization; the government should help the rag pickers and satisfy their needs. Most of the women, children (rag pickers) suffer a lot. If the government help them (giving identity card, providing free education, etc.) through this organization their livelihood also changes. Organizing and implementing these steps and methods helps them to overcome their problems.

CONCLUSION

There are 150 non-organized waste workers (private) they are taken out recyclable waste from the dumping area and dustbins for recycling and selling the waste and earning money needs. During the Covid-19 pandemic time, the organized waste workers and the non-organized waste workers both were engaged in collecting solid waste. They may go or collect rags without wearing a mask, face shield, gloves, etc., This period highlighted on The rag pickers to aware the working environment due to the safety and security of life.

REFERENCE

1. Syamala Devi. K., PhD Thesis, Solid Waste Management of Greater Hyderabad Municipal corporation (2013).
2. Ray MR, Mukherjee G, Roychowdhury S, Lahiri T. Respiratory and general health impairments of rag pickers in India: A study in Delhi. *Int Arch Occup Environ Health*. 2004; 77:595–8.
3. Ragpicker. [Last accessed on 2019 May 20]. Available from: <https://en.wikipedia.org/wiki/Ragpicker>.
4. (<https://doi.org/10.37896/sr7.9/042/> impact of covid-19 and lockdown of Rag Pickers.
5. <https://covid19dashboard.py.gov.in/Reporting/DateWise>.
6. Annual Report on solid waste management (2019-20), CPCB, Delhi.
7. <http://cpheeo.gov.in/cms/manual-on-solid-waste-management-2000php>.

ECONOMIC IMPACT OF COVID-19¹⁷

Dr. B. LAKSHMI NARASU¹⁸

INTRODUCTION

Life on this earth has seen many sufferings War, devastations like natural disasters, and epidemics like bubonic plague, Spanish Flu, SARS, MERS etc. But never have an epidemic breakout been termed pandemic and has made the world stand still. The outbreak of Covid-19 was local, but the spread reached pan global and the whole world came to a stop not knowing how to deal with the havoc caused by a virus.

COVID-19 SPREAD AND THE GREAT HALT

Covid-19 outbreak was the greatest health challenge at the turn of 21st century after the Spanish flu. Though researchers claimed that this virus was a known variant since 1950', its crossover to humans and the health hazard it posed was not understood at the time of outbreak of COVID- 19. Because of this, the entire world was caught aware. The speed of the spread and its inducing fatal consequences, led to the initial rationale, to contain the spread of the disease. WHO recommended, as a precaution to stop the mobility of people from moving around and restricting their mingling can lead to isolation of the affected. This would also make tracing the origins of the infection to a reasonable geographical spread.

IMPACT OF COVID-19

Based on the advisory of the WHO, nations started shutting down its borders. This led to panic amongst the people about the efficacy of the Health care system and drove people to paranoia and confines of their homes. Agriculture, Industry, logistical chains and the labor activities involved came to a grinding halt. The wheels of Economy stopped churning. Against all the odds, we thought that Doctors and Health care workers alone would be able to work and stop the spread and create a cure in a short span of time. It was hoped that Economy can survive without all economic activity and Surprise of surprise, we thought we can survive without agricultural activity.

Impact on Manufacturing and Labor: The manufacturing process involves working in the factory and the laborers working in the factory livelihood depended on the remuneration derived from it. With the stoppage of all manufacturing activities laborers lost their livelihood. Capital lost its turnover and there was decay.

The health hazard posed by the pandemic created serious challenge to the workmen. The cost of health started zooming upwards along with loss of real income. This created a stress on the household economy of factory workers and stress on the financial health of the small scale entrepreneurs.

¹⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Impact on Health Care Industry: The health care industry could not cope with the demand for their service. Also the health care industry bore the brunt of the impact being at the fore front of the pandemic onslaught. Without the support of manufacturing activity the health care system was burdened by the double whammy of price rise of important life saving tools and higher demand for such supplies.

Impact on Rural and Urban markets: The rural and the urban markets in India is mostly manual labor driven and it was suddenly stopped of supply. All agrarian, construction and unorganized work came to halt due to stoppage of work. The migrant laborers working in these sectors were mostly daily wages and their social security was totally inadequate to tide over the crisis. The pandemic induced stoppage led to fall in wages of household and thereby curtailing the spending of households on non-essentials. This in turn led to reduction in demand of services. The service industry which was a major contributor Indian GDP shrank to abysmal levels. The absence of demand in services lead to lay off of white collared jobs and this added another burden on the already sagging economy.

The slack in services and stoppage of labor stopped the industrial output to zero leading to supply chain constraints. The Government had to step-into meet the entire social security needs of food and health without any economic activity happening in real terms. This led to monetary distress at individual household level and national level. The prices of all essential items began to zoom astronomically as there was panic as to how this pandemic would pan out and how long it would to take. The diverse opinions of nay-sayers, optimists and the mass hysteria caused by round the clock social media turned this into a mob hysterical frenzy.

The absence of labor in the market led to great demand for labor in our country. The health loss put a strain on the average household and therefore the labor now demanded more wages for the same work. This loss is leading to inflation, money supply and hoarding of services and goods and black-marketing.

This has been validated by the study conducted by Hunger Watch –II wherein 66% respondents reiterated that the income levels have decreased considering the pre-pandemic days. Only 5% of respondents said there is an increase in their monthly income. This study clearly underlines the impact caused by the covid-19.

As we can see, the pre & post pandemic has led to the erosion of monetary value in many vulnerable sections of the society. The affluent and affordable could absorb the impact and also reaped the dividends of the unexpected demand boom from certain essential items. This created an unhealthy inequality.

Governments around the world are now grappling with this inequality. Governments of the day now have not only the job of regulating the markets, but they are now actively involved in creation of supply and demand in the market in this time of turbulence to bring normalcy. The present day governments are more morally bound by the duty to bridge the gap of haves' and have-nots without affecting the enterprise of free market. This is a tough task for any government.

CONCLUSION

The impact of COVID on personal life and public life is very profound. At a personal level, it has brought in a sense of despair and uncertainty along with additional burdens on connectivity and health care. In the public sphere as citizens and individuals it is our moral

duty to uphold the virtues of sanitation and cleanliness. As nation the country has to allocate more resources for health care and education. The COVID-19 brought necessity and focus on the public sanitation and public cleanliness. The requirement of this time is to balance between the need for survival and the effort to uplift the economy.

Bibliography & Source

1. www.google.com
2. The Hindu
3. Hunger Watch-II

Peer Reviewed Journal

ECONOMIC EFFECT AND PREVENTIVE MEASURES ON COVID-19 IN SELECTED RURAL AREAS OF VELLORE DISTRICT¹⁹

Dr. M. THIRUNAVUKKARASU²⁰

INTRODUCTION

Corona virus is a novel microorganism that causes respiratory illness in hosts. Corona virus is an illness caused by a virus that extends from individual to person. COVID-19 spread from person to person through small droplets from the nose or mouth when a person coughs or sneezes. The disease is transmitted to an infected person by touching the droplets or other parts of the body with his hands and then touching any parts of his eyes, nose or mouth. Corona infection is increasing rapidly in India and the number of people falling victim to the corona virus infection. On March 11, 2020, the humanity health association acknowledged that COVID-19 was a large-scale pandemic, indicating a considerable international distribution of a contagious disease. The planet health business affirmed the SARS virus as an inclusive pandemic. India extremely is groaning under the depression of the epidemic. As apiece news in monetary era available on 23 March 2020, the economist is pegging the outlay of the COVID-19 lockdown at US\$120 billion or 4 percent of the GDP. The pandemic, down with the noticeable health-related impact, poses a life-threatening risk to the psychological well-being of independent has resulted in momentous behavioral changes. The virus is referred to as SARS-CoV-2 and the linked disease is COVID-19. The World Health Organization and health experts and doctors advise people to be safe to raise awareness (Joshua Gans, 2020).

These different types of corona virus are that cause illness in animals and humans. In humans, corona virus can cause respiratory infections ranging from the common cold to more severe diseases. As for each department of Health and Family Welfare, the infection may maintain progress from as wine font but spreads through being to human being contact. As a piece WHO, the virus that causes COVID-19 and the one that caused the outbreak of relentless Severe Acute Respiratory Syndrome (SARS) in 2003 are interrelated to all other genetically, but the diseases they basis are fully different. SARS was further deadly but greatly minus catching the COVID-19 at hand cover been no outbreaks of SARS somewhere in the humankind since 2003 (Ministry of Health and Family Welfare).

ORIGIN OF THE COVID-19

In Dec 2019, there was a cluster of pneumonia cases in the city of Wuhan in China. The Middle East Respiratory Syndrome (MERS) corona virus was first identified in Saudi Arabia in 2012, and Tsarskoe V2 named the virus that causes COVID-19 that was first reported in Dec 2019. Some of the early cases had reported visiting or working in seafood and live animal markets in Wuhan. Investigations found that the disease was caused by a newly discovered corona virus; the disease was subsequently named COVID-19. On 30th January 2020, the WHO declared the outbreak a public health emergency of international concern. COVID-19 is a large group of viruses that consist of a core of genetic material surrounded by

¹⁹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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a lipid envelope with protein spikes. This gives it the appearance of a crown in a Latin word called Corona. These different types of corona virus are that cause illness in animals and humans. In humans, corona virus can cause respiratory infections ranging from the common cold to more severe diseases. These include severe acute respiratory syndrome. As a certain family of the virus, Corona virus or COVID-19, it is assumed to contain a head that originated in China's Wuhan has confirmed a pandemic (March 11, 2020, World Health Organization). As for each department of Health and Family Welfare, the infection may maintain progress from a swine font but spreads through being to human being contact. As apiece WHO, the virus that causes COVID-19 and the one that caused the outbreak of relentless Severe Acute Respiratory Syndrome (SARS) in 2003 are interrelated to all other genetically, but the diseases they basis are fully different. SARS was further deadly but greatly minus catching the COVID-19 at hand cover been no outbreaks of SARS somewhere in the human kind since 2003 (Ministry of Health and Family Welfare).

PREVENTIVE MEASURES TAKEN BY THE GOVERNMENT

Even though the virus scored globally, the rule took practical actions to influence its range in India. It conducted arduous screenings and mandatorily quarantined incomings globally travelers and, besides categorically floating everyone visa, except for diplomats and employment, till April 15. Every part of cross-national limitations was sealed, and a railway operation was suspended. Altogether schools, gyms, malls, clubs, hotels, district halls, etc., were hut. But awaited the enlarged expose of the expansion of the virus, on March 24, the Prime Minister announced a carry out 21-day lockdown for the complete nation, banning introducing somebody to an area to change out of their houses. This act, thus, cruelly controlled the districts increase of the virus. However, the downside is that the lockdown is probable to cut off added than Rs.10 lakh crores from the Indian Economy. To limit the rising panic and deliver viable information, the regime provides authenticity in order on the virus, its spread, preventions, guidelines, helpline numbers, registered cases, fatality tools, etc., (Ministry of health's official website). The administration has designed 72 centers across the country for the diagnosis and medicine of COVID-19. As for each of the WHO estimates, nearby be supposed to be 3 beds/1,000 people. Thus, to endow extra isolation wards, the direction converted 20,000 plus railway coaches into isolation stations.

On the other hand, the RBI (Reserve Bank of India) undertook tragic procedures critical innumerable awareness tariff to a profile subtle to expand liquidity in the family by over Rs.3.7 lakh crores. It besides controlled a three-month EMI freeze from banks and financial institutions as surge as provided relief for taxpayers by deferring the ITR and GST filling dates until June 2020. Moreover, to prevent low-income households, nomadic staff and day after day wage laborers deal with the situation, the authority has issued relief packages worth Rs.1.7 lakh crores for groceries and give orders notes transfers, opened shelter homes, and other securities. The Indian administration is leave-taking no take the stones out of unturned in battling Corona virus. However, whether or not the command has lucratively controlled the reach of COVID-19 in the country. The following measures are suggested by World Health Organization.

1. Protect ourselves and those around us

- Get vaccinated as soon as it's our turn and follow local guidance on vaccination.
- Keep a physical distance of atleast 1 metre from others, even if they don't appear to be sick. Avoid crowds and close contact.

- Wear a properly fitted mask when physical distancing is not possible and in poorly ventilated settings.
- Clean our hands frequently with alcohol-based handrubor soap and water.
- Cover our mouth and nose with a bent elbow or tissue when cough or sneeze. Dispose of used tissues immediately and clean hands regularly.
- If we develop symptoms or test positive for COVID-19, self-isolate until we recover.

2. Wear a mask properly

- Make sure our mask covers our nose, mouth and chin.
- Clean our hands before you put our mask on, before and after you take it off, and after you touch it at anytime.
- When you take of four mask, store it in a clean plastic bag, and everyday either wash it if it's a fabric mask or dispose of it in a trash bin if it's a medical mask.
- Don't use masks with valves.

3. Make our environment safer

- The risks of getting COVID-19 are higher in crowded and inadequately ventilated spaces where infected people spend long periods together in close proximity.
- Outbreaks have been reported in places where people have gathered, often in crowded indoor settings and where they talk loudly, shout, breathe heavily or sing such as restaurants, choir practices, fitness classes, night clubs, offices and places of worship.

To make our environment as safe as possible

- Avoid the 3Cs: spaces that are closed, crowded or involve close contact.
- Meet people outside. Outdoor gatherings are safer than indoor ones, particularly if indoor spaces are small and without outdoor air coming in.
- If we can't avoid crowded or indoor settings, take these precautions:
- Open a window to increase the amount of natural ventilation when indoors.

4. Keep good hygiene

- By following good respiratory hygiene, we protect the people around us from viruses that cause colds, flu and COVID-19.

To ensure good hygiene you should

- Regularly and thoroughly clean our hands with either an alcohol-based handrubor soap and water. This eliminates germs that may be on our hands, including viruses.
- Cover our mouth and nose with our bentel bow or a tissue when we cough or sneeze. Dispose of the used tissue immediately into a closed bin and wash our hands.
- Clean and disinfect surfaces frequently, especially those which are regularly touched, such as door handles, faucets and phone screens.

CONCLUSION

The COVID-19 pandemic has had a debilitating effect on the physical, economic, and mental well-being of migrant workers. However, there is a gradual improvement in these aspects, especially labour supply. In order to survive the post lockdown period, migrants will

likely need continuous support: a considerable fraction remain unemployed or underemployed, have their food security threatened, live in temporary housing, and manage large households with many dependents. Many migrants also do not hold ration cards or do not have access to the PDS shops where they are currently located.

REFERENCES

1. Baldwin, Richard, and Beatrice Wederdi Mauro. *Economics in the time of COVID-19*. 2020.
2. Biswas, Soutik. "Corona virus: Why is India testing so little?" *BBC News*, 2020.
3. "COVID-19 pandemic in India." *Wikipedia*.
4. Das, Sourish. "Prediction of COVID-19 Disease Progression in India: Under the Effect of National Lockdown." 2020.
5. Dhatrak, Swapnil P. "The Socio- Economic Impact of Covid-19 or Corona Pandemic in India." *Shanlax International Journal of Arts, Science and Humanities*, vol. 8, 2020, pp.84-88.
6. Gans, Joshua. *Economics in the Age of COVID-19*. The MIT Press, 2020.
7. Koley, Tapas Kumar, and Monika Dhole. *The COVID-19 Pandemic: The Deadly Corona virus Outbreak*. Routledge, 2020.
8. Kumar, Pradeep, and Tushar Kant. *The Economic Impact of Covid19 with Special Referenceto India (as on 01.05.2020)*, 2020.
9. Le Pan, Nicolas. "A Visual History of Pandemics." *World Economic Forum*, 2020.
10. "New Cases of COVID-19 in World Countries." *John Hopkins University*, <https://coronavirus.jhu.edu/data/new-cases>
11. *Novel Corona virus (2019-nCov), Situation Report 1-21 Jan2020*. WHO, 2020.
12. Watkins, John. "Preventing a COVID-19Pandemic." *BMJ*, 2020.
13. World Economic Outlook Reports, International Monetary Fund, 2020.

THE COVID-19 INDIAN ECONOMY: ISSUES AND CHALLENGES²¹

Dr. S. BALRAJ²²

I. INTRODUCTION

The Indian economy has been experiencing significant slowdown over the past few quarters. In the third quarter of the current fiscal, the economy grew at a six-year low rate of 4.7%. Investment and consumption demand had been languishing and a number of stimulus measures have been taken to bring back the economy on a growth path. There was a strong hope of recovery in the last quarter of the current fiscal. However, the new coronavirus epidemic has made the recovery extremely difficult in the near to medium term. The outbreak has presented fresh challenges for the Indian economy now, causing severe disruptive impact on both demand and supply side elements which has the potential to derail India's growth story.

