February 2023

p-ISSN 0975 9484
e-ISSN 2395-5538
Volume 18 - I (B)



CARMELIGHT

Special Edition for National Conference
Economy @ 75 : Roadmap for India at 100

Department of Economics

In Collaboration With

The Indian Economic Association

Mount Carmel College Autonomous
No. 58, Palace Road, Bengaluru - 560052

p- ISSN 0975-9484
e-ISSN 2395-5538

Volume 18 - I (B)

Special Edition for National Conference
Economy @ 75 : Roadmap for India at 100

Department of Economics
In Collaboration With
The Indian Economic Association

February 2023

Mount Carmel College Autonomous
No.58, Palace Road, Bengaluru 560 052.

Patron

Dr. Sr. Arpana
Principal
Mount Carmel College
Autonomous

Editor-in-Chief	**Prof. Cletus D'Souza** *Research Advisor* *Centre for Scientific Research and Advanced Learning*
Editor	**Dr. Kavita G. Singh** *Research Director* *Centre for Scientific Research and Advanced Learning*
Associate Editors	**Dr. Vijaya Priya** *Dept. of Economics*
	Dr. Geetha Santhosh *Dept. of Nutrition & Dietetics*
Editors	**Dr. Padmashree Kulkarni** *Dept. of Life Science*
	Ms. Shaila Mary J *Dept. of Computer Applications*
	Dr. Sivakami R. *Dept. of Commerce*
	Dr. Myrene D'Souza *Dept. of Biochemistry*
	Dr. Vinitha Chandra *Dept. of English*
	Dr. Dorin D' Souza *Dept. of Biochemistry*
Editorial Board-Special Edition	*Dept. of Economics*

INDEX

Sl. No.	Title	Page No.
1	**Key Actions to Achieve the Goals of the Paris Agreement: A Step Towards a Sustainable Future** *Siddhi Girish Dixit*	8
2	**"Impetus to Trade between India & Central Asia : Way to Accelerate Economic Growth"** *Nidhi Saran, Shahid Ahmed*	14
3	**Green Economic Recovery in the Indian Context** *Ashita Biradar*	46
4	**"Menstrual Health And Economic Growth In India: Policies & Implications"** *Sukanya Biswas*	61
5	**"A Case Study of the Socio-Economic Condition of Women Construction Workers with Special Reference to Nelamangala Taluk"** *Dr. Sugant R,Rimli Rajan*	70
6	**"A Study on Challenges and Opportunities of Crypto Currency in India: A Special Reference to Bitcoin"** *Hamsa. A, Ruchitha Shree M*	83
7	**Gender Discrimination in Higher Education in India** *Aakashleena*	100
8	**Social Determinism of Development in Bihar** *Dr. Ajay Kumar Mishra, Dr. Shraddha Rishi*	108
9	**Sectoral Trends and Determinants of Female Employment in India** *Ojasvi Ghai*	125

10	**COVID-19 and its Impact on the Sectors** *Arundhuti Roy*	142
11	**Trends in Energy Consumption and Emission in India: A Roadmap for Sustainable Future** *Bidisha Chatterjee, Rajarshi Majumder*	156
12	**Determinants of Crop Diversification: Analysis of two villages in West-Bengal** *Simanta Ghosh, Saumya Chakrabarti*	168
13	**Assessing the Own Tax Revenue generation potential of the most backward district of western Odisha, with special reference to Nuapada** *Jyotirmaya Pattnaik, Prof. Sudhansu Sekhar Rath*	185
14	**Shadow Pandemic: The Story of The Other Half** *Priyanka Pandey, Ananya Mukherjee*	206
15	**Digital Economy** *Ishika Banerjee, Moupia Dutta*	220
16	**"Impact of MGNREGA on Rural Credit System in India: A Standard Logit Difference in Difference Approach"** *Dr. Maya. K, Dr. Aruna Bhagavatula*	236
17	**"The Recent Surge in the Subscriptions of Disney + Hotstar over Netflix in India: A Comparative Study"** *Yashoda L, Bhavana Gulabi Maheswari Nathani, Srinitha Srinivas*	255
18	**What are the Obstacles that Prevent Women from Participating in the MNREGA Employment Program: A Literature Review** *Miss Kiran Bala Behera, Prof. Dharmabrata Mohapatra*	270

19	**"An Analysis of Economic Contribution of Cardamom Production in India's GDP"** *M Subramanian , Sivajothi Ramalingam, Abraham Pradeep*	285
20	**"Inefficacious Public Healthcare Insurance Sector with Special Reference to PMJAY/Ayushman Bharat-Arogya Karnataka Scheme (AB-ARK), 2018"** *Priya Sanghamitra , Anushka Joshi*	292
21	**Water and Sustainable Management in India** *Prerana P S*	301
22	**Impact of Covid-19 on different Production sectors** *Mr.Thippesha.L*	312
23	**"The Right to Bleed: Investigating India's Menstrual Health Policy"** *Korrapati Anuhya*	320
24	**Growth of the Online Food Delivery Market (A Case Study on Zomato)** *Lalitha K, Kusuma P S*	337
25	**Abstracts**	342

Editor's Note

Many people have contributed towards making this Conference a reality and we personally thank all of them for their constant support and contribution.

First and foremost, we would like to express our gratitude to the Conference Patron, Dr. Sr. Arpana,Principal, Mount Carmel CollegeAutonomous, Bengaluru for giving us an opportunity to organize the National Conference on "India @ 75: Roadmap to India at 10".

We would like to thank our Vice Principal, Dr. Charmaine Jerome, Campus Co-ordinators, Dr. Sr. Sajitha and Dr. Lekha George for their encouragement and support in all our endeavours.

Our sincere gratitude to the Dean of Humanities, Dr. Suma Singh and Advisory Committee members – Dr. Anjana Mani and Dr. Shanthi S for all the inputs and valuable suggestions.

Appreciation goes to all authors and contributorsof abstracts, articles without whose co-operation, this publication would not have been possible.

Heartfelt thanks to the Organising Secretaries– Dr. Kavyashree Kumar, Ms. Tania Mukherjee Ms. Sunanda B V and other Department members to help organization of the Conference and to come out with the publication.

Like to thank the Research Director, Dr. Kavitha Singh and the Inhouse Journal Committee - to help us release the Journal on time.

Editorial Board

Key Actions to Achieve the Goals of the Paris Agreement: A Step Towards a Sustainable Future

Siddhi Girish Dixit

Final year student (BA PES)

Mount Carmel College,Bangalore.

Abstract

Technology investment is only one-half, whereas community investment is the other. Overcoming the shortcomings of physical risks, community investment provides a resilient infrastructure necessary to bear the tide of transition risk as we pave the way towards a low carbon-based economy. The Paris agreement of 2016 is a way towards a sustainable future. In addition to it being a part of corporate social responsibility, financial institutions and monetary authorities recognize the need to better focus on a low carbon economy. Financial institutions and monetary authorities are working towards the mitigation process; however, it is not enough to transpire the imminent climatic catastrophe. GARP (global association of risk professionals) concludes that most of the climate risk measurement approaches that are being undertaken by various institutions are unfledged, with physical and transitional risks bearing an unfathomable threaton the key workings of institutions. Despite various efforts and technological investments, tangible results are not being seen. In such variations, what is required is a bottom-up approach.The main requirement is to boost community investments and enable local governments to have better access to resources to mitigate climate resiliency. Ground effects of climate mitigation willbe visible only by investing in places that will truly see the effect of such happenings.

Keywords: *community investment; financial institutions; monetary authorities; physical and transitional risks; bottom-up approach.*

The Paris agreement of 2016 paved the way toward a greater aspect of sustainability. In addition to its being a part of corporate social responsibility, financial institutions and monetary authorities recognize the need to better focus on climate mitigation. Financial institutions are

involved by way of investment decisions and risk assessment for a low carbon economy. On the other hand, monetary institutions work along the way of portfolio alignment, climate stress tests, and increased transparency (Gonzalez, 2021). An EBA survey reports that 58% of respondent banks have already issued certain types of green or ESG financial instruments (54% of them have issued green bonds, 22% covered green bonds, 10% sustainability linked bonds, 8% green ABS and 24% other types of sustainable instrument). However, GARP (global association of risk professionals) concludes that most of the climate risk measurement approaches that are being undertaken by various institutions are unfledged, being mostly qualitative with more than 25% of firms not using either metrics, targets, or limits in their climate-related risk management. 55 Over 40% of respondents do not use scenario analysis, 43% used it on an ad-hoc basis and only 10% of them use it as a regular part of risk assessment (GARP risk institute, 2020). Thus, the lack of accountable data, half-hearted measures, and reduced transparency lead to uncertain hindrances, with physical and transitional risks bearing an unfathomable threat on the key workings of institutions. Despite various efforts and technological investments, tangible results are not being seen.

In such variations, what is required is a bottom-up approach. The true potential of local governments and communities is to be utilized in order to level various investments to the ground, where actual effects are seen. Hence, the main requirement is to boost community investments and enable local governments to have better access to resources to mitigate climate resiliency. Financial stakeholders and monetary authorities both, have the means to incorporate this particular framework.

The extent of local government policy actions has generated considerable optimistic results about their potential to reduce greenhouse gas (GHG) emissions and transition towards sustainability (Rosenzweig et al., 2010). While some have pointed to local control as incompatible with climate mitigation given resources and financing constraints (Homsy & Warner, 2013), local control is emerging as part of localist democracy movements that seek ambitious climate policiesand energy transitions. Among local government climate policies, CCA (climate change agreements) is an ambitious undertaking that stands out for requiring substantial financial and capacity investments, generally entailing millions of dollars in fixed costs and around two years for governments to adopt and begin implementing the program. In implementation of this

particular policy, Local support groups and stakeholders played an important role in procuring renewable sources of energy. Beneficiaries cited co-benefits stemming from local control, including cost savings, restricting the excessive outflow of money beyond communities, local renewable energy development, job creation, capacity for adaptation and mitigation, increased capacity for innovation, addressing environmental justice, and democratic goals such as access to decision-makers and local accountability (Armstrong, 2021).

A study in Uttaranchal, India called for farm forestry using community help, that is, carbon baseline and mitigation analysis. The methodologies used under this proved to be economically sound, along with scope for mitigation prospects. The methodological concerns were sampling projects, monitoring the kind of methodologies, sharing of benefits with communities and undertaking arrangements in order to boost similar kinds of projects in other communities(Hooda, 2007).

An investment group 'Elemental' called for bridging the gap between technology investment and community investment. Technology investment included financing start- ups, NGO's, to foster the need for new technologies which would help in transitioning towards a low carbon economy. On the other hand, community investments called for providing funds to local governments and helping communities to build resilience and infrastructure for incorporating and implementing the new technologies. This assists in witnessing and harnessing renewable sources of energy and thus has a true impact on climate mitigation as well as adaptation (Lippert, 2022).

Under this, two of the most widely experimented mitigation strategies are towards concrete and water industries. In the case of concrete industries, one of the start- ups assisted in using a type of cement that helped in mineralizing carbon, which in turn, was stored in the buildings and other construction sites. This helped in reducing the carbon content exuded into the atmosphere. A mayor in Hawaii helped in raising the demand of such concrete and cements which in turn helped the community level up against climate change. This, in turn, assisted in creating a chain reaction through which 200 mayors all around Hawaii started investing and using mineralized carbon concrete in various highway and construction projects.

NGOs also play an important role in climate mitigation. A community leader from Hawaii, took assistance from a start-up, to help reduce water pollution. This particular start-up used methane

to transform pollutant water to clean water. Hence, bridging such a gap helped in adapting to a cleaner environment, which would have been futile if the investment was alone done in technological transformations. Community investment, thus, helps in utilizing resources of local governments and the community, helping to invest in education and hiring locally which in turn prospers social good. It also develops the ability to deploy new climate solutions at risk. It calls for implementing new technologies closer to the ground, towards people who are actuallyaffected by them. The stakeholders and financial institutions benefit from such community investments, reaching economically viable points of global outreach.

In Korea, various community investments in renewable project models are being implemented to increase community acceptance of renewable energy. An important factor for enhancing local acceptance is that renewable energy projects have a positive effect on revamping the local economy such as income increase or job creation for residents and local companies (Kim, 2021).

The introduction of the feed-in tariff, as a part of community investment, will also better enable mitigation and adaptation strategies. A quota system is used in the UK where it is known as the "renewables obligation" (RO), whereas FITs have been popularized in Germany, Spain, and Denmark and involve state intervention to set prices for different types of renewable energy (as opposed to the RO system which is more dependent on 8 market-based procurement mechanisms). Democratic governance is aided here by involving citizens in their local community, livelihood sufficiency and opportunities are served through the betterment of the local economy and the provision of jobs that cannot be outsourced and that do not impair the sufficiency requirements of future generations (Tabuns, 2011).

Community/municipal power has also been shown to give more of an economic benefit to the local economy than investments from private, outside actors (Welsh, T., 2005). There is also evidence that cooperative community investment may be a useful tool for building "socialcapital" and local democracy by involving citizens more heavily in their communities (Commission of the European Communities, 2001). However, there is a huge gap between community and technology investment. Till the year 2020, about 500 billion dollars has been invested in technology investment. In order to reach the goal of the Paris agreement, it is necessary to increase the amount of financial and technological investment. On the other hand,

community investment lags behind with a total of 9 billion dollars, too little an amount to enable climate mitigation and adaptation (Lippert 2022). Hence there is a need to revamp such a bottom approach in order to develop tangible and direct effects of a low carbon-based economy.

In addition, federal funding can help communities implement proactive and cost-effective investment strategies for resilient economic systems and infrastructure. Usually, community investments during physical risks take place post-recovery owing to the urgency of the situation, investment to adapt to such resilience will also have a better long-term benefit. (Ressler,2020).

However, community investment does face certain disadvantages. The areas in which such an effect shall be levied will have an impact on various other small businesses or organizations involved in similar undertakings. Moreover, the cost of such products (for example, concrete mentioned above) shall be redeemed through the customer, who will be the bearer of increased prices (Arbetter, 2021). In addition, only larger developers or private firms have greater access to the resources and capital necessary to implement such new technologies in communities. (Tabuns, 2011)

Despite these shortcomings, community investment is a necessity. Ground effects of climate mitigation will be visible only by investing in places that will truly see the effect of such happenings. Technology investment is only one-half, whereas community investment is theother. Overcoming the shortcomings of physical risks, community investment provides a resilient infrastructure necessary to bear the tide of transition risk as we pave the way towards a low carbon-based economy. Increased TCFD (financial disclosure) will also be attested by stakeholders as they undertake investments. The monetary authorities can align their portfoliosby incorporating various community- based channels and start- ups based frameworks. Price volatility in such scenario analysis is also less harmful.

Hence, it is deemed necessary to invest in technologies closer to the ground, towards people who are actually affected by them. Such a bottom-up approach will prove to provide a more holistic investment, one in which start-ups and NGOs will be better recognized for their innovations, and assist communities in need to revamp their economy towards a climate resilient one. Hence, the channelization of such finance will prove to be a key action toward the goals of the Paris agreement.