II. ISSUES OF COVID-19 INDIAN ECONOMY

• Issues of GDP growth

As of June 8, India was on John Hopkins University's dashboard, setting seventh on the rundown of nations with most diseases – at that point, it had recorded an enormous 258,090 positive cases, with 7,263 recorded passing. In the nation's most recent financial projections, India's GDP is relied upon to shrink by 6.8% in its present monetary year, more terrible than its slowest-in 11-years climb the last quarter. An inexact 84% of Indian families are confronting pay diminishes since the start of the lockdown, as indicated by an investigation distributed by the Universities of Pennsylvania and Chicago, and Center for Monitoring the India Economy, Mumbai. They had likewise reasoned that the pandemic had caused a sharp and wide negative effect on family unit pay, as 33%, everything being equal, will be unable to get by past seven days without extra help.

Sectorial Impact Eateries Services

The National Restaurant Association of India (NRAI), which speaks to 500,000 or more eateries the nation over, has exhorted its individuals to close down eat in activities beginning Wednesday till March 31, 2020. This will affect activities of thousands of eat in eateries, bars, bars and bistros. By augmentation, food conveyance stages, for example, Swiggy and Zomato that are without anyone else working - have additionally endured a hotshot. Requests on Swiggy and Zomato have dropped 60% in the midst of the pandemic.

Issues of Food and Agriculture

The food and horticulture area contributes the most noteworthy in GDP for example 16.5% and 43% to the business area. The significant part of the food handling area manages dairy (29%), consumable oil (32%), and grains (10%). India likewise stands number one in dairy and flavors items at a worldwide situation (send out). The item will be influenced in the coming seasons because of low planting of the up and coming occasional harvests which will

²¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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influence the mandi activities as said by the Ministry of Agriculture. The organizations which manage Agro-synthetic rely upon send out for completed merchandise and import of crude materials. The food retail with the Central government and State governments permitting free development of products of the soil the Bricks and Mortar staple retail chains are working typically however with the deficiency of staff is affecting activity. It is normal that with delayed lockdown the interest for the food supplies will increment. The online food staple, then again, endures an enormous misfortune because of the limitation of conveyance vehicles. With the deficiency of work, the food preparing units are confronting a hunch in typical capacity yet the administration is attempting to back out the circumstance until that the production lines need to acclimate to working with low work check. A significant objective in the catch of Coronavirus for the following barely any months the Indian fare is affected because of low purchaser request the fare arranged products like fish, mangoes, grapes are smashing this will affect the future harvest accessibility.

Issues of MSME

This area contributes 30% to 35% of the GDP, indicating a bifurcation of miniature (99%), little (0.52%) and medium (0.01%) undertaking. On the off chance that we see the sectorial dissemination of MSMEs, it shows 49% from country and 51% from the semi-metropolitan and metropolitan zones. Maharashtra, Uttar Pradesh, Bihar, Tamil Nadu, and Madhya Pradesh have the most noteworthy number of enlisted MSMEs, an investigation by the AIMO assessed that about a fourth of more than 75 million is confronting conclusion if the conclusion goes past about a month and if the lockdown actually expands the circumstance would compound influencing the work of 114 million individuals influencing the GDP. The client connection area. Ordering the wares into part for example fundamental products and unimportant items demonstrated various reactions in the market.

II. CHALLENGES OF COVID-19 INDIAN ECONOMY

➤ Safety of farm population

Farmers, agricultural labourers, workers in supply chains have to be protected from the health shock. Now the pandemic is spreading to the rural areas. Some of the measures like testing of rural population, social distancing in harvest operations, procurement, marketing, packaging etc. will help in less spreading of the pandemic.

➤ Supply chains

During the lockdown and beyond, one has to concentrate on smooth operation of post-harvest activities, marketing of production, retail, wholesale, storage and transport. Negotiable warehouse receipts for godowns and storage have to be intensified. Revival of supply chains is needed for ensuring higher prices for farmers and generating employment for agricultural labourers and other rural workers for farm families and agricultural workers: Although farmers are involved in production of crops, they also face food related problems. Farmers and agri. Workers have to be included in the in-kind assistance package or any social protection programmes announced by the governments. At present, PM-Kisan includes only land owners. Tenant farmers who are the actual cultivators should be included in the scheme.

➤ Avoid export bans

At the macro level, trade in food and agriculture has to be maintained in order to have availability of food. Access to food has to be tackled in a different way than having export

bans. For example, some of the farmers are suffering because of export restrictions. After the lockdown period, exports of farm products have to be continued.

➤ **Agriculture reforms**

The reforms relating to the Essential Commodities Act, agricultural marketing and contract farming would help the farmers in raising their incomes in the medium term. But, the government has to provide more clarity on these reforms. One big point of discord that relates to the amendments to the Essential Commodities Act is the provision to invoke its controlling powers on exempted food items. That is, 100 per cent increase in retail price of horticultural produce or 50 percent increase in retail price of non-perishable items as compared to the previous 12 months or last five years average, whichever is lower. This provision would restrict big-ticket investments in the sector. Now, if a trader buys goods from other states, what happens to taxes other than mandi tax and cess that is levied? Though GST will have taken care of a lot of these issues, but some clarity could have been better.

➤ **Migrant workers**

The migrant workers are the worst affected by the lockdown and will continue to be so in the next few months. They have faced extreme hardships. There have been several suggestions to help the migrant workers. After the lockdown, an orderly return of the migrant workers to their respective work places must be arranged. Steps must be taken such that the benefits of social safety nets like PDS,

➤ **MSME and MFI**

Since most MSMEs primarily operate on cash, they require immediate liquidity to cope with adverse events. As mentioned above, the government announced collateral free automatic loans to the tune of Rs.3 lakh crores over the next five months guaranteed by the government.

CONCLUSION

Even though The Government of India has launched the Make in India and Atma Nirbhar Bharat programme, some of the start ups in ecommerce like Grofers, big basket, etc have been successful but still the Government is required to thoroughly analyze the challenges faced by the Indian start ups. Public private partnerships in these areas need to be encouraged. These startups can surely lay the foundation for the recovery of the Indian economy.

Reference

1. Sushama Yadav (2020) the post-covid-19 Indian economy: opportunities and challenges, International Journal of Recent Scientific Research, Vol. 11, Issue, 12(D), pp. 40410-40414.
2. Selvakumar T (2020) COVID-19 and its Impact on Indian Economy 2020, International Journal of Business Economics Research, 6(2) pp 532-533.
3. Kumra A (2020) Impact of COVID-19 on the Indian Economy, International Journal advance Research, 8, 17-33, (ISSN2320-5407).
4. Mezbin Lalani Post COVID 19-Economic Opportunities & Challenges in India: Crisisthat led to innovations and the road ahead, Palarches Journal of Archaeology of Egyptology, 18(7), ISSN 1567-214x.
5. Economic Survey (2020), Key indicators, Government of New Delhi.

IMPACT OF COVID-19 PANDEMIC ON MICROFINANCE BORROWERS IN TAMIL NADU²³

Dr. P. NADIMUTHU²⁴

INTRODUCTION

Meena, a Dalit Christian widow, has been highly stressed about her five microfinance loans and numerous ceremonial obligations in recent months. 'The anxiety about my debt has made me sick', she said. 'My heart rate has risen but I have not gone to the hospital yet. If I go to the nuns here, I will have to spend 100 rupees on treatment'. On 24 March 2020, Prime Minister Narendra Modi announced a national lockdown with four hours' notice for the country. Like tens of millions of internal migrant workers, Meena Mary's sons returned home as their jobs ceased, leaving her with a significant reduction in household income. Two days later, the Reserve Bank of India announced a three-month moratorium on loan repayments, including microfinance loan and interest repayments, later extended for another two months. This was a relief, since it allowed Meena Mary and many others not to worry about these repayments, but also a source of concern, as the moratorium also blocked any further borrowing.

Many microfinance providers, however, did not respect the moratorium. From mid-May 2020, almost three months before the end of the moratorium, loan officers returned and started pressurizing Meena Mary to repay, reminding her that not only did interest continue to accrue, even though delays had been permitted, she would also be charged interest on the interest. She would end up having to pay much more on each loan. Once the moratorium was lifted, repayments became mandatory, which left her no choice but to hide from loan officers, sitting still for hours on collection days to give the impression that no one was home.

At the same time, the central government's promised pandemic relief, in the form of cash transfers, which was supposed to be distributed efficiently through banks, largely missed its target, precisely because of the dysfunctional banking infrastructure. Although Meena has a bank account, opened specifically to access social welfare programmes, she received nothing. Like other villagers, the only forms of help she was able to secure were the food distributed and cash transfers in the form of cash from the state of Tamil Nadu. Indeed, some of her neighbours even saw their meagre revenues captured by the automatic repayment of loans.

Meena is served through infrastructures of financial inclusion and these have been hailed as a key means of support for India's working poor, both during the first wave of the pandemic and the subsequent national lockdown, and afterwards. Yet, as the reality on the ground shows, during the first lockdown and in the months that followed, microfinance through the continued presence of loan officers during the moratorium, and the digitization of payments was primarily employed as a tool of capturing precarious asset streams, not distributing financial support.

²³ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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MICROFINANCE INFRASTRUCTURE AND THE COVID-19 PANDEMIC

To examine the infrastructure of financial inclusion as a political process, we take as entry point the industry's response to the COVID-19 pandemic. The pandemic and the resulting global recession have put the current microfinance model in jeopardy through simultaneously endangering the regular income flows of microfinance institutions (MFIs) and their access to capital. Aware that the widespread losses of employment and income would prevent borrowers from repaying loans made to them, microfinance institutions dramatically curtailed their lending to mitigate the risk of loan defaults. The World Bank's Consultative Group to Assist the Poor (CGAP) Global Pulse Survey showed that two-thirds of the surveyed MFIs had 'slashed lending by more than half compared to normal levels'. While microloans have long been portrayed as a tool of resilience by financial inclusion advocates, vulnerable households have lost access to this apparent 'crisis remedy' at a point of crisis in resource access, further exacerbating the complexities of household reproduction in this period. Whilst a briefing from microfinance regulators suggests that remaining 'pro-poor' should be the first guiding principle in the development of crisis measures, and preserving the safety and soundness of microfinance providers' only the fourth, the current collapse in lending and concurrent access to liquidity for the poorest suggests that lenders are adopting a more inward-looking approach. Instigated by the micro finance industry in order to protect the sector, the drastic curtailment of lending activities at the global level contributed to undermine the resilience of poor borrowers.

Furthermore, breakdown threatens to deepen livelihood insecurity for many. Ignoring numerous calls for loan waivers, a significant portion of microloans have been rescheduled and restructured globally, including in regions where moratoria have been placed on loan disbursement and collection. There are serious concerns among the microfinance community about how these restructured loans will perform once the moratoria are lifted. As a result, much of the focus to deal with the current crisis has been on how to maintain 'credit discipline' and 'the repayment culture among microfinance borrowers'. According to the World Bank, relief policies should only be targeting those borrowers with strong payment records, and not what they call 'wilful defaulters' — those who can repay but refuse to do so — and 'zombie borrowers' — those who struggled to repay before COVID-19 and are unlikely to repay at the end of the moratoria. What the crisis and concurrent curtailment of lending activities have thrown into sharp relief is the almost impossible trade-off between providing meaningful relief to borrowers and maintaining the security of the microfinance industry. As the World Bank guidance on borrower relief measures in relation to COVID-19 signals, regulators are strongly advised to obtain a thorough understanding of the financial impact of relief measures prior to adoption (ibid.). Relief to borrowers is pitted against the sustainability of the sector, thus recasting the most precarious borrowers, arguably those who are most in need, as too high-risk. In a CGAP COVID-19 briefing, it was noted that 'beneficial as borrower relief measures may be, they risk weakening repayment discipline and masking the true financial position of MFP [Microfinance Providers] portfolios'. As a result, while forms of loan rescheduling — such as moratoria, often with interest accrual⁵ or even interest capitalization — and restructuring have constituted the policy norm; Rhyne and Dias, expanded relief mechanisms such as, for instance, debt forgiveness seem not have been part of the discussions.

The burden of the breakdown of financial inclusion infrastructure is therefore largely borne by precarious borrowers. In many cases, the interruption of lending activities is a direct result of MFIs trying to minimize their total non-performing assets in the long run, so as to limit decreases in profit. Ultimately, what seems to be at issue is the continuous mortgaging of borrowers' future

Covid-relief Measures and Cash Transfers

On 26 March 2020, two days after the announcement of the national lockdown, the central government issued a COVID-19 relief package, many components of which relied on financial inclusion infrastructures. A cash transfer of INR 500 (US\$ 7) per month was to be made for three months to all women's bank accounts created through the Pradhan Mantri Jan-Dhan Yojana (PMJDY) financial inclusion scheme (translating as the Prime Minister's Scheme for People's Financial Welfare) initiated under Narendra Modi's premiership in 2014. Senior citizens, people with disabilities, and widows were promised two installments of INR 1,000 to these same accounts. Amongst our respondents, no one had received, or knew anyone who had received, these cash transfers in their bank accounts. A key reason was that their bank accounts had been opened not through this specific PMJDY scheme, but prior to 2014, to receive payments from the NREGA employment programme. Participants did not know where to go to claim this transfer either, as it came from the central government with no local body as intermediary.

At the national level, it is estimated that 38 per cent of poor households and 46 per cent of rural households have been excluded from the transfer programme as they did not have a female member holding a PMJDY account. These accounts are a key part of the flagship PMJDY financial inclusion scheme. This shows the lack of coordination between federal and state programmes that is typical of Indian social policies, reflecting centre-aligned political interests which are a major cause of exclusion in parts of the country. In addition to the PMJDY scheme provided by the central government, the Tamil Nadu state government offered a one-off cash payment of INR 1,000 through the Public Distribution System which provides food grains in the village on a monthly basis. In addition to food assistance for five months, all study respondents received this sum making this distributive infrastructure more reliable.

During the pandemic, already-existing digital transfers also became more difficult to access. Several participants did not receive their pensions, NREGA wages and farmer subsidies. While they said that this was a regular occurrence, they were not even permitted entry to the administrative offices to make a complaint. Even for those who received their transfers, money still had to be converted into cash. Yet both ATMs and bank branches are difficult to access. This is especially true for women who very rarely have access to motorized two-wheelers or bicycles. In two of our surveyed villages, they had to travel 5 and 16 km by foot while avoiding police checks. Going to a bank branch did not even guarantee a withdrawal, as was also observed in other parts of India since banks only permitted a few dozen customers to enter each day.

While distribution of social benefits through the banking system proved rather ineffective, the same cannot be said about the digital 'capture' of debt repayments. Prior to the crisis, several educated young men amongst our respondents, including Dalits, were receiving wages directly in their bank accounts and had therefore been eligible for bank loans, with repayments being automatically deducted. While many of them lost their jobs during the

lockdown, the automated deduction continued, dramatically curtailing their access to liquidity. Direct deduction from bank accounts also took place when people were issued fines. This extension of digital infrastructures of extraction during the pandemic contributed to worsening the precarious situations of many households.

Conclusion

This article has explored the unequalizing impacts of the COVID-19 lockdown on microfinance borrowers in Tamil Nadu, India. We argue that understanding financial inclusion as political, social, relational and material *infrastructures* which are characterized and reproduced by everyday social relations allows us to demonstrate how the crisis has further exposed the limits of for-profit financial inclusion interventions. Despite massive efforts to build a financial inclusion infrastructure, the relational infrastructure — the myriad of informal exchanges, from daily debt to long-term ceremonial exchanges — remains the primary (albeit unequal) form of security and protection for informal workers. By prioritizing lending restrictions and loan repayments, the response of the microfinance industry to the crisis in the three study villages, and in India more broadly, revealed the exclusionary dimensions of such infrastructures. The drive to both reduce the impacts of the crisis for microfinance institutions and maintain their capacity to extract revenues from/in the future came at the expense of debtors' livelihoods and survival strategies. What's more, relief schemes and programmes underpinning the financial inclusion infrastructures did not live up to their promises, with the distribution of emergency loans and digital social benefits proving to be highly selective, oriented by political concerns, demarcated along caste and class lines as well as, in some cases, sources of capture.

Peer Reviewed

IMPACT OF COVID-19 IN INDIAN SERVICE SECTOR WITH SPECIAL REFERENCE TO TOURISM²⁵

Dr. C. ARULJOTHI²⁶

Introduction

Tourism is the major engine of economic growth that contributed significantly in terms of GDP, foreign exchange earnings and employment. COVID-19 pandemic has had a debilitating impact on World Travel and Tourism including India. The year 2020 was a peculiar year marred by the COVID 19 pandemic and consequent national wide and world-wide lockdown measures implemented in 2020. The contact intensive services sector was severely impacted particularly sub-sectors such as tourism, aviation, and hospitality, non-contract services such as information, communication, financial, professional and business services have remained resilient, the impact has been much severe on contract-based services such as tourism, retail trade, hotel, entertainment and recreation. The service sector is the largest and fastest growing sector in India and has highest productivity in employment, labour, and contribution of GDP and the creation of employment opportunities. While Covid-19 Pandemic has had an its share in India's GVA declined from 55 per cent in 2019-20 to 53 per cent in 2021-22. In the wake of the COVID-19 pandemic, most of the sub-sectors of the services sector witnessed a contraction on growth during 2020-21. Aviation and tourism declined sharply in 2020. Only 2.46 million foreign tourists arrived in India during January – June 2020 has compared to 5.29 million in 2019. Consequently, foreign exchange earnings from tourism declined to US\$ 6.16 billion during the 2020 as compared to US\$ 14.19 in 2019. Domestic passenger dropped to 22.77 million during 2020 from 95.7 million during 2019 (GoI. 2021).