Bibliography

- Banco de España Occasional Paper No. 2126 (2021), Markets, Financial Institutions and Central Banks in the Face of Climate Change: Challenges and Opportunities
- John H. Armstrong, (2021), Taking control to do more: how local governments and communities can enact ambitious climate mitigation policies
- N. Hooda, M. Gera, K. Andrasko, J. Sathaye, M. K. Gupta, H. B. Vasistha, M. Chandran & S. S. Rassaily (2007), Community and farm forestry climate mitigation projects: case studies from Uttaranchal, India
- Craig D. Zamuda, Anne Ressler (2020), Federal adaptation and mitigation programs supporting Community investment in electricity resilience to extreme weather
- Hyunji Im, Seong Gwon, Yun Taehwan Yoon, Yun soung Kim (2021), Study on the Development of an Evaluation Index for the Local Economy Activation of Community Investment Renewable Energy Projects
- Anton Tabuns (2011), Leaving the Lights on for Community Involvement in Renewable Energy: Devising a Legal Framework for Feed-in Tariffs to Promote Community Investment in Renewables
- Robins, N. and S. Zadek (2016), The Financial System We Need: From Momentum to Transformation. Geneva: UNEP Inquiry into the Design of a Sustainable Financial System.
- RAN et al. (2021), Banking on Climate Chaos 2021, San Francisco, CA: Rainforest Action Network, BankTrack, Indigenous Environmental Network, Oil Change International, Reclaim Finance & Sierra Club.

Other sources

- https://www.youtube.com/watch?v=uAU-1lSDTW8
- Less is more- Jason Hickel (Book)

Impetus to Trade between India & Central Asia : Way to Accelerate Economic Growth

Nidhi Saran
Research Scholar
Department of Economics
Jamia Millia Islamia (Central University)
New Delhi
e-mail: nidhisaran1@yahoo.com

Shahid Ahmed
Professor
Department of Economics,
Jamia Millia Islamia (Central University)
New Delhi
e-mail: sahmed@jmi.ac.in

Abstract:

Trade and economic growth are intertwined. Smith (1776) exhorted that trade is a vent for surplus production and it gives access to a wider market. Marshall (1890) also emphasised the importance of International trade . James Reidel (1984), perceived trade as an engine of growth. Various theories have been propounded explaining the role of trade in economic growth.

With the understanding of the importance of trade in economic growth, the countries of the world are opening their economies to foreign trade and are integrating with the world economy. This has also become easier with the growing advancements in technology, transport and telecommunication. The global production processes and the distribution channels are getting reorganised for more efficient results through 'Global value Chains". Not only merchandise trade, but trade in services have become increasingly important with these advancements. India has made various trade arrangements with different countries to expand its trade horizon and benefit from increased trade and investment. One such significant attempt has been made to revive its commercial ties with the Central Asian economies. India has had deep socio –religious and commercial ties with the countries of this region in the past which flourished during the Silk route days and even during the U.S.S.R. regime. It dwindled and took a backseat after the disintegration of U.S.S.R.

As these Central Asian countries are well endowed in natural resources, especially the fossil fuels and many significant minerals, India is making effort to revive its ties with these nations. One significant move in this direction has been the adoption of "Connect Central Asia Policy".

This paper aims to explore the potential of trade between India and this region and make policy recommendations for it.

The methodology used is computation of Trade Intensity Indices and Revealed Comparative Index. The study reveals huge potential for trade and identifies areas where trade could be increased.

JEL Classification: F1, F6 , O1 ,Y

Keywords: Trade, Economic Growth , Central Asia

1.0 Introduction

It has been long exhorted that trade is an engine of growth. It creates jobs, reduces poverty and gives impetus to economic growth. Not only this, it widens the choices of the consumer, helps raise their standard of consumption. Recent research by the World Bank also shows that trade liberalization increases economic growth by an average of 1.0 to 1.5 percentage points, resulting in 10 to 20 percent higher income after a decade. Since 1990, trade has increased incomes by 24 percent globally and by 50 percent for the poorest 40 percent of the population. Economic growth underpinned by better trade practices has lifted more than 1 billion people out of poverty since 1990.The importance of international trade in economic growth thus, cannot be overemphasized.

In keeping with this view, the countries of the world are opening their economies more and more for international trade and investment. India, too in line with this, has adopted various policies to encourage trade and foreign investment. One such region where the Indian government aims to diversify and expand its trade is Central Asia.

India has had deep economic and socio-cultural ties with this region since ancient time. These ties deepened and trade expanded during the Silk route time. These ties weakened after the disintegration of U.S.S.R. With the formation of Commonwealth of
Independent States (CIS), India has again shifted its focus on this region. This region is very well endowed with minerals and fossil fuels which could be beneficial in the economic development of our country. Similarly, export of manufactured goods, pharmaceuticals, etc from India to these

countries could help expedite their development rate. Not only trade in goods, trade in services like medical tourism, education, etc also hold immense potential. Since many of the natural resources have not been fully exploited in this region, there is a huge potential for mutually beneficial investment in these countries.

This paper aims to explore the potential of trade between India and a significant country of Central Asia: Azerbaijan. This paper also aims to identify areas and products where exists a potential to increase trade.

2.0 Selective Review of Literature

2.1 Trade and Growth: A Theoretical Perspective

This section presents a theoretical perspective on the relationship between international trade and economic growth. Many economists advocate that there is a positive relationship between trade and economic growth. According to Harbeler (1988), four conditions should be fulfilled so that benefits accrue from trade to participating LDCs. First, trade provides material means (capital goods, machinery, raw materials, and semi-finished materials) which are indispensable for economic development. Second, trade is the means and vehicle for the dissemination of technological knowledge, the transmission of ideas, the importation of know-how, skills, and managerial talent, and entrepreneurship. Third, trade is a vehicle for the international movement of capital especially from the developed to the underdeveloped countries. Finally, free international trade acts as the best antimonopoly policy and the best guarantee for maintaining free competition (Harbeler, 1988: p. 335).

Grossman and Helpman (2015) identify a number of potential linkages between globalisation and growth. Firstly, the integration of people and their culture facilitates the flow of ideas between national borders. Foreign ideas can be used for introducing new products, improving existing ones or for producing goods at a lower cost. Secondly, the integration of product markets across borders through international trade gives avenues to those who innovate or bring about significant improvements to the existing products, to expand their market and earn more returns ,even if there is competition from foreign producers. Thirdly, the integration of the world

markets has general equilibrium implications on input prices and products' relative prices. These price changes affect innovation costs and attract more industrial researchers. Finally,international interactions not only provide incentives for creating new knowledge, but also encourage technological diffusion, which has a positive impact on productivity growth (Grossman and Helpman, 2015: p. 103).

The beneficial effects of international trade on growth are also supported by empirical evidence. According to Robertson (1938: p. 5) "since the 19th century up to now, international trade has been an engine of growth for the global economy." In addition, "international trade has alsoacted as an elixir of growth and economic development for particular national economies." For instance, "in the 19th century, international trade contributed powerfully to the transformation of Canada, Australia, New Zealand, Sweden, and Denmark from underdeveloped to developed countries, and in the second half of the 20th century, it acted as an engine of growth and development for the newly industrialising countries (NICs) of Southeast Asia" (Minford et al., 1995: p. 15).5 Grossman and Helpman (1990) conclude that "casual observations and more systematic empirical research suggest that countries that have adopted an outward oriented development strategy have grown faster and achieved a higher level of economic well-being than those that have chosen a more protectionist trade stance."

The authors also conclude that "the LDCs potentially stand the most to gain from their international relationships, since they can draw upon the large stock of knowledge capital already accumulated in the industrialised world."

2.2 Theoretical Perspective on International Trade

Economists have propounded various theories to explain the factors prompting trade between countries. The Theory of Comparative Advantage states that a country will export those commodities in the production of which it has the greatest relative advantage over other countries. The Classical Theory of Comparative Costs demonstrated that the basis of foreign trade was comparative cost differences. The Heckscher-Ohlin(1930) Theory states that a country will specialize in the production and export of the goods whose production requires a

relatively large amount of the factor with which the country is relatively well-endowed. Paul Krugman (1979) the profounder of the New Trade Theory (NTT) ,recipient of Nobel Prize for his work, showed that trade between countries with similar but not identical capital/labour endowment ratios would involve export of manufactures by the relatively capital abundant nationand of the agricultural product by the more labour-abundant one. As long as factor endowments are not too diverse, and in the absence of transport costs, everyone benefits from trade. A relatively new theory is Global Strategic rivalry theory(1980) states that firms can obtain a sustainable competitive advantage by imposing the barriers to entry of new firm to the industry. These barriers could be in terms of research and development, the ownership of intellectual property rights, economies of scale, unique business processes or methods as well as extensive experience in the industry, and the control of resources or favorable access to raw materials. Michael Porter(1990) stated that a nation's competitiveness in an industry depends on the capacity of the industry to innovate and upgrade for which he identified four determinants of local market resources and capabilities, local market demand conditions, local suppliers and complementary industries, and local firm characteristics.

2.3 Free Trade Theory: Theoretical Perspective

Various theories have been propounded to support free trade among nations. Following these, many free trade regional arrangements are being formed among nations across the globe. The earliest work on the theory of regional integration was presented by Viner(1950**)** in his seminal work "The customs union issue" , where he used two concepts namely ' Trade creation' and ' Trade Diversion' to explain the economic outcome of the regional integration. Later, Meade (1955), Vanek (1965), Ohyama (1972**)** and Kemp and Van (1976) made significant improvements in the theory of regional integration. Schott (1991) his theory suggests that the most desirable trading block is one that is global and the most trade creating. Such a block wouldconsist of countries with the most diverse range of comparative advantage, that could create the greatest scope for trade creation and the least scope for trade diversion.

2.4 India and Central Asia

Pomfret in his work on "The Economies of Central Asia" (1995) outlines the historical, economic, geographical profile of the then newly independent states of Central Asia, mainly

Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. The book gives an insight into the economic resources of these countries and the investment possibilities to explore the untapped natural resources .

His work **"**The Central Asian economies since Independence" (2006) traces the path of economic changes in these countries since their independence and its importance in global perspective, with the changing world order.

His next work **"**Trade and Transport In Central Asia" (2010**),** highlights the need for an effective transit route and a proper infrastructure for the optimum development of these nations.

His recent work , "Central Asian Economies: Thirty years after Dissolution of Soviet Union"(2021), talks about a range of changes that has occurred in their economies, transitioning from a planned one to market oriented. It also discusses the impact of COVID 19 epidemic on their economies.

Agrawal, Sangita (2013). Their working paper, "India and Central Asia: Trade Routes and Trade Potential" highlights the transit restrictions inhibiting trade between India and Central Asia .They have used the Gravity model to find the potential of trade for the year 2015.The result showed it could have been six to ten times more.

Stobdan (2015**)** In his work "India and Central Asia :The Strategic Dimension" explores the historical ties of India and Central Asia to delve into the strategic importance of Central Asia for India. This importance extends to many areas like trade, connectivity, investment and so on and so forth.

Singh (2015) has traced the socio religious and commercial ties between India and

Central Asia over thousands of years in his book " India and Central Asia: An Interpretation of Mutually Indelible Historical Relationship and its Multi-Faceted Impact". The relationship interweaves through exchanges of various nature like trade and commerce, socio-religious and socio-political exchanges over the period of more than 3,000 years. This work helps to understand the deep and indelible imprints of each other's nations which could forge a path to strengthen the ties.

2.5 Review of Empirical Literature

Sayeeda Bano (2010), in her study "India-New Zealand Trade and Trade Potential: Recent Experience and Future Opportunities" explores the evolution of trade relation and trade potential between India and New Zealand. The author analysed the trade with the Kojima indices of trade intensities, revealed comparative advantages, intra industry trade and trade potential indices. It was concluded from this study that bilateral trade between India and New Zealand is at a very low level compared to the global trade profiles of both countries.

Das and Pradhan (2014) discussed India's trade relationship with Gulf countries in their study "India-Gulf Trade Relations". To understand trade intensity between both regions, they applied Trade Intensity Index and found that India's Export Intensity is above one for UAE, Saudi Arabia, Iran, Kuwait, and Oman. For other Gulf countries (Bahrain and Qatar), the Export Intensity is low and is fluctuating.

Mohajeri (2015) analysed the trends of trade between India and PGC (Persian Gulf Countries) in his paper "Trends of India Trade with Persian Gulf Countries. The author used the Trade Intensity Index to measure the trade intensity of India with PGCs and observed that the highest volume of Indian trade among PGCs is with United Arab Emirates. The second place in the PGC group is occupied by Saudi Arabia. He further found from the analysis that the maximum Indian import from PGCs falls under the product category of HS-27 (mineral fuels, mineral oil, bituminous substances etc).

Goyal & Vajid (2016) analysed the bilateral trade between India and UAE in their study

"An Analysis of Bilateral Trade between India and UAE". The authors examined the Indo UAE trade data from 2011 to 2015. The study revealed that India and UAE are good trade partners and have deep trade relations and also identified the major trading items.

Batra, Amita and Zeba Khan (2005);The paper attempts to study the comparative advantage structure of India and China using Balassa (1965) Revealed Comparative Advantage Index at HS 2 and 6 digit level. The results show that within manufacturing sector, India and China have a competitive relationship in organic chemicals, inorganic chemicals sectors which is capital intensive and high technology sector, the resource intensive sector of non-metallic mineral manufactures, and in manufactures of metals, which is a low capital, skill, scale and technology

commodity category. There exists a complementary relationship in labour and resource intensive sectors like textile yarn, fabrics, made-up articles and related products and articles of apparel and clothing accessories.

R.Ahuja (2020**)** analysed the comparative advantage of India vis –a-vis nine ASEAN countries using Balassa's Revealed Comparative Advantage Index for the time period 2009 -2018.The study found out that India has relatively stable RCA in two primary product groups and two labour intensive product groups. It further found out that India has greater trade potential in two product groups –Chemicals and related products ;manufacturing products where it can enhance trade with ASEAN countries.

Smyth, Addison (2005), The work studies the comparative advantage of some of Ireland's industries in a period 1997 to 2002 using the Revealed Comparative advantage. The study revealed that Ireland has a higher comparative advantage in foreign owned sectors and chemicals sectors, compared to indigenous sectors due to lack of competitiveness.

3.0 Macroeconomic Overview of Selected Countries

3.1 Azerbaijan

In 2008, Azerbaijan was cited as one of the top 10 reformers by the World Bank's Doing Business Report. By 2012 the GDP of Azerbaijan had increased 20-fold from its 1995 level. According to World Bank's Doing Business report 2019, Azerbaijan improved its position in the Ease of doing business rank from 57 to 25. It is rich in natural resources like gold, silver, iron, copper, titanium, chromium, manganese, cobalt, molybdenum complex ore and antimony. Two-thirds of Azerbaijan is rich in oil and natural gas and thus is considered one of the most important spots in the world for oil exploration and development. Azerbaijan has the largest agricultural basin in the region. About 54.9 percent of Azerbaijan is agricultural land. Azerbaijanhas a flourishing fish and tourism industry.

Table.1:Azerbaijan Macroeconomic variables

Year	GDP(current US $ in billion)	GDP growth (annual %)	GDP per capita(current US $)	GDP per capita growth (annual %)
2015	53	1.0	5500	-0.1
2016	38	-3.1	3881	-4.1
2017	41	0.2	4147	-0.8
2018	47	1.5	4740	0.6
2019	48	2.2	4793	1.4

(Source: World Bank ECA Economic update)

Table.2: Added value per sector (current US$ and % of GDP)

Sector added value	2004		2008		2012		2016		2019	
	US$	%GDP	US$	%GDP	US$	%GDP	US$	%GDP	US$	% GDP
Agriculture	954	11	2722	6	3582	5	2123	6	2747	6
Industry	4407	51	32007	66	41474	60	18009	48	23393	49
Manufacturing	719	8	2299	5	2952	4	1867	5	2408	5
Services	2693	32	10748	24	20351	30	14693	39	---	37

Source: World Bank World Development Indicators (WDI)

Note: Added value is US$ terms are expressed in million, GDP US$

3.2 India

The economy of India is characterised as a middle income developing market economy. It is the world's sixth-largest economy by nominal GDP and the third largest by purchasing power parity (PPP). According to the International Monetary Fund (IMF), on a per capita income basis, India ranked 145th by GDP (nominal) and 122th by GDP (PPP).