International Tourists Arrivals

The tourism sector in India had been performing well with foreign tourist Arrivals (FTAs) growing at 14 percent to 10.04 million. The Foreign Tourist Arrivals (FTAs) in 2019 stood at 10.93 million compared to 10.56 million in 2018. In terms of growth, the growth rate of FTAs declined from 14 per cent in 2017 to 5.2 per cent in 2018 and further to 3.5 per cent in 2019. Due to COVID 19 pandemic borders are closed, hotels are shut down and air travels dropped dramatically, Tourists arrivals decreased by 56 per cent and \$320 billion in exports from tourism were lost in the first five months of 2020 which was more than three times the loss during the Global Economic Crisis of 2009. Foreign Exchange Earnings (FEEs) from tourism stood at US\$ 30.06 billion in 2019 as compared to US\$ 28.59 billion in 2018. In terms of growth, the FEEs declined from 19.1 per cent in 2017 to 4.7 per cent in 2018, picking up slightly to 5.1 per cent in 2019. India ranked 23rd in the world in-terms of international tourist arrivals in 2019, falling slightly from the 22nd position in 2018. The country accounts for 1.23 per cent of world's international tourist arrivals and 4.97 per cent of Asia & Pacific's international tourist arrivals.

²⁵ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Table 1
Foreign and International Tourist Arrivals and Tourism Receipts in India and the World

Parameter	2015	2016	2017	2018	2019
Foreign Tourists Arrivals (FTA) to India (million)	8.03	8.80	10.04	10.56	10.93
International Tourist Arrivals (ITAs) in India (million)	13.76	15.03	16.81	17.42	17.91
International Tourists Arrivals (ITAs) around the world (million)	1,195	1,241	1,333	1,408	1,460
India's Share in World's ITAs (Per cent)	1.15	1.21	1.26	1.24	1.23
India's Rank in World's ITAs	24 th	26 th	26 th	22 nd	23 rd
ITAs in Asia & the Pacific (million)	284.1	306.6	324.1	347.7	360.1
India's Share in Asia Pacific's ITAs (per cent)	4.84	4.90	5.19	5.01	4.97
India's Rank in Asia Pacific's ITAs	7 th	8 th	7 th	7 th	7 th
India's Share in World Tourism Receipts	1.73	1.84	2.02	1.97	2.03
Foreign Exchange Earnings through Tourism	21.01	22.92	27.31	28.59	30.06
India's Rank in World Tourism Receipts	14 th	13 th	13 th	13 th	12 th
India's Share in Asia Pacific's Tourism Receipt (Per cent)	5.91	6.18	6.89	6.55	6.57
India's Rank in Asia Pacific's Tourism Receipts	7 th	7 th	7 th	7 th	6 th

Source: Ministry of Tourism

Foreign tourists Arrivals are gradually increased from 2015 to 2019 from 8 million to 10 million, the top 10 countries visiting India are from Bangladesh, USA, UK, Australia, Canada, China, Malaysia, Srilanka, Germany and Russia. They accounted for 67 per cent of the total foreign tourist arrivals in India in 2019. Among the foreign tourists, 57.1 per cent tourists visited for leisure, holiday and recreation, 14.7 per cent for business purposes, and 12.7 per cent was Indian diasporas. The Trends at the State level, the top five State Attracting domestic tourists are Uttar Pradesh, Tamil Nadu, Andhra Pradesh, Karnataka, and Maharashtra, accounting for nearly 71 per cent of the total domestic tourist visits in the country in 2019. The top five states attracting foreign tourists are Tamil Nadu, Maharashtra, Uttar Pradesh, Delhi and West Bengal, accounting for 69.4 per cent of the total foreign tourist visits in the country in 2019.

Economic Impacts

Export revenues from tourism could fall by \$910 billion to \$1.2 trillion in 2020. It had a wider impact and could reduce global GDP by 1.5 Per cent to 2.8 per cent. Tourism supports one in ten jobs and provides livelihoods for many millions more in both developing and developed economies. 100 millions direct tourism jobs are at risk, In addition to sectors associated with tourism such as labour-intensive accommodation and food services industries that provide employment for 144 million workers worldwide. Women involved in tourism workforce, are at risk it mitigates the socio-economic impacts on livelihoods. Tourism shock could reduce global GDP by \$1.17 trillion or 1.5 per cent.

Recovery

Countries gradually lift travel restrictions and tourism slowly restarts in many parts of the world. Only through collective action and international cooperation will we be able to

transform tourism, advance its contribution to the 2030 Agenda and its shift towards an inclusive and carbon neutral sector that harnesses innovation and digitalization, embraces local values and communities and creates decent job opportunities for all, leaving no one behind.

Revival of Tourism in India

- Promotion of Domestic Tourism
- Diverting Outbound Tourist to Domestic Trips
- Targeting Incentives to Industries Contributing the tourism Economy
- Re-build trust among travellers
- Adhere the safety and hygiene at highest standards
- Provision of Tax benefits, subsidies and incentives
- Promote digital services
- Create amicable environment to tourists and local community

Conclusion

The study captures the economic losses resulting from Covid 19 to services sector especially to tourism and allied services with the help of data from different sources that reflect the scenario of pandemic period. A roadmap of recovery is a must not only because of tourism is the largest contributor to the economy and employment, but also because a large chunk of the population are directly and indirectly involved in tourism and related activities. Implementation of policy measures support tourism sector help to recover the household who got affected because of tourism. It is a need of the hour to create a resilient policies to address the challenges at all the level of tourism sector.

References

1. National Council of Applied Economic Research (2021), "India and the Corona virus Pandemic Economic Losses for Households engaged in Tourism and Policies for Recovery", Ministry of Tourism.
2. UNWTO, "Transport-related CO2 emissions from the tourism sector", available at <https://www.unwto.org/sustainable-development/tourism-emissions-climate-change>.
3. UNWTO General Assembly 2019, "Implementation of the General Programme of Work", available at https://webunwto.s3.eu-west-1.amazonaws.com/s3fs-public/2019-10/a23_5_a_implementation_general_programme_of_work_final_rev.2_en.pdf.
4. Olga Aristeidou, "EBRD and UNWTO boost tourism recovery", European Bank for Reconstruction and Development, 26 June 2020, available at <https://www.ebrd.com/news/2020/ebrd-and-unwto-boost-tourism-recovery.html>.
5. UNWTO, "UNWTO releases a COVID-19 technical assistance package for tourism recovery", 12 May 2020, available at <https://www.unwto.org/news/unwto-releases-a-covid-19-technical-assistance-package-for-tourism-recovery>.

ECONOMIC IMPACT OF COVID-19 ON LIVELIHOODS OF RURAL HOUSEHOLDS²⁷

Dr. S. INDRADEVI²⁸

Introduction and Background

The economic consequences of the lockdown are expected to not only compensate the direct but also the impacts on the different sectors of the economy. While more than 4 million Indians below the age of 30 years lost their jobs during the pandemic, a major portion of workers in the informal sector lost their employment and livelihoods. The employment opportunities continued to decline along with rising consumption expenditure and food insecurity concerns. It is evident that the pandemic is reinforcing inequalities, especially between men and women. Based on the discussion with women members in rural areas, a wide range of adverse impacts have been reported that are going to affect families in the long-term. One may notice that these unconstructive impacts would be on women in informal economy, unpaid care work, health impact, gender-based violence, and interrupted local economy. The COVID-19 has a mixed effect on the economies of developing countries. More specifically, Indian economy is severely affected by the pandemic during the lockdown due to their reliance on hired labor. On the other hand, small and microenterprises were less affected by the lockdown due to their operation by family labor. Similarly, the pandemic affected the livelihoods of the households everywhere and by which the income is reduced by more than half. The subjective income measures indicated that a large proportion of households have been exposed to job loss or reduced incomes during pandemics. The negative impact of the pandemic is also noticed on the welfare of vulnerable households particularly stimulating the agrarian households.

Need for the Study

The study reveals that the well-being of rural households is not encouraging as a result of impact of the COVID-19 pandemic. The COVID-19 induced lockdowns brought a biggest disruption of livelihoods. In order to mitigate and recover from this pandemic, interventions in structures and processes are required. This pillar is very important in devising strategies to respond to the COVID-19 pandemic with existing resources and local conditions. The responses to the COVID-19 pandemic originate from deep and careful analysis of livelihood assets, strategies, and the vulnerability context. It is evident to note that the impact of covid 19 pandemic is highly discouraging and it has affected the people from different social strata. It affected people from all walks of life. In this context, the improvement efforts should not only react to the pandemic but also they should aim to build more equal, comprehensive and sustainable economic and social involvements. The recovery and future steps should consider adapting existing programmes to reduce barriers of small businesses, targeting of programmes for small businesses, expand delivery options to be gender-sensitive and to rural and urban context needs. In view of the facts discussed above, this study makes

²⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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an attempt to bring out the economic impacts of covid 19 pandemic on the livelihoods of rural households in Thiruvavur district.

Research Design

Objectives

- i. To study the socio-economic characteristics of rural households in the study area.
- ii. To analyze the economic impact of covid 19 pandemic on the livelihoods of rural households in the study area.

Methodology

This study is based on primary data which have been collected from the rural households of Kudavasal block of Thiruvavur district. The primary data relate to the social and economic parameters. The economic parameters of the impact of covid 19 pandemic include income, employment of non-agriculture of rural households, food security, access to relief measures and support from self-help groups. The size of the sample is 80 and they are non-agriculture labourers employed in informal sector.

Data Collection

The period of the study was confined to 2020-2021. The study is qualitative and quantitative data in nature.

Results and Discussion

In this analysis from the sample respondents in terms of social and economic characters. It may be noted from the results that majority of respondents (84 per cent) were over 30 years of age, and 13 per cent respondents are found under small households (1-3 members).

A majority of the respondents (69 per cent) were from households in the range of four to six members.

Approximately, 71 per cent households depend on informal sector i.e. agricultural and allied occupations, wage labour or domestic services. In comparison, only 8 per cent respondents draw their income regularly from formal sector.

Twenty-one per cent respondents reported that they earn their income from other sources which include private company, agency, factory, and teaching, 37 per cent of them are Semi-skilled workers viz., driver, cleaner, carpenter, and cook.

21 per cent of them are in Government/semi-government, 10 per cent of them are in Small business such as shop, store, stall and clinic, 9 per cent of them derive their Income from rent/pension, 5 per cent of them are in others source (e.g. priest, moneylender, etc.) and 5 per cent of them are employed in Off-farm activities (e.g. fishing, kitchen garden, etc.), 2 per cent no response household livelihood and income.

At the time of the lockdown, a number of media stories reported that rural households were struggling to maintain their livelihoods and income generating activities. Given the overall circumstances, this study specifically looked at household level income generation and the impact of the pandemic and lockdown on these activities.

As mentioned earlier, a significant number of respondents reported their income was generated through agriculture and allied activities, followed by agricultural and non-agricultural daily wage labour.

Over half of the respondents were surveyed (54 per cent) reported that it was difficult for them to say exactly what is the impact of the lock down on their income generating activities.

However, it is important to note that a low but significant number of respondents (11 per cent) reported that they would not be able to recover from the economic shocks of the lockdown. Overall, a majority of respondents (43 per cent) reported that they were only able to maintain subsistence level income generation. Therefore, it is also important to note that 15 per cent of the respondents reported that they had not generated any income in the post-lock down period.

Significantly, 83 per cent respondents reported that they will not have the ability to buy more food when enough their current stock of food declines, especially households with a red (BPL) card or a senior citizen (Annapurna) card. The results demonstrate a significant stagnation of income generating activities during the lockdown.

Overall, the households that have seen a fall or total disruption in income had the decline support in the form of direct cash assistance, from the Tamil Nadu Government and they revealed that the financial assistance helped their families to a certain extent.

A large percentage of households (68 per cent) reported they had not received any support when their income fall and they lose their livelihoods.

Conclusion

The present study has brought out the following conclusion from the foregoing discussion.

- i. The economic impact of covid-19 pandemic is severe on the rural households. As a result of this pandemic, the workers employed in the informal sector and micro enterprises have lost their employment and income.
- ii. The impact is seen on the food stock of the households in the study region.
- iii. The support of the government in terms of cash and kind has saved the households from terrible economic stock to some content.
- iv. The financial assistance provided by the government could not save the families fully when they lose their livelihood in terms of employment and income.

Suggestion

The SHG movement has emerged as an important platform and network for financial and psycho-social support for women when they face challenges during the pandemic. It is important to strengthen and nurture these institutions so that they remain vibrant forms of solidarity for women to increase their income during the crisis. Access to digital and electronic modes of communication could be harnessed as the additional mode of disseminating social development schemes and services. This will augment the standard of living of the people who face the challenges of pandemic. It will also help them to mitigate future risks or pandemics while promoting a sustainable future with sustainable growth.

Selected References

1. Agarwal, Bina. 1997. "Bargaining" and gender relations: Within and beyond the household. *Feminist Economics* 3 (1): 1–51.
2. Agarwal, Bina. 2020. Does group farming empower rural women: Lessons from India's experiments. *Journal of Peasant Studies* 47 (4): 841–72.
3. Jodha, N. S. 1978. Effectiveness of farmers' adjustment to risk. *Economic and Political Weekly* 13 (25): A37–48.

4. Ahmed, J., Jaman, M.H., Saha, G., Ghosh, P., 2021. Effect of Environmental and Socio economic factors on the spreading of COVID-19 at 70 cities/provinces. *Heliyon* 7 (June 2020), e06979.
5. Rasul, G., 2021. Twin challenges of COVID-19 pandemic and climate change for agriculture and food security in South Asia. *Environ. Chall.* 2 (December 2020).
6. Bhagat, R. B. and Keshri, K. (2020). "Internal Migration in India", In Martin Bell, Aude Bernard, Charles-Edward, and Yu Zhu (Eds.) *Internal Migration in the Countries of Asia: A cross-national comparison*, Springer International Publishing, Chennai.

Peer Reviewed Journal

IMPACT OF COVID-19 ON AGRICULTURE SECTOR IN INDIA: SOME EVIDENCES²⁹

A. OMPRAKASH³⁰

1.1 Introduction

A novel corona virus was eventually identified on 31st December 2019, Wuhan Municipal Health Commission, China, reported a cluster of cases of pneumonia in Wuhan, Hubei Province. On 1st January 2020 WHO had set up the IMST (Incident Management Support Team) across the three levels of the organization headquarters, regional headquarters, and country level, putting the group on a disaster basis for distributing with the epidemic. And 5th Jan 2020 WHO published the first Disease Outbreak News on the new virus. This is a leading professional magazine to the methodical and community health condition as well as world-wide broadcasting. It covered a danger measurement and recommendation and informed on what China had told the WHO about the condition of affected people and the community condition reaction on the group of pandemic patients in Wuhan. COVID-19 as a disease announced by WHO on 11th February 2020 and it is a respiratory disease which impacts the health of the individual, which means that the new virus dispersion has speedy across most of the countries everywhere in the world the signs of this virus contain, fever, and cough, sore throat and struggle in breathing.

Our country has taken premature engagements to control the proliferate of COVID-19, instructing a 21-day countrywide lockdown for its residents of 1.3 billion citizens beginning from March 25. The novel coronavirus has spread widely in India relatively recently compared to other countries, there is great concern about the disease's potential spread and impact. India has slowly ready for a possible rose and testing has been expanded significantly. The government views the pattern of the spread of COVID-19 as similar to 2009 H1N1 influenza pandemic, meaning the spread is unlikely to be uniform. Later the 21-day phase ends, it is proposing to retain the full containment in "hotspot" zones and relax rest of places. These procedures may improve in reducing the physical condition calamity, but as in other nations the full lock down of all financial happenings excluding crucial facilities will create an economic crisis and misery for the weaker sections, with substantial job shortfalls and increasing food uncertainty. The financial distress will expected be considerably serious for our nation, for two reasons.

- Before COVID-19, the economy was in decreasing trend, intensifying present issues of joblessness, less per-capita, rural anguish, starvation, and general discrimination.
- Weak India's huge informal sectors. Out of the national total 465 million workers, around 91% (422 million) were informal workers in 2017-18. Ordinary wages and salaries are wiped out in agriculture sector, migrants, and other informal workers were worst hurt throughout the lockdown days.