Table.3: India Macroeconomic variables

Year	GDP(current US $ in trillion)	GDP growth (annual %)	GDP per capita(current US $)	GDP per capita growth (annual %)
2015	2.1	8.0	1606	6.8
2016	2.3	8.3	1733	7.1
2017	2.7	7.0	1982	5.9
2018	2.7	6.1	2006	5.0
2019	2.9	4.2	2100	3.1

(Source: World Bank ECA Economic update)

Table.4:Added value per sector (current US$ and % of GDP)

Sector added value	2004		2008		2012		2016		2019	
	US$	DP	US$	%GDP	US$	DP	US$	DP	US$	DP
Agriculture	126333	18	201306	17	307873	17	375516	16	9461	16
ndustry	207207	29	373297	31	537299	29	610852	27	0905	25
Manufacturing	112239	16	204995	17	289076	16	347943	15	1496	14
Services	299783	44	532261	46	846217	46	109575	48	1882	49

ource: World Bank World Development Indicators (WDI)
Note: Added value is US$ terms are expressed in million, GDP US$

4.0 Trade Performance of the Selected Countries

4.1 Azerbaijan

In 2019, Azerbaijan was the number 89 economy in the world in terms of GDP (current US$),the number 74 in total exports, the number 88 in total imports, the number 107 economy in termsof GDP per capita (current US$) and the number 90 most complex economy according to the Economic Complexity Index (ECI).

Table 5 : Evolution of Total Trade of Azerbaijan

Series Name	2014	2015	2016	2017	2018	2019
Trade (% of GDP)	69.5	72.6	90.1	90.4	91.7	86
Exports of goods and services (current Million US$)	32561	20059	17581	19839	25485	23630
Exports of goods and services (% of GDP)	43.3	37.8	46.4	48.5	54.1	49.2
Imports of goods and services (current Million US$)	19721	18474	16529	17104	17705	17712
Imports of goods and services (% of GDP)	26.2	34.8	43.6	41.9	37.6	36.9

Source: World Bank, World development Indicators

Figure 1. Percentage share of Trade in Goods and Services in GDP of Azerbaijan

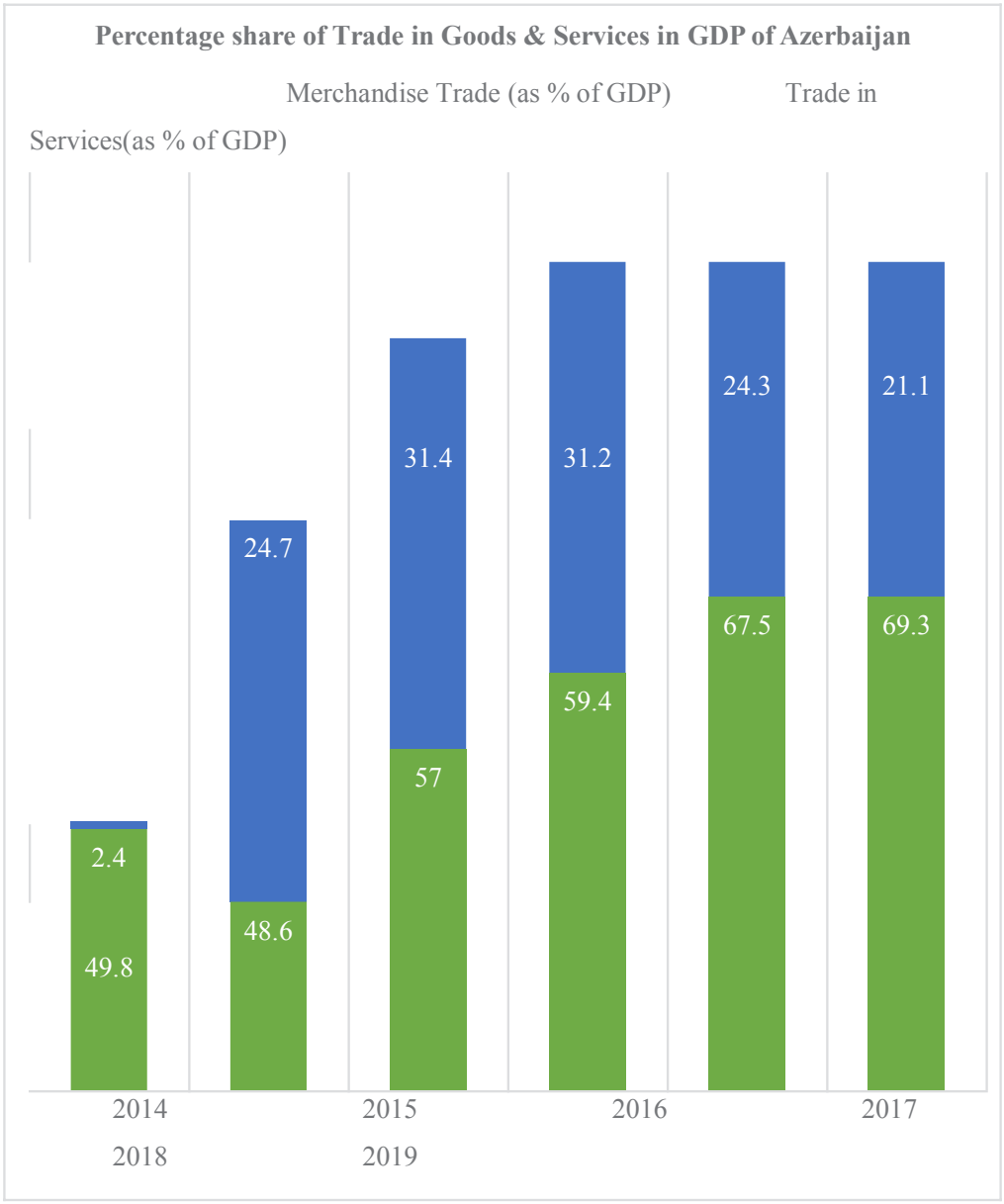


Table 6 :Top five items of trade of Azerbaijan for the year 2019

EXPORTS			IMPORTS		
HS Code	Product Description	% of Total Exports	HS Code	Product Description	% of Total Imports
2709	Crude Petroleum	75.4	7108	Gold	15.5
2711	Petroleum gases	12.1	8703	Motor cars	4.0
2710	Refined Petroleum	2.4	2710	Refined Petroleum	2.9
0702	Glass fibers & articles	1.0	1001	Wheat and meslin	2.5
7108	Gold	0.9	3004	Packaged Medicaments	1.9

Source: UNCOMTRADE, online database

4.2 India

In 2019 India was the number 5 economy in the world in terms of GDP (current US$), the number 15 in total exports, the number 11 in total imports, the number 142 economy in terms of GDP per capita (current US$) and the number 44 most complex economy according to the Economic Complexity Index (ECI).

Table 7 : Evolution of Total Trade of India

Series Name	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**
Trade (% of GDP)	48.9	41.9	40.1	40.7	43.4	39.6
Exports of goods and services (current Million US$)	468346	416788	439643	498259	538635	528298

Exports of goods and services (% of GDP)	23	19.8	19.2	18.8	19.9	18.4
Imports of goods and services (current Million US$)	529240	465098	480169	582018	639013	606366
Imports of goods and services (% of GDP)	26	22.1	20.9	21.9	23.6	21.1

Source: World Bank, World development Indicators

Table 8 :Top Five Items of Trade of India for the year 2019

EXPORT			**IMPORT**		
HS Code	Product Description	% of Total Exports	HS Code	Product Description	% of Total Imports
2710	Refined Petroleum	12.3	2709	Crude Petroleum	19.6
7102	Diamonds	6.79	7108	Gold	7.09
3004	Packaged Medicaments	4.72	2701	Coal Briquettes	5.25
7113	Jewellery	4.22	7102	Diamonds	4.5
8703	Cars	2.12	2711	Petroleum Gas	3.43

Source: UNCOMTRADE, online database

5.0 Database and Methodology

The data source has largely been derived from UNCOMTRADE accessed through World Integrated Trade Solutions (WITS), at HS 6 digits and 4 digits. The database relates to the time

period 2009 to 2018 . The study used Trade Intensity Index (TII) and Revealed Comparative Advantage (RCA) Index to explore trade potential between India and Azerbaijan.

5.1 The Trade Intensity Index (TII)

It is used to determine whether the value of trade between two countries is greater or smaller than would be expected on the basis of their importance in world trade. It is defined as the share of one country's exports going to a partner divided by the share of world exports going to the partner **.**Trade Intensity Index is further divided in to Export Intensity Index (EII) and Import Intensity Index (III) for looking the pattern of exports and Imports. Following Kojima (1964) and Drysdale (1969), the index of trade intensity is restated as follows:

Export intensity Index (EII) of country i with country j = $(X_{ij}/ X_i) / ((M_j / (M_w – M_i))$

Where, X_{ij} = country i's Exports to country j

X_i = country i's total Exports

M_j = Total Imports of country j

M_w = Total World imports

M_i = Total Imports of country i.

Import intensity Index (III) of i with j = $(M_{ij} / M_i) / ((X_j / (X_w – X_i))$

Where, M_{ij} = Imports of country i from country j

M_i = Total Imports of country i

X_j = Total Exports of country j

X_W = Total World Exports

X_i = Total Exports of country i.

The value of the index can be 0 to 100. If the value comes 0, it implies no trade relationship between partner countries. On the other hand, if the value of the Import Intensity Index is more

(or less) than 100, it indicates that country 'i' is importing more (or less) from country 'j' than might be expected from that country's share in total world trade. In export too, if the value is 0 ornearer to 0, it implies export link between these two countries is negligible and if the value is nearer to 100 that indicates that performance is significant and if it exceeds 100 it indicates that country i is exporting more to country j than might be expected from that country's share in world trade.

5.2 Revealed Comparative Advantage Index

In the theories of international trade, comparative advantage is an important concept for explaining patterns of trade. Balassa assumed that, due to lack of comprehensive data on factor costs, comparative advantage can be measured by studying the past trade data of the country .Balassa (1965) computed an index to measure the comparative advantage by using the export data of the country. The RCA uses the trade pattern to identify the sectors in which an economy has a comparative advantage, by comparing the trade profile of the country of interest with the world average. Balassa's RCA index is thus a ratio of product k's share in country i's exports to its share in world trade. This is calculated as follows:

$RCA^k_i = (X^k_i / X_i) / (X^k /X_w)$ where $X^k i$, Xi are the country i's export of goods k and its total export, respectively $X^k w$, Xw are the world's export of goods k and the world's total export.

Thus, when the product's share in national exports is higher than the product's share in world exports (RCA>1), we interpret it as the country revealing comparative advantage in this particular product. In contrast, for products whose RCA<1, a country is said to reveal comparative disadvantages.

6.0 Empirical Results

6.1 Trade Intensity between India and Azerbaijan

Table 9: India's Trade with Azerbaijan (Import & Export)

Year	India's Export (US$ Thousand)	Growth %	India's Import(US$ Thousand)	Growth %
1999	2958		1258	
2000	11265	281	629	-50
2001	15101	34	803	28
2002	19418	29	2245	180
2003	35398	82	1309	-42
2004	47023	33	5385	311
2005	55890	19	1625	-70
2006	57448	3	1008	-38
2007	71984	25	144948	14280
2008	110391	53	2432497	1578
2009	54694	-50	266870	-89
2010	35804	-35	299643	12
2011	44671	25	366848	22
2012	69701	56	1890656	415
2013	49657	-29	1098412	-42
2014	36947	-26	778250	-29
2015	34801	-6	270235	-65
2016	59843	72	551967	104

2017	97029	62	404068	-27
2018	102939	6	819538	103

Source: UNCOMTRADE, online database

Table 10 :India's Export Intensity and Import Intensity index with Azerbaijan

year	iso_o	XII(India)	III(India)
1999	Azerbaijan	0.43	0.15
2000	Azerbaijan	1.45	0.05
2001	Azerbaijan	1.48	0.05
2002	Azerbaijan	1.50	0.13
2003	Azerbaijan	1.71	0.06
2004	Azerbaijan	1.62	0.15
2005	Azerbaijan	1.37	0.03
2006	Azerbaijan	1.08	0.01
2007	Azerbaijan	1.18	1.66
2008	Azerbaijan	1.34	2.82
2009	Azerbaijan	0.61	0.93
2010	Azerbaijan	0.36	0.67
2011	Azerbaijan	0.27	0.60
2012	Azerbaijan	0.44	3.22
2013	Azerbaijan	0.25	2.04
2014	Azerbaijan	0.23	1.60
2015	Azerbaijan	0.23	0.97

2016	Azerbaijan	0.42	2.01
2017	Azerbaijan	0.65	1.14
2018	Azerbaijan	0.51	1.40

Source: Author's own calculation

The above table investigates the trade intensity between India and Azerbaijan. The ExportIntensity Index was more than 1 during the initial years from 2000 to 2008, thereafter it started falling. The Import Intensity Index has been mostly less than 1. Lately, it has started picking up and was more than 1 in 2017 and 2018.

6.2 RCA Analysis of Azerbaijan

Table 11: RCA of Azerbaijan in 2009 and 2018

2009			**2018**		
Product Code	**Product Description**	**RCA**	**Product Code**	**Product Description**	**RCA**
1516	Animal or Vegetable Fats and Oils and Their Fractions	111.04	7415	Nails, Tacks, Drawing Pins, Staples and Similar Articles, of Copper / Iron / Steel With Heads Of Copper; Screws, Bolts, Nuts, Screw Hooks, Rivets, Cotters, CotterPins, Washers (Including Spring Washers)	72.72

1515	Other Fixed Vegetable Fats & Oils (Including Jojoba Oil) & their fractions	65.32	2711	Petroleum gases & other gaseous Hydrocarbons	29.65
2302	Bran, Sharps & other residues, derived from the sifting, milling or other working of cereals or of leguminous plants	58.14	5201	Cotton	25.38
8905	Light-vessels, firefloats, dredgers, floating cranes, and other vessels the navigability of which is subsidiary to their main function; floating docks; floating or submersible drilling or production platforms	56.26	3911	Petroleum resins, coumarone-indene resins, polyterpenes, polysulphides, polysulphones and other products	18.95
3911	Petroleum resins, coumarone-indene resins, polyterpenes,polysulphides,polysulfones and other products	39.26	5802	Terry towelling and similar woven terry fabrics; tufted textile fabrics	18.56

1517	Margarine; edible mixture or preparations of animal or vegetable fats or oils or of fractions of different fats or oils of this chapter, other than edible fats or oils or their fractions of heading 1516	38.27	2508	Other clays ,andalusite, kyanite and sillimanite, whether or not calcined; mullite; chamotte or dinas earths	18.21
1701	Cane or beet sugar and chemically pure sucrose, in solid form	35.71	6305	Sacks and bags, of a kind used for the packing of goods	15.9
8904	Tugs and Pusher craft	33.21	2520	Gypsum; anhydrite; plasters (consisting of calcined gypsum or calcium sulphate)	10.74
1512	Sunflower seed, safflower or cotton seed oil and their fractions thereof, not chemically modified	32.37	5202	Cotton waste (including yarn waste and garnetted stock)	9.66
4102	Raw skins of sheep or lambs ,whether or not with wool on or split	27.61	5205	Cotton yarn (other than sewing thread), containing 85% or more by weight of cotton	9.59

Source: Author's calculation, UN Comtrade which is online database

There are all new products with high RCA in the year 2019, except (3911) Petroleum resins, coumarone-indene resins, polyterpenes, polysulphides, polysulphones and other products which had a high RCA both in 2009 and 2018. Rest are all new products showing potential for trade with high RCA.