²⁹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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1.2 Agriculture and supply chains

The Agriculture supply chain activity were badly hit while COVID-19 lock down time. Earliest statements indicates that the absence of migrant labour is disrupting various agricultural events, especially in Haryana and Punjab and this is place where rich harvesting for wheat and pulses. There are interruptions in supply chains since there is a goods movement challenges and other problems. Prices have deteriorated for wheat, vegetables, and other crops, yet buyers are frequently disbursing further. Due lock down and shut down of hotels, restaurants, sweet shops, and tea shops is already disappointing milk sales. The poultry industry and poultry farmers have been severely affected due to miscommunication especially on news media, that chicken are carries COVID 19 Virus. The important measures are taken by Government for agricultural and supply chains sector working smoothly:

- Due to implementation issues of lock down guidelines there are some issues leading to shortage of labours and falling / increase of commodities price.
- The Government has seriously watching the agriculture supply chain activity and incident based orders has been released to streamline the supply chain activities because 2 to 3 million casualties in the Bengal starvation of 1943 were due to scarcity of food supply.
- Various Farm inhabitants were protected from the virus to the extent feasible by scanning and applying social distancing.
- Cultivators has continuous entry to marketplaces, and this will be a mix of private markets and government purchasing.
- The E-commerce facilities are rose to delivery of groceries for home delivery to control the demand and promoting the on-line marketing.
- The government ordered the trade by avoiding export prohibitions and import limitations.

1.3 COVID-19 impact on agricultural value chain

Pre-Harvest		Post - Harvest		
Agricultural Inputs	Farming	Aggregation storage / Logistics	Processing and ancillary services	consumption
Seeds	Farming - Food Grains - Horticulture - Commercial crops - Oil Seeds	Mandis / Aggregators	Organic foods	Small Stores
Fertilizers		Distributors	Cold Storage	Mega Malls
Crop Protection		Warehousing	Food Processing	Unorganized
Farm Equipment	Poultry and livestock	Logistics	Logistics	Retail Stores
Irrigation	Dairy	Cold Storage		Vendors
Agricultural Insurance	Fisheries and aquaculture			Hotels, Restaurants and Coffee shops

In the medium to long term, Grant Thornton urges the government to set up a specialised committee that will look to the mechanisation of farming in India, to reduce reliance on manual labour. Utilizing equipment's for crucial seeding and harvesting functions can reduce similar threats in the forthcoming seasons. Beyond of these national troubles, the

professional's viewpoints the scope of export faces expanding. Due to worldwide lockdown the supply chain has faced delays and backlogs. In lockdown time nearly half a million tonnes of rice has been held up with insufficient supply chains system, the consumable crops are not moved at all for concern of worsening in deferred in transportation. Worldwide trades are encountering problems with commercial activity of transporting goods to customers, more severe in customs place limitations, as well as a scarcity of containers and shipping vessels. India's agrarian exports items are nearly \$40 billion are ruthlessly disturbed in the pandemic. After lockdown gradually lifted the export and economic activity also up and running quite well. These new conditions might help the agriculture sector get back to its feet, although the sector has lost crucial sowing and harvesting weeks to the lockdown.

1.4 Agricultural crisis due to corona virus shutdown

In Uttar Pradesh 2.5 crore farmers and over three crore agriculture labourers are there in the state, which is the biggest producer of food grains, milk and vegetables and the farmers, were faced heavy economic suffers due to unexpected rain in January and February and even March, the lockdown due to the corona virus pandemic had evidenced a twice the curse. The future was seemingly uncertain not only for those whose rabi crop was standing ready in the fields for harvesting but also lakhs of cane growers in western UP, prepared with fields for sowing. Farmers were no hint about moving their land as ban was enforced their movements because of the virus spread and all were challenging the serious dearth of farming workers. At this occasion, the appropriate involvement by UP CM gave a huge relief to the formers. Cultivation began in UP on April 5 and it has started in maximum shift. To give support measures to agriculturalists, the CM connected with state Government officials alarmed at the Centre requesting clearance for granting agriculturalists and agricultural workers to operate in areas.

Tamil Nadu - The cultivators were expected a decent revenue in the pandemic year, but the lockdown has halted their incomes. Cultivators who form cotton, onion, banana, flower and other cash crops were hit badly. but for rice production and related farmers are marginally eluded from the lockdown effect. Banana and flower growers experienced massive deficits as the product needs to sale timely in manner. Banana is an annual yield. At various areas, banana have attained the reaping phase, but the cultivators leave the banana lots to mature in plants since the constraints of vehicle movements because the Tamilnadu harvested bananas are transported to Kerala. 20% of banana are spoiled because of transport limitations.

The major setback COVID 19 pandemic lock down for paddy farming of consumable goods in Kerala. As a beginning its very difficult but later on the Kerala state Government started to purchase the items from farmers and eliminated of market intermediation actions. Still formers had heavy loss even though the government supported. The Vazhakkulam pineapple production Vs sales has 1200 tonnes and 20 tonnes due to transport restrictions and the stock has been stacking in the lands and local markets. Compare to production Vs sales for Muthalamada Mango 1200 tonnes as compared to the average daily purchasing of 20 tonnes.

Agricultural products farming levels has severely dropped in Maharashtra. Farmers has no option for their perishable goods graphs and vegetables. The cotton price is declined more due to in international price slashes. The Government backup Rs.1 lakh crore – Rs.1.5 lakh crore and acquire the product at government stated rates. Roughly Rs.20,000 crore loss in consumable and non-perishables goods in the Maharashtra due to the lockdown.

1.5 Migrant Labour: Indian Farming Sector

India's countrywide lockdown was announced in March, the stereotyped consequence was a mass movement of migrant labour back to countryside native places, as laborers relocated to stay out the lockdown while at home. The government has done its best to give them food stuff but achieving out to them has a tough and expensive plan. This has affected fear among them. To operate within reduced reserves, they generally continue to stay in communal adjustments. The lockdown has made their common accommodation an overcrowded area as some of them are using this on shift basis. This has affected the migrants a more of psychological anxiety further greater possibility of spreadable infections.

This apart, their excitement and affection of their hometown back has provoked the anxiety and enhanced the dangers of a serious failure on all facades — economic, family, moral, mental and physical. The accurate sum of migrant wage labourers is not well-known, but it is probably has the crowding millions of rural workers are working in various unorganised sectors. Many of the migrant workers came from rural areas of Uttar Pradesh, Bihar, Madhya Pradesh, Rajasthan, West Bengal and Odisha. The farming practice, which normally begins in mid of April, was dropped entirely instable, causing in general financial issues. The June crop is among those that has been particularly hard hit, and the labour scarcity has also affected the supporting infrastructure around India's agriculture sector.

Maharashtra, Delhi, Punjab and Gujarat have the major population of migrant workers in India, most of them hail from Uttar Pradesh and Bihar. The agricultural sector in these regions is likely to suffer more than the states like Andhra Pradesh or Chhattisgarh, where only a small portion of the work force is from out of state. The influence of reverse migration is more noticeable in Maharashtra and Gujarat due to the enormous existence of intense labour-dependent sectors such as agricultural, manufacturing and construction. Identically the resuming the migrants to hometown rural areas also raises chances for changes to additional robust and workable land methods. Generally, if handled appropriately, latest workers encouraged to developments in land administration and escalations of agriculture product productivity could expand delivery of environment facilities and diminish the future food calamity. Further, having younger, engaged, networked, and knowledgeable people in rural areas could help to build more resilient, sovereign food systems in the long term.

Many migrant workers have refused to return to cities post lockdown and the "Reverse Migration" is not only a concern for various sectors and industries but also for state authorities. States are shown a sharp increase in number of COVID-19 cases with each time there is an arrival of individuals going back to home. If the reverse migration is not happening, there is a greater chance to promote a lifestyle of village life. Living in a village lifestyle holds many benefits in aspects of health & habits when compared to the regular city lifestyles. In village, generally a positive vibe prevails among the people & their behavioural attitudes. Rural peoples are in the same mind set and akin age individuals are contributing the same fascination of ideas. The events and incidents are taken place within the rural communities with good friendship and develop the social network. On the contradiction, such villagers who are migrant workers, are always abused and treated like stray dogs in cities. At least, they can help themselves from such negative situations, by opting to stay back in their hometowns.

A huge number of migrant workers returned to their villages during the harvest time (one of the reasons for workers fleeing the cities in droves during the lockdown). Few, who had come to celebrate Holi at their villages but could not return due to the lockdown, joined

hands with the others and soon the harvesting of wheat was in full swing. Wheat procurement by the Food Corporation of India (FCI) as on June 23 reached 38.5 million tonnes, surpassing last year's procurement of 34.13 million tonnes. Soon after harvesting, due to the early onset of monsoon, the sowing of kharif crops commenced. Ministry of Agriculture and Farmer Welfare assessments has increased by 39% in the area planted has already been recorded *vis-à-vis* compared with corresponding periods for last year. This is good news not only for the food security of the nation, but also for the economy, as the money in the hands of farmers after two profitable yields will give the much-needed boost to requirement. This is also the time to think and work strategically so that the resilience shown by the agriculture sector, with contribution from migrant workers, is not only made more sustainable but is also leveraged to improve the lives and livelihoods of the rural people. The main objective is to use best talents of migrant workers, particularly their expertise of the Internet and social media, to work on challenges in agriculture and rural areas.

One of the main challenges of Indian agriculture is ineffective outreach of extension efforts. Technology can play a role here. If messages/technical details on improved agriculture practices and knowledge associated with the weather and markets might be passed on to the villages in local languages via the migrant workers. It may cause enhanced or diversified production, fewer losses thanks to the vagaries of weather, and better price realisation. The waning interest of the youth in agriculture has been a serious challenge in recent times. Leveraging the talents and knowledge of the migrant workers, besides improving the productivity of agriculture, can also address the difficulty of migration to some extent. If this eventually results in even 10-20 per cent of migrant workers staying back with a replacement means of livelihood, that is, agriculture and marketing of agriculture produce, it will have a large socio-economic impact.

1.6 Conclusion

Among other things, government will amend Essential Commodities Act to deregulate agricultural products listed under essential commodities. to make sure the supply of all fruits and vegetables round the country, around the year without price volatility, it also extended the ambit of Operation Greens from Tomatoes, Onion and Potatoes (TOP). While the Indian government has turned its attention to agricultural policy reform, the immediate focus should get on relief. The govt. has already implemented modest cash transfers to farmers and other vulnerable populations, revised loan repayment schedules, expanded the entitlements of grain and extra allocations for the Gandhi National Rural Employment Guarantee Act (MGNREGA). In rural areas, especially those underserved by markets, providing decentralized public procurement and distribution of fresh produce, additionally to cereals, pulses and oilseeds, is crucial to moderate producer prices and ensure availability and affordability of foods locally. In cities, urban governments got to facilitate the free functioning of supply chain actors. many nations have introduced urban employment guarantee schemes to guard people from job and income losses. a primary bottleneck relates to the supply of inputs for farming, notably labour for harvesting fruits and vegetables. A second relates to plant shutdowns within the food processing and cold storage sector, notably in meat processing. a 3rd relates to the continued disruption of air freight, which affects high-value perishable products, again notably fruits and vegetables. In reference to migrant labours, it's necessary to capture the info and linking with skills and place of migration using information technology tool.

References

1. Gupta, A.K. (1991) Migration of agricultural labour from Eastern to North Western region, *Social Change*, 21 (6): 85-90.
2. Sidhu, M.S., Rangi, P.S. and Singh, K. (1997) A Study on Migrant Agricultural Labour in Punjab, *Research Bulletin*, Department of Economics and Sociology, Punjab Agricultural University, Ludhiana pp: 1-62.
3. Shri N.P. Mohapatra, Dr. K.J.S Satyasai (2020) National Bank for Agriculture and Rural Development Mumbai August 2020 - Impact Assessment of COVID-19 on Indian Agriculture & Rural Economy, Department of Economic Analysis & Research.
4. Adnan, N., & Nordin, S. M. (2020). How COVID 19 effect Malaysian paddy industry? Adoption of green fertilizer a potential resolution. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-020-00978-6>.
5. Barichello, R. (2020). The COVID-19 pandemic: Anticipating its effects on Canada's agricultural trade. *Canadian Journal of Agricultural Economics/Revue Canadienne D'agroeconomie*, 68(2), 219–224. <https://doi.org/10.1111/cjag.12244>.

ECONOMIC IMPACT OF COVID-19 WITH REFERENCE TO TAMIL NADU ECONOMY³¹

Dr. S. THEENATHAYALAN³² & Dr. S. MURUGAN³³

ECONOMIC SITUATION IN TAMIL NADU

Tamil Nadu's State Gross Domestic Product (SGDP) was Rs.15,07,91,798 crore in 2018–19, in which service sector contributed the most, at 52.23 percent, followed by industry (32.98 per cent) and agriculture (12.78 per cent). The manufacturing sector (19.74 per cent) makes the largest contribution to SGDP in the disaggregated study (Tamil Nadu, 2019). Automobiles, electronics, engineering, clothing, textiles, leather, pharmaceuticals, chemicals, paper industries, etc. are few of the key manufacturing sectors. According to the Annual Survey of Industries, Tamil Nadu is home to 37,220 factories, which employ 24,08,282 people. Real estate, home ownership, and professional services make up 17.96 per cent of the state's GDP, with trade, hotel, and restaurant (12.61 per cent), agriculture, forestry, and fishing (12.40%), trade repair and service (11.16%), and construction making up the remaining percentages (11.14 per cent). However, according to the 2011 Census, Tamil Nadu's workforce are in agriculture is approximately 42.1 per cent, while the sector's share of the SGDP has shifted to 12.78%. (Census of India, 2011).

OBJECTIVES OF THE STUDY

The objectives of the study are as follows

1. To Study the quantum of COVID19 affected, discharged and deaths from April 2020 to March 2021 and
2. To analyze the rates of Unemployment in Tamil Nadu and India during the study period.

SOURCED OF DATA

- Secondary data have collected from different sources such as Health and Family Welfare Department, Government of Tamil Nadu and Centre for Monitoring Indian Economy. The obtained data from March 2020 to March 2021 have used for the study.

COVID 19 POSITIVE CASES IN TAMILNADU

The following table represents the Covid-19 Positive Cases in Tamil Nadu.

³¹ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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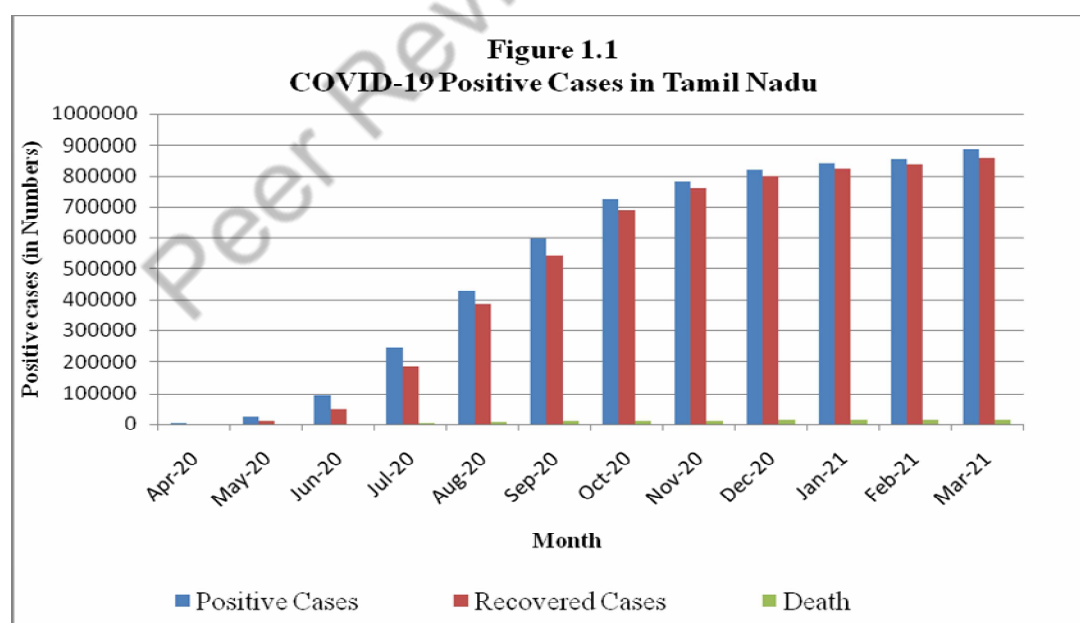
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Table 1.1
COVID-19 Positive Cases

Month	Male		Female		Transgender	Total
	Numbers	Percentage	Numbers	Percentage	Numbers	
April/2020	1,553	66.85	770	33.15		2,323
May/2020	14,065	62.98	8,259	36.98	9	22,333
June/2020	55,502	61.55	34,644	38.42	21	90,167
July/2020	1,49,107	60.65	96,725	39.34	27	2,45,859
August/2020	2,58,370	60.36	1,69,642	39.63	29	4,28,041
September/2020	3,60,729	60.36	2,36,842	39.63	31	5,97,602
October/2020	4,37,290	60.36	2,87,200	39.64	32	7,24,522
November/2020	4,72,430	60.42	3,09,451	39.58	34	7,81,915
December/2020	4,94,355	60.43	3,23,625	39.56	34	8,18,014
January/2021	5,06,678	60.44	3,31,628	39.56	34	8,38,340
February/2021	5,14,514	60.42	3,36,993	39.57	35	8,51,542
March/2021	5,35,382	60.38	3,51,255	39.61	36	8,86,673

Source: Health and Family Welfare Department, Government of Tamil Nadu.