6.3 RCA Analysis of India

Table 12 : RCA of top-10 items of India with World in 2009 and 2018

2009			2018		
Product Code	**Product Description**	**RCA-2009**	**Product Code**	**Product Description**	**RCA2018**
2942	Organic compounds	50.9	5310	Woven fabrics of jute, other textile bast fibers of heading no. 5303	44.9
7114	Articles of goldsmiths' or silversmiths' wares and parts thereof, of precious metal or of metal clad with precious metal	42.9	2942	Organic compounds	35.8
6703	Human hair, dressed, thinned, bleached or otherwise worked; wool or other animal hair or other textile materials, prepared for use in making wigs or the like	36.7	0909	Seeds of anise, badian, fennel, coriander, cumin, caraway, or juniper	33.8

2705	Coal gas, water gas, producer gas and similar gases, other than petroleum gases and other gaseous hydrocarbons	31.0	5305	Coconut, abaca (manila hemp or musa textilis nee), ramie and other vegetable textile fibers n.e.s., raw or processed but not spun; tow and waste of these fibers (including yarn waste and garnetted stock)	31.3
2305	Oil-cake and other solid residues; whether or not ground or in the form of pellets, resulting from the extraction of ground-nut oil	27.3	2516	Granite, porphyry, basalt, sandstone, other monumental and building stone, whether or not roughly trimmed, cut, by sawing etc, into blocks or slabs of a rectangular (including square) shape	28.6
7105	Dust and powder of natural or synthetic precious or semi-precious stone	27.2	0501	Human hair; unworked, whether or not washed or scoured; waste of human hair	27.8
2514	Slate, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a	24.1	5307	Yarn of jute or of other textile bast fibers of heading no. 5305	27.3

	rectangular (including square) shape				
5310	Woven fabrics of jute, other textile bast fibers of heading no. 5303	23.6	6703	Human hair, dressed, thinned, bleached or otherwise worked; wool or other animal hair or other textile materials, prepared for use in making wigs or the like	25.3
2516	Granite, porphyry, basalt, sandstone, other monumental and building stone, whether or not roughly trimmed, cut, by sawing etc, into blocks or slabs of a rectangular (including square) shape	23.6	2525	Mica, including splittings; mica waste	21.0
2513	Pumice stone; emery; natural corundum, natural garnet and other natural abrasives, whether or not heat treated	20.4	5205	Cotton yarn (other than sewing thread), containing 85% or more by weight of cotton, not put up for retail sale	19.5

Source: Author's calculation, UN Comtrade which is online database

From the above table, it is evident that India retained a high RCA in 2009 as well as 2018 in the following products .Organic compounds; Granite, porphyry, basalt, sandstone, other monumental

and building stone; Human hair, wool or other animal hair or other textile materials, prepared for use in making wigs; Yarn of jute.

In 2018, India gained a high RCA in spices ,Coconut, abaca , ramie and other vegetable textile fibers ;Mica and Cotton yarn.

6.4 Identifying Products with High Export Potential between India And the Selected Central Asian countries

We have tried to find the basket of products where India's export potential to Azerbaijan exists.

Steps involved in the analysis:

For this analysis, after computing the RCA value of products at HS 4 digit for India, we have to identify products with high RCA value. This gives us a list of products where India has high comparative advantage.

Now ,as the study aims to explore potential of trade between India and Azerbaijan. We try to identify from these products (with high RCA for India), items which are being imported by Azerbaijan from the world.

Next , we find whether the products which are thus identified being imported ,are being imported from India as well or not .If it is being imported from India then, what is its import percent of the total imports from the world to the Central Asian partner.

From the above identified commodities ,we further filter commodities where India's export percent to Azerbaijan is either nil or very low.

This would finally give us a list of commodities where though India, inspite of having high RCA and exporting to the world, either exports very less or does not export at all to Azerbaijan. We can thus exactly find the basket of commodities where export potential from India to Azerbaijan exists.

The entire computation is done at HS 4 digits for the year 2018. For simplification, top few commodities in terms of RCA are considered. Now from these commodity list, only those with

import value of 100,000 US$ to Azerbaijan is considered. Of these commodities ,only those where India's export to Azerbaijan is less than 10% of its total world imports is identified.

6.5 Analysis between India And Azerbaijan

Table 13 :Items in which India has high RCA, with Azerbaijan's import being > 100,000 USD and % of Indian exports to Azerbaijan < 10% for the year 2018. (Value in 1000 USD)

Product Code	India Export to World	RCA	AZE World Imports	AZE – IND Imports	AZE-IND import as % tot Imp	Description
5305	450827	31.3	2663	194	7	Coconut, abaca (manila hemp or musa textilis nee), ramie and other vegetable textile fibers n.e.s., raw or processed but not spun; tow and waste of these fibers (including yarn waste and garnetted stock)
2516	1596005	28.6	1514	35	2	Granite, porphyry, basalt, sandstone, other monumental and building stone, whether or not roughly trimmed, cut, by sawing etc, into blocks or slabs of a rectangular (including square) shape

5307	35001	27.3	246	#N/A	#N/A	Yarn of jute or of other textile bast fibers of heading no. 5305
6304	5139142	19.4	2235	46	2	Furnishing articles; excluding those of heading no. 9404

5701	1038770	16.9	687	52	7	Carpets and other textile floor coverings; knotted, whether or not made up
3605	170378	16.0	1731	#N/A	#N/A	Matches; other than pyrotechnic articles of heading no. 3604
2511	679208	15.1	14668	#N/A	#N/A	Natural barium sulphate (barytes); natural barium carbonate, (witherite) whether or not calcined, other than barium oxide of heading no. 2816
1515	3994310	12.5	16876	2	0	Fixed vegetable fats and oils (including jojoba oil) and their fractions, whether or not refined; but not chemically modified
7614	1456661	11.2	427	#N/A	#N/A	Aluminium; stranded wire, cables, plaited bands and the like, (not electrically insulated)

1202	2347474	10.9	1853	103	6	Ground-nuts; not roasted or otherwise cooked, whether or not shelled or broken
6305	4890909	10.6	3327	35	1	Sacks and bags, of a kind used for the packing of goods
5705	1703901	10.3	199	8	4	Carpets and other textile floor coverings; n.e.s. in chapter 57, whether or not made up
3204	13487171	10.2	3602	266	7	Synthetic organic colouring matter and preparations based thereon; synthetic organic products used as fluorescent brightening agents or as luminophores; whether or not chemically defined
1207	3304927	9.6	6613	90	1	Oil seeds and oleaginous fruits, others n.e.s. in chapter 12; whether or not broken

2506	519549	8.7	887	#N/A	#N/A	Quartz; (other than natural sands), quartzite, whether or not roughly trimmed or merely cut, by sawing or otherwise, into blocks or slabs of a rectangular (including square) shape
2513	320090	8.7	582	48	8	Pumice stone; emery; natural corundum, natural garnet and other natural abrasives, whether or not heat treated
7325	7313301	8.5	3181	18	1	Iron or steel; cast articles
3301	5622641	8.5	177	12	7	Oils; essential (concretes, absolutes); concentrates thereof in fats, fixed oils, waxes or the like (obtained by enfleurage or maceration); aqueous distillates, solutions and terpenic by-products thereof; resinoids
6111	5740530	8.2	9986	387	4	Garments and clothing accessories, babies'; knitted or crocheted
6209	1730199	8.2	4840	191	4	Garments and clothing accessories; babies' (not knitted or crocheted)

1302	6778412	8.2	419	3	1	Vegetable saps and extracts; pectic substances, pectinates, and pectates; agar-agar and other mucilages and thickeners, whether or not modified, derived from vegetable products
5204	114784	7.9	115	#N/A	#N/A	Cotton sewing thread, whether or not put up for retail sale

Source: Author's own calculation

In the above table , 22 commodities are identified where trade potential (export from India) exists. These commodities are arranged in descending order of RCA for India and are being exported to the world by India in high value. Azerbaijan also imports these commodities fromthe world. But these commodities are either not exported or exported in very low value from India to Azerbaijan. Out of 22 products

,there are 6 products where India's export to Azerbaijan is nil. They are in product codes:5307,3605,2511,7614,2506,5204 ,in which India has high RCA and is exporting substantial value to other countries. Similarly, there are other product groups where
Azerbaijan's import percentage from India is very low like 6304,1515,6305,1207,7325.