Table 1.1 depicts the Covid-19 positive cases in Tamil Nadu, from April 2020 to March 2021. The overall positive cases in April 2020 are 2,323 which include 1,553 males, 770 females and no cases have registered in the transgender group. It is 8,86,673 in march 2021. Which includes 5,35,382 male 3,51,225 female and 36 transgender. The growth rate of Positive cases is almost 60 per cent for male and 39 per cent for females. This shows relatively males are mostly affected by Covid-19 than females and transgender during the study period.



COVID-19 RECOVERED AND DEATH CASES

The following table represents the Covid-19 Recovered and Death Cases in Tamil Nadu.

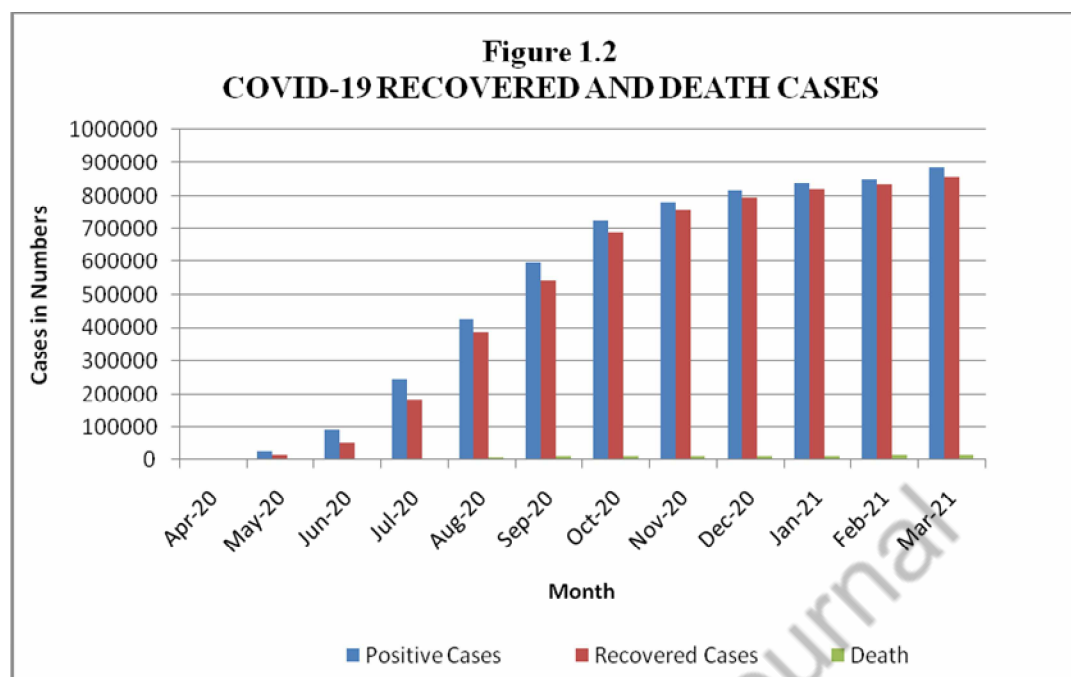


Table 1.2
Covid-19 Recovered and Death Cases in Tamil Nadu

Month	Positive Cases	Recovered/Discharged			Death		
		Number	Percentage	Growth Rate	Number	Percentage	Growth Rate
April/2020	2,323	1,258	54.15		27	1.16	
May/2020	22,333	12,757	57.12	9.14	173	0.77	5.41
June/2020	90,167	50,074	55.53	2.93	1,201	1.33	5.94
July/2020	2,45,859	1,83,956	74.82	2.67	3,935	1.60	2.28
August/2020	4,28,041	3,86,141	90.21	1.1	7,322	1.71	0.86
September/2020	5,97,602	5,41,819	90.67	0.4	9,520	1.59	0.30
October/2020	7,24,522	6,91,236	95.41	0.28	11,122	1.54	0.17
November/2020	7,81,915	7,59,206	97.10	0.1	11,712	1.50	0.05
December/2020	8,18,014	7,97,391	97.48	0.05	12,122	1.48	0.04
January/2021	8,38,340	8,21,430	97.98	0.03	12,356	1.47	0.02
February/2021	8,51,542	8,35,024	98.06	0.02	12,496	1.47	0.01
March/2021	8,86,673	8,58,075	96.77	0.03	12,719	1.43	0.02

Source: Health and Family Welfare Department, Government of Tamil Nadu.

Table 1.2 highlights the recovered and death details of Covid-19 affected population in Tamilnadu between April 2020 and March 2021. From April 2020 to June 2020 discharged patients below 60 per cent. Whereas from August 2020 to March 2021 it is more than 90 per cent due anti-Covid-19 measures enacted by the Government. As far as death concern in May 2020 and June 2020 it is more than 5 per cent, in July 2020 it is 2.28 per cent. August 2020 to March 2022 death due to Covid-19 not even reached one per cent.

UNEMPLOYMENT RATE IN TAMILNADU

The following table represents the Unemployment Rate in Tamil Nadu.

Table 1.3
Unemployment Rate in Tamil Nadu and India

Month/Year	Tamil Nadu (%)	AllIndia (%)
March 2020	6.4	8.8
April 2020	49.8	23.5
May 2020	33.2	21.7
June 2020	12.2	10.2
July 2020	6.8	7.4
August 2020	2.6	8.3
September 2020	5.0	6.7
October 2020	2.2	7.0
November 2020	1.1	6.5
December 2020	0.5	9.1
January 2021	4.0	6.5
February 2021	4.8	6.9
March 2021	3.0	6.5

Source: Centre for Monitoring Indian Economy

Table 1.3 portrays the unemployment rate in Tamilnadu and India from March 2020 to March 2021. Unemployment rate in Tamilnadu have reached two digits such as 49.8 per cent, 33.2 per cent and 12.2 per cent in April 2020 to June 2020. The rates are more than the unemployment rate in India. Though Covid19 lockdown, remaining the months have recorded below 10 per cent unemployment in Tamilnadu as well as India during the study period because of anti-Covid19 measures such social distancing, Vaccination, wearing masks and using sanitizers etc.

CONCLUSION

Magnifying the sample testing capacity, Vaccination, wearing masks, and quarantine should all be combined to prevent COVID-19. Above all, India needs to be well-equipped to handle any epidemic that might arise in the future and further development of herd immunity. In Tamil Nadu, 8,86,673 persons affected by COVID-19 between April 2020 and March 2021 out of this 12,619 have them passed away. During the COVID-19 period, Tamil Nadu's financial situation progressively deteriorated. Most affected sector in Covid period is Industries and Services than Agriculture. Regarding the rate of unemployment Tamil Nadu had a greater unemployment rate than the rest of India during the lockdown.

References

1. Nirmalkumar K., "COVID-19 and Its Implications on Disaster Management - A Case Study of Tamil Nadu", <https://www.researchgate.net/publication/360372099>, May 022.
2. Rajesh Kumar, "Impact on Disaster Management during COVID- 19 in Tamil Nadu", *International Journal of Creative Research Thoughts (IJCRT)*, ISSN: 2320-2882, Volume 10, Issue 10 October 2022.
3. Sangamithra, A, "A Study on the Economic Impact and Preventive Measures about Covid-19 in Tamilnadu", *Shanlax International Journal of Economics*, ISSN: 2319-961X, March 2021.

4. M. Godsen and K. Nirmalkumar (2021). 'COVID-19 and Domestic Workers in Vellore Town', in V. Sivasankar, and J. Arun, *COVID-19 in Tamil Nadu Repercussions and the Avenues Ahead*, Michigan, USA: Manak Publication, pp. 173–82.
5. Chennai, Tamil Nadu: State Planning Commission. Report, March 2021.
6. V. Sivasankar (2021). 'COVID-19 Lockdown and its Economics Implication in Tamil Nadu: A Macro View', in V. Sivasankar and J. Arun, *COVID-19 in Tamil Nadu Repercussions and the Avenues Ahead*. Michigan, USA: Manak Publication Pvt. Ltd, pp. 1-14.
7. CMIE, Center for Monitoring Indian Economy (2020), 'Unemployment Report, Mumbai: Center for Monitoring Indian Economy'. Retrieved from <https://www.cmie.com/> accessed on 3 March 2021.
8. J.P. Chauhan, (2020). 'An Impact of COVID-19 on Indian Economy: A Brief View of Selected Sectors', *EPRA International Journal of Multidisciplinary Research (IJMR)*, pp. 9–12.
9. Health and Family Welfare, D. (2020). *COVID-19 Daily Bulletin*. Chennai: Government of Tamil Nadu.

INFLATIONARY IMPACT OF COVID-19 IN INDIA³⁴

Dr. V. SRIMAN NARAYANAN³⁵

INTRODUCTION

Growth and stability are like the two eyes of human being. Certainty only leads the economic development of the country. Fluctuation in the prices is adversely affects the development of the country. Inflation is an unpredictable phenomenon and is present in many countries economy. It is evidenced from our neighboring countries and they are in necessary to control the level of inflation to balance the growth and development of the economy. With the global COVID-19 pandemic, Inflation is slowly biting the Indian economy. On the one hand, there was a decline in demand due to a drop-in economic activity and unemployment. On the other hand, disruptions in the supply chain have caused drastic changes in the rate of food price inflation.

OBJECTIVE OF THE STUDY

1. To assess the impact of the inflation rate on the Indian economy caused by COVID-19.
2. To suggest various measures to reduce the impact of the inflation rate.

SOURCES OF DATA

The secondary data have collected from various published sources like reports, magazines, RBI annual report, research articles and financial websites. The collected data have used for analysis and interpretation. Various suggestions and recommendation are made in this study.

INFLATION OF ALL COMMODITIES

Table 1.1
Monthly Inflation of All Commodities in India

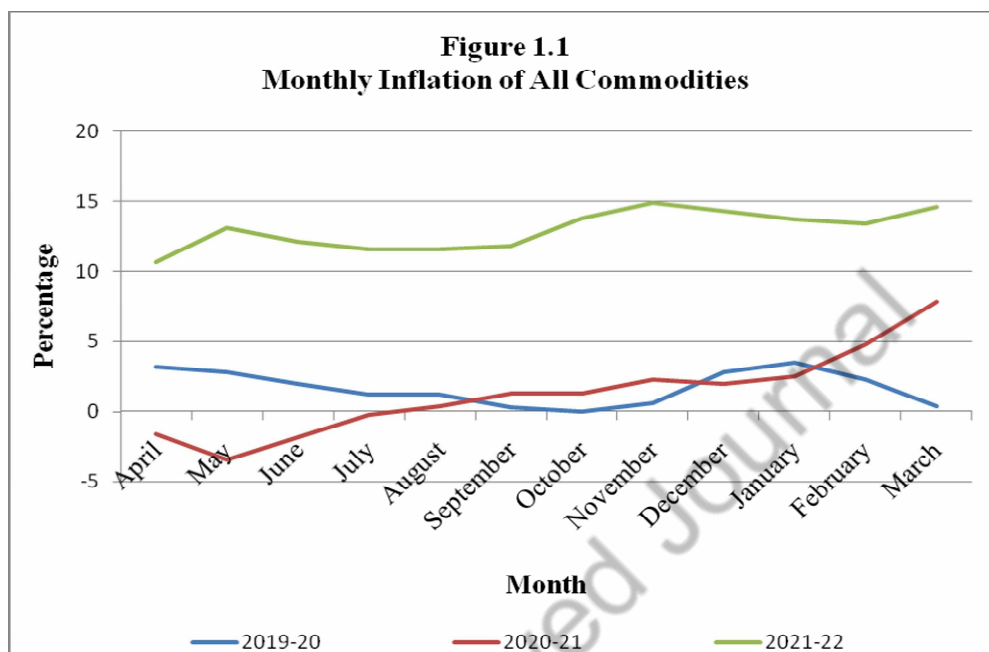
Month \ Year	2019-20	2020-21	2021-22
April	3.2	-1.6	10.7
May	2.8	-3.4	13.1
June	2.0	-1.8	12.1
July	1.2	-0.2	11.6
August	1.2	0.4	11.6
September	0.3	1.3	11.8
October	0.0	1.3	13.8
November	0.6	2.3	14.9
December	2.8	2.0	14.3
January	3.5	2.5	13.7
February	2.3	4.8	13.4
March	0.4	7.9	14.6
Average Total	1.7	1.3	13.0

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India

³⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Table 1.1 reveals the month-wise inflation rate during Covid-19 Lock down period and post Lock down period. Inflation recorded in single digit for all the commodities during lock down period. On the other hand it reached double digit in the month of post lock down period. The average total is 1.7 per cent in 2019-20, 1.3 in 2020-21. It is noted that it is 13 per cent. In 2021-22 during the post lock down period.



WHOLESALE PRICE INDEX

The following table highlights wholesale price index of India from 2012-13 to 2021-22.

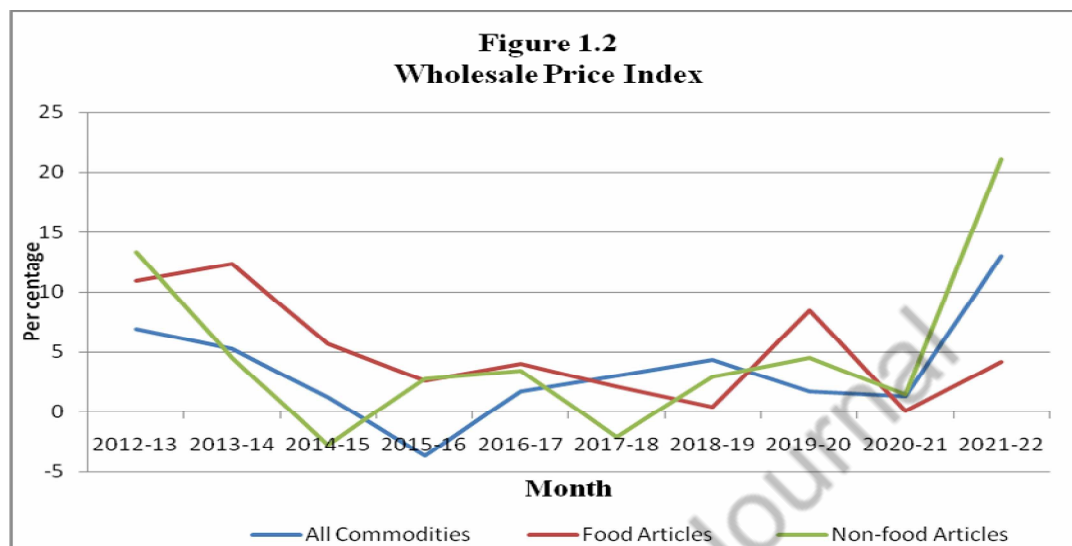
Table 1.2
Wholesale Price Index

Month	All Commodities	Food Articles	Non-food Articles
2012-13	6.9	10.9	13.3
2013-14	5.2	12.3	4.5
2014-15	1.2	5.6	-2.8
2015-16	-3.7	2.6	2.7
2016-17	1.7	4.0	3.4
2017-18	3.0	2.1	-2.1
2018-19	4.3	0.3	2.9
2019-20	1.7	8.4	4.5
2020-21	1.3	3.1	1.4
2021-22	13.0	4.1	21.1
Average Total	3.46	5.03	4.89

Source: Office of the Economic Adviser, Ministry of Commerce and Industry, Government of India

Table 1.2 shows that the Wholesale Price Index of All the Commodities as well as Food Articles and Non-food Articles. During the Covid-19 period inflation has declined from 4.3 in 2018-19 to 1.7 in 2019-20 for all commodities. Inflation is again come down to 1.3 in 2020-21 second wave also. Post lock down period inflation increase up to 13 per cent in

2021-22. This happened due its new employment generation and circulation of money is normal condition in post lock down period. Regarding the food articles, inflation rate has increased from 3.1 to 4.1 which indicate the increase in inflation. Inflation rate of non- food articles also increased to 21.1 per cent in 2021-22 from 1.4 in 2020-21.



CONCLUSION

The rate of inflation in general and food inflation, in particular, has been a persistent problem in India over the past few years. The pandemic has caused both demand and supply shock. Wholesale and Retail inflation have been fluctuating due to pandemic. The major reason behind the inflation rise in India is the sharp rise in the commodity prices on the other hand lack of circulation of money due unemployment. The Government should take protective measures to ensure the country's security of supply in order to stimulate the economy and keep the low cost of production. The conduct of monetary policy is the main tool for maintaining appropriate inflation rate. The slower growth of aggregate demand will reduce the rate of inflation. The supply policy aimed at the improvement of the long-term competitiveness and productivity. To reduce inflationary pressures, the government can increase taxes and decrease government spending vice-versa.

REFERENCES

1. Yadav, S.K.S., Arushi Jain, Shilpa Narang, "The Study of Inflation Rate and Relative Impact on the Indian Economy during Covid-19 Pandemic", *International Journal of Current Science Research and Review*, ISSN: 2581-8341, Volume 04 Issue 08 August 2021.
2. Andre Roncaglia (2017), "Economic development and inflation a theoretical and empirical analysis", *International review of applied economics* 32:4, 546-565
3. Asha Rathi, Ashok Kumar (2020), "Effect of Covid 19 on Various Sectors", *International Journal of Trade and Commerce-IIARTC*, Vol. 9, No. 1, pp. 102-110.
4. Behera, Harendra, Garima Wahi, and Muneesh Kapur. (2017), Phillips Curve Relationship in India Evidence from State-Level Analysis. RBI Working Paper Series no.8.
5. Daya Mary Mathew, S. Ancy, J. Aruna Jasmine (2020), "Effects of covid-19 on the economy", *International. Journal of Trade and Commerce-IIARTC*, Vol. No. 1, pp. 27-34.

IMPACT OF COVID-19 ON THE INDIAN ECONOMY³⁶

Dr. R. SAMPATH³⁷

Introduction

The world has witnessed several epidemics such as the Spanish Flu of 1918, outbreak of HIV/AIDS, SARS (Severe Acute Respiratory Syndrome), MERS (Middle East Respiratory Syndrome) and Ebola. In the past, India has had to deal with diseases such as the small pox, plague and polio. However, the Novel Corona virus Covid-19 which originated in China in November-December 2019 and over the next few months rapidly spread to almost all countries of the world has turned out to be one of the biggest health crises in our history. India recorded the first case of the disease on January 30, 2020. Since then the cases have increased steadily to around 33610 total confirmed cases and around 1075 deaths (as on 30 April 2020). India has recorded lower number of cases compared to other countries, especially those in the developed world, which have been badly affected. The global Covid-19 pandemic, which is inflicting two kinds of shocks on countries: a health shock and an economic shock. Given the nature of the disease which is highly contagious, the ways to contain the spread include policy actions such as imposition of social distancing, self-isolation at home, closure of institutions, and public facilities, restrictions on mobility and even lockdown of an entire country. In order to curb the spread of the virus, the government of India announced a three week long nationwide lockdown starting 25 March 2020 and further extended to 3 May. The outbreak of COVID-19, first in China and now having being confirmed in more than 190 countries, has emerged as a key risk to human health as well as global growth outlook through numerous channels like trade, production and supply chain disruptions; decline in demand; lower tourism and business travel; loss of investor confidence; and productivity losses from the health impact on morbidity and mortality of work force. The outbreak has presented challenges for the Indian economy now, causing severe disruptive impact on both demand and supply side elements which has the potential to derail India's growth story. According to the study by the Federation of Indian Chambers of Commerce and Industry the economy will impact the economy entirely.

Impact of different sectors been affected due to Covid-19

1. Hospitality Sector

As many states have imposed localised lockdowns, the hospitality sector is facing a repeat of 2020. The hospitality sector includes many businesses like restaurants, beds and breakfast, pubs, bars, nightclubs and more. The sector that has contributed to a large portion of India's annual GDP has been hit hard by restrictions and curfews imposed by the states.

2. Tourism Sector

The hospitality sector is linked to the tourism sector. The sector that employs millions of Indians started bouncing back after the first wave, but the second wave of covid was back for the devastation! The tourism sector contributes nearly 7% to India's annual GDP.

³⁶ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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It comprises hotels, home stays, motels and more. The restrictions due to the second wave have crippled the tourism sector, which was already struggling to recover from the initial loss suffered by the businesses in 2020.

3. Aviation and Travel sector

Aviation and other sector establishments faced a massive struggle during the second wave of the pandemic. The larger travel sector is also taking a hit as people are scared to step out of their homes. For airlines and the broader travel sector, its recovery will depend on whether people in future will opt for such services. At present, the outlook for the aviation and broader travel sector does not look good.

4. Automobile sector

The automobile sector is expected to remain under pressure in the near term due to the covid-19 situation in India.

5. Real Estate and Construction sector

The real estate and construction activities have started facing a disruption during the second wave as a large number of migrant workers have left the urban areas. The situation has not been grave as of 2020 for this sector.

6. Fiscal Deficit

The Covid-19 pandemic has not affected our fiscal deficit and disinvestment target much. In this year's union budget, Finance minister Nirmala Sitharaman announced a fiscal deficit target of 6.8% for 2021 to 2022. India's fiscal deficit for 2020-21 zoomed to 9.5% of GDP as against 3.5% projected earlier. Our finance minister has promised to achieve a fiscal deficit of 4.5% of GDP by 2025-26 by increasing the steaming tax revenues through increased tax compliance as well as asset monetization over the years. According to the medium-term fiscal policy statement that the government had presented in February 2020, the fiscal deficit for 2021-22 and 2022-23 was at 3.3% and 3.1% respectively.

7. Energy

Night lights and economic activity are connected. In Delhi, night light radiance fell 37.2% compared to 1–31 March 2019. This was the biggest fall for any metro in India. Bangalore fell 32% while Mumbai dropped by 29%. India's fuel demand in April 2020 as compared to the previous year fell nearly 46%. Consumption of fuel was the lowest since 2007. Cooking gas (LPG) sales rose ~12%. An International Energy Agency report in April estimated India's annual fuel consumption will decline 5.6% in 2020. Diesel demand will drop ~6%. By the first half of June 2020, India's fuel demand was 80–85% of what it was before the lockdown. However the Indian oil minister said that it would take a much longer time for the growth in demand to be restored to pre-COVID-19 levels.

Oil prices dropped sharply in 2020 following the COVID-19 pandemic. Demand also fell sharply. By mid-May India had already filled its strategic storage including storing oil on ships across the world. India is now looking at storing oil in other nations including America. India also plans to increase its local strategic storage capacity for oil.

8. Manufacturing

Major companies in India such as Larsen and Toubro, Bharat Forge, Ultra Tech Cement, Grasim Industries, the fashion and retail wing of Aditya Birla Group, Tata Motors

and Thermax momentarily suspended or significantly reduced operations in a number of manufacturing facilities and factories across the country. iPhone producing companies in India also suspended a majority of operations. Nearly all two-wheeler and four-wheeler companies put a stop to production till further notice. Many companies have decided to remain closed till at least 31 March such as Cummins which has temporarily shut its offices across Maharashtra. Hindustan Unilever, ITC and Dabur India shut manufacturing facilities except for factories producing essentials. Foxconn and Wistron Corp, I Phone producers, suspended production following the 21-day lockdown orders.

9. Stock markets

On 23 March 2020, stock markets in India post worst losses in history. SENSEX fell 4000 points (13.15%) and NSE NIFTY fell 1150 points (12.98%). However, on 25 March, one day after a complete 21-day lock-down was announced by the Prime Minister, SENSEX posted its biggest gains in 11 years, adding a value of ₹4.7 lakh crore (US\$62 billion) for investors. On 8 April, following positive indication from the Wall Street that the pandemic may have reached its peak in the US, the stock markets in India rose steeply once again. By 29 April, Nifty held the 9500 mark

10. E-commerce

In the third week of March, Amazon announced that it would stop sale of non-essential items in India so that it could focus on essential needs. Amazon followed the same strategy in Italy and France. On 25 March, Walmart-owned Flipkart temporarily suspended some of its services on its e-commerce platform and would only be selling and distributing essentials. Big Basket and Grofers also ran restricted services, facing disruptions due to the lockdown. Delhi Police began issuing delivery agents curfew passes to make it easier for them to keep the supply chain open. E-commerce companies also sought legal clarity related to defining "essentials".

11. Defence

The Department of Military Affairs led by the Chief of Defence Staff postponed all capital acquisitions until the corona virus pandemic recedes. No new major defense deals would be made in the beginning of the financial year 2020–21. While the delivery of S-400 missile systems won't be affected, the delivery of Rafale fighter jets was reported to maybe being affected. However, on 24 March, France confirmed that there will be no delay in the delivery of the 36 Rafale jets. During the announcement of the economic package, the Finance Minister announced a change in the FDI cap from 49% to 74% for defense, the corporatization of India's ordnance production and a list for the ban of select defense imports.

12. Airports

The second wave has threatened India's air recovery traffic. The domestic passenger traffic has decreased by 75% of the pre-covid levels. The traffic recovery in the worst-case scenario could be 10% lower than what is predicted. Weaker traffic hits the cash flows of the airports. There will be a sharp recovery in road traffic after a short disruption. The commercial vehicle traffic will see better resilience as it supports logistics and essential services.

13. Ports

A modest recovery will be witnessed by import volumes. Fertilizers and containers will increase at a greater pace than crude and coal segments.

14. Food & Agriculture

Since agriculture is the backbone of the country and a part of the government announced essential category, the impact is likely to be low on both primary agricultural production and usage of agro-inputs. Several state governments have already allowed free movement of fruits, vegetables, milk etc. Online food grocery platforms are heavily impacted due to unclear restrictions on movements and stoppage of logistics vehicles. RBI and Finance Minister announced measures will help the industry and the employees in the short term. Insulating the rural food production areas in the coming weeks will hold a great answer to the macro impact of COVID-19 on Indian food sector as well as larger economy.

15. Telecom

There has been a significant amount of changes in the telecom sector of India even before the Covid-19 due to brief price wars between the service providers. Most essential services and sectors have continued to run during the pandemic thanks to the implementation of the 'work from home' due to restrictions. With over 1 billion connections as of 2019, the telecom sector contributes about 6.5 per cent of GDP and employs almost 4 million people. Increased broadband usage had a direct impact and resulted in pressure on the network. Demand has been increased by about 10%. However, the Telco's are bracing for a sharp drop in adding new subscribers. As a policy recommendation, the government can aid the sector by relaxing the regulatory compliances and provide moratorium for spectrum dues, which can be used for network expansions by the companies.

16. Pharmaceuticals

The pharmaceutical industry has been on the rise since the start of the Covid-19 pandemic, especially in India, the largest producer of generic drugs globally. With a market size of \$55 billion during the beginning of 2020, it has been surging in India, exporting Hydroxy chloroquine to the world, esp. to the US, UK, Canada, and the Middle-East.

There has been a recent rise in the prices of raw materials imported from China due to the pandemic. Generic drugs are the most impacted due to heavy reliance on imports, disrupted supply-chain, and labour unavailability in the industry, caused by social distancing. Simultaneously, the pharmaceutical industry is struggling because of the government-imposed bans on the export of critical drugs, equipment, and PPE kits to ensure sufficient quantities for the country. The increasing demand for these drugs, coupled with hindered accessibility is making things harder. Easing the financial stress on the pharmaceutical companies, tax-relaxations, and addressing the labour force shortage could be the differentiating factors in such a desperate time.

17. Oil and Gas

The Indian Oil & Gas industry is quite significant in the global context – it is the third-largest energy consumer only behind USA and China and contributes to 5.2% of the global oil demand. The complete lockdown across the country slowed down the demand of transport fuels (accounting for 2/3rd demand in oil & gas sector) as auto & industrial manufacturing declined and goods & passenger movement (both bulk & personal) fell. Though the crude prices dipped in this period, the government increased the excise and special excise duty to make up for the revenue loss, additionally, road cess was raised too. As a policy recommendation, the government may think of passing on the benefits of decreased crude prices to end consumers at retail outlets to stimulate demand.

Conclusion

Covid-19 has posed an unprecedented challenge for India. Given the large size of the population, the precarious situation of the economy, especially of the financial sector in the preCovid-19 period, and the economy's dependence on informal labor, lockdowns and other social distancing measures would be hugely disruptive. The central and state governments have recognized the challenge and have responded but this response should be just the beginning. Policy makers need to be prepared to scale up the response as the events unfold so as to minimise the impact of the shock on both the formal and informal sectors and pave the way for a V-shaped recovery. At the same time they must ensure that the responses remain enshrined in a rules-based framework and limit the exercise of discretion in order to avoid long-term damage to the economy.

References

1. "Economic Impact of the COVID-19 Pandemic in India," July 22, 2020.
2. Impact of Covid-19 on the Indian Economy.
3. Corona virus has become a pandemic, WHO. 11th March 2020. New York Times.
4. Covid-19: Impact on the Indian Economy, Indira Gandhi Institute of Development Research, Mumbai, April 2020.
5. Economic costs of lockdown, The Pioneer, 4 April 2020.
6. Centre for Monitoring Indian Economy, April, 2020.
7. The steps India has taken so far to contain economic fallout of Covid-19.

SPATIAL DISTRIBUTION OF COVID-19 PANDEMIC OF CURRENT SCENARIO IN SIVAGANGA DISTRICT TAMILNADU³⁸

Dr. C. SUBBURAMAN³⁹ & B. SUDHARSAN⁴⁰

Introduction

Corona virus are a large family of viruses that are known to cause illness ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). A novel Coronavirus (COVID-19) was identified in 2019 in Wuhan, China.

We present here the first case of COVID-19 infection reported in Kerala, India. On January 27, 2020, A 20 yrs old female presented to the emergency department in general hospital, Thrissur, Kerala, with a one-day history of dry cough and sore throat.

A 45- year- old man tested positive for Corona virus making him the first person in Tamil Nadu to be reported of having the disease. A resident of Kancheepuram, he had returned to India from Oman and is currently in the Rajiv Gandhi Government General Hospital in Chennai.

In this study, we examined residents' awareness of COVID-19 symptoms, perceived risk of contracting Corona virus, fear related to the COVID-19 pandemic, and their relationship with changes in behaviors and stress since the lockdown.

Methodology

This is descriptive study in nature. The paper is predominantly focused on secondary data sources the study is undertaken based on the foundation of the review literature, COVID-19 official Websites, Journals, Reports and Articles.

Table 1: Show the Number of countries wise Corona virus (COVID-19) Statistics in World

Countries	Active	Confirmed	Deaths	Cured
USA	98,50,394	4,36,68,680	7,05,293	3,31,12,993
India	3,01,410	3,36,24,419	4,43,690,	3,28,76,319
Brazil	4,07,510	2,13,27,616	5,93,693	2,03,26,408

As on 1, February 2022, the total confirmed cases in world are 23,10,24,159 (Refer Table 1). 14.55 percent of the confirmed cases in India.

Table 2: Show the number of City Wise Corona virus (Covid-19) Statistics in India

State	Active	Confirmed	Deaths	Cured
Maharashtra	2,11,239	77,21,109	1,42,611	73,67,259
Kerala	3,58,281	60,25,669	54,395	56,12,993
Karnataka	2,44,361	38,09,467	38,998	35,26,108
Tamil Nadu	1,98,130	33,45,220	37,564	31,09,526
Andhra Pradesh	1,10,517	22,76,370	14,615	21,51,238

³⁸ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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As on the February 1, 2022, the total confirmed cases in India are 3,36,24,419 (Refer table 2). 9.94 percent of the confirmed cases are only from Tamil Nadu.

Table 3: Show the Number of District Wise Corona virus (Covid-19) Statistics in Tamil Nadu

District	Active	Confirmed	Death	Cure
Chennai	2,048	5,40,300	8,345	5,29,907
Coimbatore	2,259	2,31,863	2,201	2,27,403
Chengalpattu	1,152	1,63,274	2,413	1,59,709
Thiruvallur	941	1,14,461	1,766	1,11,754
Erode	1,710	95,559	641	93,208
Salem	843	94,328	1,597	91,888
Tiruppur	857	88,754	876	87,021
Madurai	228	73,729	1,147	72,354
Tiruchirappalli	749	73,209	979	71,481
Kancheepuram	448	72,144	1,213	70,483
Thanjavur	995	68,972	864	67,113
Cuddalore	777	61,220	821	59,622
Kanyakumari	339	60,451	1,022	59,090
Thoothukkudi	196	55,274	398	54,680
Tiruvannamalai	503	52,586	641	51,442
Vellore	308	48,356	1,097	46,951
Tirunelveli	252	48,151	430	46,739
Namakkal	574	47,771	458	46,739
Virudhunagar	137	45,628	542	44,949
Villuppuram	358	44,205	341	43,506
Theni	120	43,038	514	42,404
Ranipet	216	42,169	745	41,208
Krishnagiri	309	41,638	745	41,208
Thiruvarur	432	38,327	376	37,519
Dindigul	157	32,322	627	31,538
Nilgiris	493	31,048	186	30,369
Kallakurichi	468	29,521	199	28,854
Pudukottai	356	28,533	372	27,805
Tirupathur	178	28,410	604	27,628
Tenkasi	112	26,928	484	26,332
Dharmapuri	316	26,415	237	25,862
Karur	188	22,836	351	19,665
Mayiladuthurai	259	21,325	271	20,795
Ramanathapuram	94	20,110	351	19,665
Nagapattinam	427	19,075	295	18,353
Savaging	229	19,022	199	18,594
Ariyalur	237	16,037	240	15,560
Perambalur	109	11,579	225	11,245

As on February 01.02.2022, the total cases in Tamil Nadu are 33,45,220 (Refer table 3). 0.56 percent of the confirmed cases are only from Sivaganga district.

Table 4: Show the Statistical wise COVID-19 Pandemic Situation in Sivaganga District

Confirmed cases	19,022
Active	229
Recovered	18,353
Deceased	199
Vanninated (at least one dose)	7.3 L
Fully vanninated	2.9 L
Vaccine dose administered	10.1 L
Case fatality ratio	1%
Case growth	9.3%
Population	13.4L

DISCUSSION AND INTERPRETATION

India severely affected by the COVID-19. Tamil Nadu state has 38 districts (table 3). The first case identified at Tamil Nadu on March 9 and until March 23, it was a single digit case. On March 24, the number of confirmed cases was 15. The reason for sudden changes in the number of cases was the contribution from Chennai city. It is evident that the majority of the top cities such as Mumbai, Delhi and Chennai are poorly affected due to COVID-19 and Kolkata is exceptional.

However, the effectiveness was less comparatively. Further, lockdowns were not much helpful as people perceived the negligence and started roaming across the city. People who were healthy and unaffected by COVID-19 were moving around which added more cases as an opportunity to pick the disease from others. Also, some of the people who were affected who were affected and quarantine at home were roaming without social responsibility and infected others. Additionally, there are so many people affected by Corona virus without any symptoms symptoms vary from person to person, which is a significant cause to add more difficulties to medical professionals.

Government of Tamil Nadu, disaster management from the revenue department, health department and Police department should have a better understanding of the current number of confirmed cases, future predicated cases, death cases and the various contributors for the same. Public awareness is critical in this pandemic situation. By involving famous personalities, awareness programmes can be conducted. Before it becomes a tragedy, the administrators should attempt to find the ways to control the spread of COVID-19, which will help them to prove the forecasted numbers are wrong, which can save the life of valuable human being's life.

Possible causes for more COVID-19 cases at Sivaganga

- ❖ Lockdown was not followed up properly.
- ❖ People visit from profoundly impacted states and countries.
- ❖ Quarantine and suspected people travel in the city without social responsibility.
- ❖ Lack of awareness and negligence.
- ❖ Unaffected people roam with improper precaution.

Recommendations

- ❖ Health workers can be deployed ward by ward and door to door for accessing and identify the symptomatic people as a preventive method.

- ❖ Hospitals, Doctors, Technicians, Labs and infrastructure facilities from the neighbor districts can be used to treat the COVID-19 patients of Sivaganga district. The availability of Human resources and infrastructure should not become a barrier to manage the contemporary situation.

Suggestion

Wear a mask, clean your hands, maintain safe distance, get vaccinated.

Conclusion

Disaster and pandemic come suddenly and make an enormous change in society with substantial negative impacts. The human community cannot predict, and a proactive approach is not appropriate to the Disaster and Pandemic. The reactive approach is more suitable as we need to deal with it once we are affected by them. When COVID-19 identified first in Wuhan city in China, it was just news for others from various part of the world. Now, India is one of the majorly affected countries and stands at 4th place. Most of the states and big cities are affected. Chennai, which is the capital of Tamil Nadu, is severely affected by a considerable number, and the count is increasing day by day. There are various initiatives from the Tamil Nadu government to control, treat and prevent COVID-19. However, the number of cases is rising in an uncontrolled manner. Strategically disease management is needed to control the situation better. Forecasting is one of the critical factors that play a vital role in the pandemic management. Unless otherwise, we predict the future trend in increasing spread, it is challenging to deal and control infection and death rate. As mentioned in the recommendations sections, few additional measures and actions to be taken by the respective authorities will help manage the situation better. Though the COVID-19 falling under medical, biological, and health departments, combined management initiatives are essential. Doctors can treat the patients, but it is challenging to manage other administrative and associated activities related to the pandemic. It is possible with the strategically approaches where we can have proper planning, execution and monitoring.

References

1. Coronavirus disease (COVID-19) Pandemic, World Health Organization. <http://www.who.int/emergencies/disease/novel-coronavirus-2019>. accessed on February 01, 2022.
2. COVID-19 INDIA, Ministry of Health and Family welfare, Government of India. <https://www.mohfw.gov.in/>, accessed on February 01, 2022.
3. COVID-19 STATEWISE STATUS, GOVERNMENT OF INDIA. <https://www.mygov.in/corona-data/covid-19-statewise-state/>, accessed on February 01, 2022.
4. SIVAGANGA DISTRICT, History. Government of Tamilnadu. <https://sivaganga.nic.in/history/> accessed on February 01, 2022.
5. Kannamani Ramasamy (2020), "COVID-19 Situation at Chennai city- forecasting for the better pandemic management". International Journal of Current Research and Review, DOI: <http://dx.doi.org/10.31782/IJCRR.2020.12128>
6. Jinyi Kuang (2020), "Awareness, Risk Perception, and Stress during the COVID-19 Pandemic in Communities of Tamilnadu, India". International Journal of Environmental Research and Public Health, www.mdpi.com/journal/ijerph.

7. Ahmad Sadiq (2020), "How COVID-19 is Changing Behaviors of Population: A Study from Punjab?". Biomedica-Vol. 36, COVID19-S2.2020.
8. Hardeva Ram Nehara (2021), "Knowledge, attitude, and practice regarding COVID-19 among COVID-19 patients and their correlation with the outcomes. A cross-Sectional study".<http://www.jadweb.org>
9. Shivkumar Gopalakrishnan (2020), Knowledge, attitude and practices associated with COVID-19 among health care workers: A cross-sectional study in India.

Peer Reviewed Journal

THE IMPACT OF COVID-19 ON INDIAN ECONOMY⁴¹

Prof. N. LOGANATHAN⁴² & Prof. V. VASUMATHI⁴³

Introduction

Corona virus disease (COVID-19) is an infectious disease caused by the SARS-CoV-2 virus. Most people infected with the virus will experience mild to moderate respiratory illness and recover without requiring special treatment. However, some will become seriously ill and require medical attention. Older people and those with underlying medical conditions like cardiovascular disease, diabetes, chronic respiratory disease, or cancer are more likely to develop serious illness. Anyone can get sick with COVID-19 and become seriously ill or die at any age.

The best way to prevent and slow down transmission is to be well informed about the disease and how the virus spreads. Protect yourself and others from infection by staying at least 1 metre apart from others, wearing a properly fitted mask, and washing your hands or using an alcohol-based rub frequently. Get vaccinated when it's your turn and follow local guidance.

The virus can spread from an infected person's mouth or nose in small liquid particles when they cough, sneeze, speak, sing or breathe. These particles range from larger respiratory droplets to smaller aerosols. It is important to practice respiratory etiquette, for example by coughing into a flexed elbow, and to stay home and self-isolate until you recover if you feel unwell.

Objectives of the study

To know the impacts of COVID-19 on Indian economy more specifically on income, consumption, poverty, unemployment, food and agriculture.

Review of Literatures

Alex Upadhyay (2021) in his study on "Impact of Covid-19 on Indian economy" stated that The impact of corona virus pandemic on India has been largely disruptive in terms of economic activity as well as a loss of human lives. Almost all the sectors have been adversely affected as domestic demand and exports sharply plummeted with some notable exceptions where high growth was observed.

Shreyansh-Mangla (2021) found out that Coupled with the humanitarian crisis and silent treatment of the government, the covid-19 has exposed and worsened existing inequalities in the Indian economy. The contraction of the economy would continue in the next 4 quarters and a recession is inevitable. Everyone agrees that the Indian economy is heading for its full-year contraction. The surveys conducted by the Centre For Monitoring Indian Economy shows a steep rise in unemployment rates, in the range of 7.9% to 12% during the April-June quarter of 2021. The economy is having a knock-on effect with MSMEs

⁴¹ Paper presented in the **41st Annual Conference of Association of Economists of Tamil Nadu** Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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shutting their businesses. Millions of jobs have been lost permanently and have dampened consumption.

Swati Dhingra, Maitreesh Ghatak (2021) underlined that India has been hit hard by the pandemic, particularly during the second wave of the virus in the spring of 2021. The sharp drop in GDP is the largest in the country's history, but this may still underestimate the economic damage experienced by the poorest households.

Wikipedia pointed out that the economic impact of the COVID-19 pandemic in India has been largely disruptive. Bharat's growth in the fourth quarter of the fiscal year 2020 went down to 3.1% according to the Ministry of Statistics. The Chief Economic Adviser to the Government of India said that this drop is mainly due to the corona virus pandemic effect on the Indian economy. Notably, India had also been witnessing a pre-pandemic slowdown, and according to the World Bank, the current pandemic has "magnified pre-existing risks to India's economic outlook".

Amit Kumar (2021) noticed that agriculture will see a deeper cut from the second wave compared to the first wave where it grew.

The last two years have been difficult for the world economy on account of the COVID-19 pandemic. Repeated waves of infection, supply-chain disruptions and, more recently, inflation have created particularly challenging times for policy-making. Faced with these challenges, the Government of India's immediate response was a bouquet of safety-nets to cushion the impact on vulnerable sections of society and the business sector. It next pushed through a significant increase in capital expenditure on infrastructure to build back medium-term demand as well as aggressively implemented supply-side measures to prepare the economy for a sustained long-term expansion.

Covid-19 changed income, consumption, poverty and unemployment in India

While the macroeconomic statistics provide a snapshot of India's economic position, they hide the large and unequal effects on households and workers within the country.

Both wealth and income inequality has been on the rise in India (Ghatak, 2021). Estimates suggest that in 2020, the top 1% of the population held 42.5% of the total wealth, while the bottom 50% had only 2.5% of the total wealth (Oxfam, 2020). Post-pandemic, the number of poor in India is projected to have more than doubled and the number of people in the middle class to have fallen by a third (Kochhar2021).

During India's first stringent national lockdown between April and May 2020, individual income dropped by approximately 40%. The bottom decile of households lost three months' worth of income (Azim Premji University, 2021; Beyer et al, 2021).

Microdata from the largest private survey in India, CMIE's 'Consumer Pyramids Household Survey' (CPHS), show that per capita consumption spending dropped by more than GDP, and did not return to pre-lockdown levels during periods of reduced social distancing. Average per capita consumption spending continued to be over 20% lower after the first lockdown (in August 2020 compared with August 2019), and remained 15% lower year-on-year by the end of 2020.

Official poverty data are unavailable, and the CPHS data come with a caveat of 'top' and 'bottom exclusions'. For example, official statistics show a rural headcount ratio of 35% in 2017/18 (Subramanian, 2019). But the CPHS data estimate it at 25%, which suggests exclusions at the lower end of the consumption distribution (Dreze and Somanchi, 2021).

Despite these statistical concerns, the CPHS does provide consumption numbers for a large sample of individuals, which can provide insights into changes in consumption levels arising from the pandemic.

The percentage of people who have monthly consumption expenditure below different cut-off values. The different cut-offs encompass the official poverty lines (which, in any case, have been considered too low by some commentators). The current rural poverty line is set at 1,600 rupees (£15.50) per month or over, and the urban poverty line is 2,400 rupees per month (£23.37) or over.

Based on the latest CPHS data, rural poverty increased by 9.3 percentage points and urban poverty by over 11.7 percentage year-on-year from December 2019 to December 2020. Earlier months of the CPHS show that rural poverty increased by 14.2 percentage points and urban poverty by 18.1 percentage points. Yet the actual increase in poverty due to Covid-19 is likely to be higher than what the CPHS data suggest, as indicated by other surveys.

Food & Agriculture

Since agriculture is the backbone of the country and a part of the government announced essential category, the impact is likely to be low on both primary agricultural production and usage of agro-inputs. Several state governments have already allowed free movement of fruits, vegetables, milk etc. Online food grocery platforms are heavily impacted due to unclear restrictions on movements and stoppage of logistics vehicles. RBI and Finance Minister announced measures will help the industry and the employees in the short term. Insulating the rural food production areas in the coming weeks will hold a great answer to the macro impact of COVID-19 on Indian food sector as well as larger economy.

Conclusion

This paper dealt with the impact of the Covid-19 pandemic on the Indian economy. The health crisis has been accompanied by an unprecedented economic crisis, where demand and supply have fallen autonomously and concurrently, even as they depress each other in feedback loops. The intensity of this crisis was exacerbated by the fact that the Indian economy was slowing down over a decade prior to the pandemic. As a result, India's capacity to deal with the pandemic stood seriously diminished in March 2020.

The pandemic-induced economic crisis after March 2020 affected all economic sectors. In agriculture, farmers were faced with broken supply chains, lack of market outlets, poor demand and falling output prices. Our analysis of market arrivals of 15 agricultural commodities between March and September 2020 brought home this reality in the countryside. In industry, micro and small enterprises were the most acutely affected. Surveys showed that about 35% of all MSMEs were likely to shut down permanently. The crisis also led to a major loss of employment; at least 13 million people disappeared from the labour force between February and October 2020.

The government's economic response till August 2020 was supply-centred, and seriously deficient on the demand side. The extent of short-run and long-run employment losses demanded that the package focussed on the generation of employment and raising aggregate demand. Yet, the financial allocation for employment generation was raised only marginally. In fact, on a year-on-year basis, the expenditure of the Union government declined by 0.6% between April and September 2020; the corresponding figure for April-September 2019 was +14.1%. The government was hesitant to expand budgetary spending

because it feared a rise in fiscal deficit. Such fiscal conservatism is not new under India's neoliberal regime. However, India has remained steadfast in its adherence to fiscal conservatism even as advanced capitalist economies have shed the dogma of austerity while responding to the pandemic. We believe this is illustrative of a certain ideological orthodoxy that marks the present right-wing dispensation in India. Given this conjuncture, the chances of an early revival in the Indian economy appear dismal.

Reference

1. **Alex Upadhyay** "Impact of Covid-19 on Indian economy"
<https://timesofindia.indiatimes.com/readersblog/mymusiclife/impact-of-covid-19-on-indian-economy-4-35585/>, 24-Jul-2021
2. **Shreyansh-Mangla** "Impact of Covid-19 on Indian economy"
<https://timesofindia.indiatimes.com/readersblog/shreyansh-mangla/impact-of-covid-19-on-indian-economy-2-35042/>, 11-Jul-2021
3. **Swati Dhingra, Maitreesh Ghatak** "How has Covid-19 affected India's economy?"
<https://www.economicsobservatory.com/how-has-covid-19-affected-indias-economy>, 30 JUN 2021.
4. **Wikipedia** "Economic Impact of the COVID-19 Pandemic in India"
https://en.wikipedia.org/wiki/Economic_impact_of_the_COVID-19_pandemic_in_India
5. **Amit Kumar** "Impact on Indian economy after the COVID-19 second wave"
<https://www.financialexpress.com/economy/impact-on-indian-economy-after-the-covid-19-second-wave/2275353/>, June 21, 2021
6. <https://www.indiabudget.gov.in/economicsurvey/doc/eschapter/echap01.pdf>
7. Ramakumar, R. (2020). Agriculture and the Covid-19 Pandemic: An Analysis with special reference to India. *Review of Agrarian Studies*, 10(1), pp. 72-110. [Links]
8. Reserve Bank of India, RBI (2003). Annual Report. Reserve Bank of India, Mumbai. [Links]
9. RBI (2020). Annual Report. Reserve Bank of India, Mumbai. [Links]
10. Swamy, M. (2020). October 2020 Review of Indian Economy: Macro-economic Performance. CMIE Economic Outlook, Centre for Monitoring Indian Economy, Mumbai, 14 October. [Links]

ISSUES WITH PERSONAL WORKERS IN TAMILNADU DURING COVID-19 LOCKDOWN⁴⁴

M. PRABHA⁴⁵ & Dr. S. AHILA⁴⁶

Introduction

COVID-19 is a severe, acute respiratory illness caused by an infection with a novel corona virus that began in Wuhan, China, and is now spreading globally. COVID-19 has spread throughout the world in three months and has already begun to have serious economic consequences. COVID-19 has also had a significant impact on Indian business. The government of India decided to impose a national block in India on March 24, 2020, in response to questions about how COVID-19 behaved differently in other countries and social distance, which is the only effective way to deal with this disease. The Indian government obstructed all states and allied territories. The lockdown will have economic consequences in India; Indian businesses are also facing unprecedented challenges, including problems with credit.

Methodology

The study was conducted in Tamil Nadu state. Google form survey was carried out on email and social media within the Tamil Nadu State in June 16 and 17, 2020. There were 110 completed form received. The responses were coded and entered in the computer using Microsoft Excel. Required analysis was done with the help of SPSS (Statistical Package for Social Sciences) 21.0 Version. The Percentage, Mean, standard deviation, minimum, maximum, Kendall's Coefficient of Concordance, Friedman Test were applied on the data to get the results which are analyzed.

Analysis of the study

The study's analysis is divided into three parts: I the socioeconomic characteristics of private sector employees, (ii) an analysis of the problems faced by private sector employees during the COVID-19 lockdown period, and (iii) an examination of the challenges faced by private sector employees in Tamilnadu after the COVID-19 lockdown.

The Socioeconomic Characteristics of Employees in the Private Sector

This section of the study focuses on socioeconomic factors such as gender, age group, educational qualification, family size, family type, designation, number of days the employee has been on the job in April and May 2020, salary received, and percentage of the salary of private sector employees in Tamilnadu. Table-1 analyses and presents the data.

⁴⁴ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Table 1: The Socio-Economic Characteristics of the Private Sector Employees

Socio-economic characteristics		N	%
Gender	Male	91	82.73
	Female	19	17.27
Age group	Below 30 years	39	35.45
	30-40 years	50	45.45
	40-50 years	14	12.73
	Above 50 years	7	6.36
Educational Qualification	Higher Secondary	1	0.91
	Under Graduate	32	29.09
	Post Graduate	50	45.45
	Research	27	24.55
Family size	Below 3 members	20	18.18
	4 members	46	41.82
	5 members	21	19.09
	6 members	13	11.82
	Above 6 members	10	9.09
Family Type	Nuclear Family	62	56.36
	Joint Family	48	43.64
Designation	Manager	15	13.64
	Assistant Manager	14	12.73
	Branch Manager	18	16.36
	Assistant Professor	34	30.91
	Teacher	11	10.00
	Executives	18	16.36
No. of Days of Job in April 2020	1-5 days	63	57.27
	6-10 days	7	6.36
	11-15 days	8	7.27
	16-20 days	10	9.09
	21-25 days	5	4.55
	26-30 days	17	15.45
No. of Days of Job in May 2020	1-5 days	33	30.00
	6-10 days	6	5.45
	11-15 days	13	11.82
	16-20 days	15	13.64
	21-25 days	20	18.18
	26-30 days	23	20.91
Salary Received	Yes	101	91.82
	No	9	8.18
	Total	110	100.00
Percentage of Salary received in April & May 2020	1-25%	7	6.36
	26-50%	13	11.82
	51-75%	32	29.09
	75-100%	49	44.55
Total		101	100.00

Source: Calculated data

From the table-1, it is observed that out of 110 private sector employees selected for the study, 82.73% of them are male and 17.27% of them are female employees. In the age group of the employees, 35.45% of them are in the age group of below 30 years, 45.45% of them are in the age group of 30-40 years, 12.73% of them are in the age group of 40-50 years and 6.36% of them are in the age group of above 50 years. Educational qualification of the employees, 29.09% of them had education at the undergraduate level, 45.45% of them had a post-graduate level, 24.55% of them had a research level and only 1% of them had a higher secondary level of education. In the family size category, 18.18% of them were with a family size of below 3 members, 41.82% of them were with 4 members, 19.09% of them were with 5 members, 11.82% of them were with 6 members and 9.09% of them were with the family size of above 6 members. In the family type, 56.36% of them were registered in the nuclear family and while 43.64% of them were recorded in the category of joint family.

Out of 110 private sector employees selected, 13.64% of them are working as a manager, 12.73% of them are working as assistant managers, 16.36% of them are working as branch managers, 30.91% of them are working as assistant professors, 10.00% of them are working as a teacher and 16.36% of them are working as executives. In April 2020, 57.27% of private sector employees worked 1-5 days, 6.36% of them worked for 6-10 days, 7.27% of them worked for 11-15 days, 9.09% of them worked for 16-20 days, 4.55% of them worked for 21-25 days and 15.45% of them worked for 26-30 days. In May 2020, 30.00% of private sector employees worked 1-5 days, 5.45% of them worked for 6-10 days, 11.82% of them worked for 11-15 days, 13.64% of them worked for 16-20 days, 18.18% of them worked for 21-25 days and 20.91% of them worked for 26-30 days. Out of 110 employees selected, 91.82% of them received the salary, of which 6.36% of them received 1-25% of salary, 11.82% of them received 26-50% of salary, 29.09% of them received 51-75% of salary and 44.55% of them received 75-100% of salary during April & May 2020.

The Socioeconomic Characteristics of Employees in the Private Sector

This section of the study focuses on socioeconomic factors such as gender, age group, educational qualification, family size, family type, designation, number of days the employee has been on the job in April and May 2020, salary received, and percentage of the salary of private sector employees in Tamilnadu. Table-1 analyses and presents the data.

Hypothesis

H₀: The mean rank of each problem is random and there will be no difference in mean ranks of the various problems of private sectors employees during COVID-19 lockdown.

**Table 2: The Problems Faced by the Private Sectors Employees during COVID-19
Lockdown Period: Mean Rank analysis**

Problems	N	Sum	Mean	Std. Deviation	Mean Rank	Rank Obtained
No work	110	364	3.31	1.31	6.49	14
No salary	110	268	2.44	1.19	3.68	15
No public transport	110	472	4.29	1.06	10.21	1
Interest burden	110	413	3.75	1.14	8.01	8
Payment of Rent	110	411	3.74	1.25	8.00	9
Poor supply of essentials	110	389	3.54	1.08	7.14	13
Poor remedy for an illness	110	401	3.65	1.04	7.60	11

Lack of social distancing among the public	110	452	4.11	1.04	9.45	2
High cost of essential goods	110	446	4.05	0.89	9.05	3
Lack of other income	110	429	3.90	1.22	8.81	6
Depression due to no work	110	405	3.68	1.10	7.81	10
Fear of job loss	110	389	3.54	1.30	7.38	12
Fear on health	110	427	3.88	1.14	8.60	7
Time spent for sanitization	110	445	4.05	0.81	8.90	4
More cost of living	110	440	4.00	0.94	8.89	5

Source: Calculated data.

Table 2 depicts the difficulties faced by private sector employees in Tamil Nadu during the COVID-19 lockdown. Among the various issues, the main issue is a lack of public transportation, which is ranked first with a 10.21 mean rank. The public's lack of social distancing is ranked second, with a mean rank of 9.45. The high cost of essential goods ranks third, with a mean rank of 9.05. Sanitation time is the fourth most important issue, with an 8.90 average rank. The fifth issue is higher living costs (8.89 mean ranks). As a result, lack of other income (8.81 mean rank), fear of health (8.60 mean rank), interest burden (8.01 mean rank), rent payment (8.00 mean rank), depression (7.81 mean rank).

Table 3: Estimated results of Kendall's W and Chi-Square Test

N	Kendall's W ^a	Chi-Square	df	Asymp. Sig.
110	.159	244.314*	14	.000

a. Kendall's Coefficient of Concordance b. Friedman Test *Significant at 1% level

Source: Calculated data

The calculated coefficient of concordance is 0.159, and the Friedman chi-square is 244.314, both of which are greater than the table value of 29.14 at a 1% level for degrees of freedom 14. The highly significant chi-square value and moderate concordance provide the researcher with strong evidence to reject the null hypothesis. As a result of the overall results, it is possible to conclude that the mean rank of each problem is not random and that there is a difference in the mean ranks of the various problems encountered by private sector employees during the COVID-19 lockdown period.

The Challenges Faced by the Private Sectors Employees after COVID-19 Lockdown Period.

Hypothesis

H₀: During the COVID-19 lockdown, the mean rank of each challenge is random, and there will be no difference in the mean ranks of the various challenges of private sector employees.

Table 4 depicts the difficulties faced by private sector employees in Tamil Nadu following the COVID-19 lockdown period. The main challenge among the ten is a lack of travel, which is ranked first with a 7.00 mean rank. The public's lack of cooperation is ranked second, with a 6.54 mean rank. With a 6.25 mean rank, virus prevention in the workplace is ranked third. The fourth challenge is high sanitization costs, which receive a 5.89 average rank. The fifth challenge is low employee well-being (5.29 mean rank). As a result, there is a high level of absenteeism (5.03 mean rank), a lack of emergency assistance in the workplace

(4.94 mean rank), inability to perform work from home (4.86 mean ranks), and poor interaction with a supervisor.

**Table 4: The Challenges Faced by the Private Sectors Employees after COVID-19
Lockdown Period: Mean Rank analysis**

Challenges	N	Sum	Mean	Std. Deviation	Mean Rank	Rank Obtained
Prevention of viruses in the workplace	110	441	4.01	1.13	6.25	3
High expenses for the sanitization process	110	436	3.96	0.90	5.89	4
Wearing a mask is difficult	110	367	3.34	1.12	4.38	10
Poor interaction with a colleague	110	389	3.54	1.15	4.83	9
Lack of cooperation from the public	110	459	4.17	0.88	6.54	2
Poor employee well-being	110	414	3.76	0.98	5.29	5
Lack of emergency assistance in the workplace	110	391	3.55	1.11	4.94	7
High level of absenteeism	110	408	3.71	0.96	5.03	6
Not able to perform work from home	110	388	3.53	1.18	4.86	8
Lack of travel	110	475	4.32	0.80	7.00	1

Source: Calculated data

Table 5 shows that the calculated coefficient of concordance is 0.128 and the Friedman chi-square is 126.772, both of which are greater than the table value of 21.67 for degrees of freedom 9. The highly significant chi-square value and moderate concordance provide the researcher with strong evidence to reject the null hypothesis. As a result of the overall results, it is possible to conclude that the mean rank of each challenge is not random and that there is a difference in the mean ranks of the various challenges encountered by private sector employees following the COVID-19 lockdown period.

Table 5: Estimated results of Kendall's W and Chi-Square Test

N	Kendall's W ^a	Chi-Square	df	Asymp. Sig.
110	.128	126.772*	9	.000

a. Kendall's Coefficient of Concordance b. Friedman Test

*Significant at 1% level

Source: Calculated data

Conclusion

According to the study, the majority of them are males between the ages of 30 and 40, with post-graduate education. They are part of a four-person nuclear family. The majority of them are assistant professors and received 75-100% of their salary in April and May of 2020. During the COVID-19 lockdown, private sector employees faced major challenges such as a lack of public transportation, a lack of social distance among the public, and the high cost of essential goods.

IMPACT OF COVID-19 ON INDIAN ECONOMY⁴⁷

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INTRODUCTION

The GDP growth had crashed 23.9% in response to the Centre notice lockdown. India's GDP shrank 7.3% in 2020-21. This was the worst performance of the Indian economy in any year since independence. As of now, India's GDP growth rate is likely to be below 10 percent 11-Jul-2021. The impact of coronavirus pandemic on India has been largely disruptive in terms of economic activity as well as a loss of human lives. Almost all the sectors have been adversely affected as domestic demand and exports sharply plummeted with some notable exceptions where high growth was observed. The world has witnessed several epidemics such as the Spanish Flu of 1918, outbreak of HIV/AIDS, SARS (Severe Acute Respiratory Syndrome), MERS (Middle East Respiratory Syndrome) and Ebola. In the past, India has had to deal with diseases such as the small pox, plague and polio. All of these individually have been pretty severe episodes. However the Covid-19 which originated in China in December 2019 and over the next few months rapidly spread to almost all countries of the world can potentially turn out to be the biggest health crisis in our history. Many experts have already called this a Black Swan event for the global economy. India recorded the first case of the disease on January 30, 2020. Since then the cases have increased steadily and significantly. India has recorded the third highest Covid-19 caseload in the world after the United States and Russia with more than a million confirmed cases and more than 25,000 deaths. The doubling rate has steadily gone up to around 18-22 days and the daily new confirmed cases are around 28,000-30,000.

IMPACT OF COVID-19 ON PEOPLE'S LIVELIHOODS, HEALTH AND FOOD SYSTEMS

The covid-19 pandemic has led to a dramatic loss of human life worldwide and presents an unprecedented challenge to public health. Food systems and the world of work. The economic and social disruption caused by the pandemic is devastating. Tens of millions of people are at risk of falling into extreme poverty. While the number of undernourished people currently at nearly 690 million could increase by up to 132 million by the end of the year. Millions of enterprises face an existential threat. Nearly half of the world's 3.3 billion global work force are at risk as losing their livelihoods. Informal economy workers are particularly vulnerable because the majority lacks social protection and access to quality healthcare and have lost access to quality productive assets.

INFORMAL SECTORS

India has a vast informal sector, the largest in the world, employing close to 90% of its working population and contributing more than 45% to its overall GDP. This sector was hit by two consecutive shocks in a short span of time, from 2016 to 2019. The first shock was

⁴⁷ Paper presented in the 41st Annual Conference of Association of Economists of Tamil Nadu Organized by Department of Economics, Annamalai University, Chidambaram-608 002 on 27th February, 2022.

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Demonetization in November 2016 when 86% of the money in the economy became unusable overnight owing to a government decree, followed by the haphazard introduction of the Goods and Services tax in 2017. While demonetization was a big enough monetary shock, it did not fundamentally disrupt demand and supply mechanisms for too long. There was a temporary lack of means of payment. We now know in hindsight that people found work-arounds in the forms of electronic payments, informal credit, converting black money into white, using old notes etc. In the case of the current crisis, the demand is not there, the supply is not there, and hence the underlying revenues are not there. This is therefore much more problematic. With the Covid-19 outbreak, the already struggling informal sector has been disproportionately affected.

THE BANKING AND CORPORATE SECTORS

During crisis times, one sector of the economy that is required to play a crucial role in terms of alleviating the pressures on the real economy is the financial sector. The need of the hour is to keep credit flowing to all categories of economic agents- firms, households etc., to help them tide over this crisis. In a bank dominated economy, particularly at a time when the stock market is touching new lows every day, the financial intermediaries that most firms will turn to are the banks. Actions taken by banks would be crucial in addressing this economic challenge. Banks also play a vital role as institutional participants in the debt market.

However, the banking sector in India is badly broken. Banks, especially the public sector banks, have been struggling to deal with mounting losses from non-performing assets on their balance sheets. The problems in the banking sector have been adversely affecting credit growth and by the time the pandemic hit India, these problems had begun to hurt the debt markets as well which also play an important role in the context of financial intermediation. This could rapidly become a serious choke point as the Indian economy struggles to come to terms with this unprecedented shock. Over the last few years, India has been dealing with the Twin Balance Sheet (TBS) stresses in the banking and corporate sectors. This was a consequence of high levels of non-performing assets (NPAs) in an inadequately capitalized banking system, combined with over-leveraged and financially weak firms in the private corporate sector.

EFFECT OF THE COVID-19 PANDEMIC ON MENTAL HEALTH

Bereavement, Isolation, loss of income and fear are triggering mental health conditions or exacerbating existing ones many people be facing increased levels of drug as alcohol and during use insomnia and anxiety. Meanwhile Covid-19 itself can lead to neurological and mental complications, Such as delirium, agitation and stroke people with pre-existing mentalneurological or substance use disorders are also more vulnerable to SARS-COV-2 infection they many stand a higher risk of resaves outcomes and even death. Although all age groups are at risk of disease Covid-19 older people face significant risk of developing reverse illness if they contract the disease due to physiological changes that come with ageing and potential understanding health conditions.

EMPLOYMENT IMPACT OF COVID-19

The Covid-19 pandemic has triggered on of the worst jobs crises since the great depression. There is a real danger that the crisis will increase poverty and widen inequalities, with the impact felt for years to come.

CONCLUSION

Given the current macroeconomic and financial environment in India, there are significant challenges in fiscal, monetary and financial policies which have to be taken into consideration by the policymakers. Even more important, there are some policy traps that must be avoided in order to prevent a long-term economic disaster. The objective must be to ensure a V-shaped economic recovery once the health crisis abates. In case of fiscal policy, even assuming a conservative scenario where the government does not incur any additional expenses due to Covid-19, the deficit will be greater than projected value in the FY2021 budget. During the two month long lockdown, almost all economic activities had been suspended and most of these are unlikely to resume in near future given the nature of the health shock. As a result government revenues will fall drastically.

REFERENCES

1. Dev, S, Mahendra (2020), "Addressing COVID-19 impacts on agriculture, food security, and livelihoods in India", IFPRI Blog, April 8, <https://www.ifpri.org/blog/addressing-covid-19-impacts-agriculture-food-security-and-livelihoods-india>
2. IMF (2020), "Policy responses to Covid-19", International Monetary Fund, Washington DC. <https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#I>
3. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7431238/-online>.