7.0 Conclusions and Policy Recommendations

The Trade Intensity Index between India and Azerbaijan shows that the intensity of trade has been less than optimum during the period under study (2009 to 2018). It is relatively better in exports from India to these countries than in imports.

The RCA analysis of India and the import requirements of Azerbaijan show that there is a possibility to increase in 22 commodities. Out of 22 products, there are 6 products where India's export to Azerbaijan is nil. They are in product codes: 5307, 3605, 2511,7614,2506,5204, in

which India has high RCA and is exporting substantial value to other countries. Similarly, there are other product groups where Azerbaijan's import percentage from India is very low like 6304, 1515,6305,1207,7325.

According to the above analysis, it is evident that India and Azerbaijan have huge scope for increasing the level of trade between them. The two countries should strive to set up a free trade zone between them. This would help in expanding the horizon of trade, rationalizing custom rules and mandatory procedural delays. A preferential /free trade arrangement may help to expand trade and accelerate the pace of economic development in these countries. The two countries can strive to increase inter industry as well as intra industry trade by upgrading the industrial structure and carrying out technological progress. The opening up of the International North South Transit corridor (INSTC) can prove to be a milestone achievement in overcoming distance related barriers. It can cut down the transit time and cost. The governments of these countries could effectively implement a double taxation avoidance agreement to encourage more imports and exports between the two nations. Thus, these nations should look towards forging a deeper trade partnership between them which would be mutually beneficial.

References

- *Agarwal & sangita (2017),Trade Potential between India and Central Asia, The Journal ofApplied Economic Research*
- *Baier and Bergstrand (2005); 'Do Free Trade Agreements Actually Increase Members' International Trade', Federal Reserve Bank of Atlanta, WP 2005-3.*
- *Chanda, Rupa, Debasmita Panja and Swapneela Biswas (2012); 'India-Latin America TradeRelationship',*
- *Chow, Peter C. Y. (1990); 'The Revealed Comparative Advantage of the East Asian NICs', TheInternational Trade Journal, Vol. 5, No. 2; Pages: 235 – 262.*
- *Fertὂ, Imre and Lionel J. Hubbard (2002); 'Revealed Comparative Advantage and Competitiveness in Hungarian Agri-Food Sectors', Institute of Economics, Hungary Academy of Sciences, Discussion Paper Series 2002/8.*
- *Goyal A Krishna & Vajid Abdul(2018),An Analysis of India's Trade Intensity with UAE,Journal of Commerce & Trade.*

- *Pomfret (2021),Central Asian Economies .Thirty Years After Dissolution of the Soviet Union.*
- *Pomfret (2019),The Central Asian Economies in the 21st Century .Paving a New Silk RoadPomfret Richard (1995),Economies of Central Asia*
- *Viswanathan, R. (2014); 'India and Latin America: A New Perception and a New Partnership',ARI 37/2014 - 22/7/2014.*
- *Widgrén, Mika (2005); 'Revealed Comparative Advantage in the Internal Market', DiscussionPapers No. 989, The Research Institute of the Finnish Economy, Finland.*

Green Economic Recovery in the Indian Context

Ashita Biradar
Mount Carmel College, Autonomous
ashita.biradar@gmail.com

Abstract
The onset of a global pandemic in March 2020 disrupted the world order in terms of loss of livelihoods and lives. As nations look to rebuild two years later, the phrase 'green economic recovery' has been doing the rounds. Popularized in the wake of the financial crisis of 2008, it refers to an economic intervention that preserves and protects natural resources while achieving its goal of supporting sustainable jobs, development, and resilience to economic downturns. This is especially relevant in the wake of a grim report by the Intergovernmental Panel on Climate Change(IPCC). There has been increasing recognition of the potential creation of green economies in developing countries than in developed countries because of higher returns on investment and improved impact from such initiatives, although bottlenecks like lack of public finance and motivation from private players have slowed down the process. As a developing country with massive potential for economic and geopolitical influence, India has an opportunity to chart an unprecedented growth track that incorporates climate change and sustainable development. This paper seeks to examine whether the concept of green economic recovery is a work in progress in India, or whether it will remain a utopian ideal.

Keywords: *Green Economic Recovery, Covid-19, India*

1.Green Economic Recovery in the Indian Context

There are calls for a "green recovery" in reaction to the growing environmental, economic, social, and health issues brought on by COVID-19 and its respective unequal repercussions.

Through redesign, a green recovery pulls economies out of a slump by lowering greenhouse gas emissions, generating jobs, boosting infrastructure and community resilience, and putting equity first. This period of time presents an "opportunity for policymakers to preserve people's health, recover from the economic slump, and reduce and adapt to climate change," according to Narasimha Rao of the Yale School for the Environment. And now that we have these economic shocks that require our attention and financing, we want to significantly increase spending to tackle climate change," says Rao. In fact, these efforts have a more positive social impact when introduced together, than if they had occurred separately.

There isn't just one thing that defines a green recovery. The objectives of a green recovery can be advanced by a variety of strategies, including regulations, investments, retrofits, community programmes, academic initiatives, and more. According to Rao, a green recovery can really take the form of investments in things like a just transition to green energy and sustainable transportation infrastructure, renovations to homes and buildings, or enhancements to urban green spaces. Investments in these industries will lower emissions while also generating employment. Green workforce training programmes may support these expenditures, says Laura Bozzi from the Yale Center on Climate Change and Health. These programmes work to retrain people so they have the ability to contribute to green infrastructure, such as renewable energy systems, the production of electric vehicles, urban forestry, and the maintenance of green spaces,among other things. Even small-scale community initiatives can be used as solutions.

In general, pushing policies and investing in infrastructure that will reduce greenhouse gas emissions benefits everyone in the world, especially those who are most susceptible to climate change effects like sea level rise. While decarbonization activities offer a "broad social public benefit" on a more detailed level, Rao argues that certain initiatives can either advance justice or maintain injustices. These projects' geographic context is important: if they are implemented in regions where low-income groups comprise the majority, equity is boosted far more in comparison to when efforts are made in regions which only the privileged classes have access to since it takes time for the benefits to trickle down to the masses.

2.Green Economic Recovery and Lessons from 2008

After the COVID-19 pandemic, rebuilding a greener global economy will require lessons from previous attempts to implement green stimulus measures during the Great Recession of 2008–2009. These investments placed a focus on sustainable energy projects that are "shovel-ready" and energy efficiency spending. For several years, they had an impact on the growth of renewable energy and the creation of jobs, but they offered little long-term assistance for decarbonizing the global economy. The largest challenges have been significant market barriers, namely the undervaluation of fossil fuels and market imperfections that stifle green innovation.

However, new tendencies that have evolved during the Great Recession must also be taken into account. Inequality of wealth and income is growing, public debt is increasing, and significant Sustainable Development Goals are not being achieved (SDGs).

The most important lessons include the following:

● Policies for a durable economic recovery involve considerably more than merely temporary budgetary stimulation. The transition to a green economy would necessitate long-term (5 to 10-year) commitments in terms of government spending and pricing changes.

● The reform package will vary depending on the demands and structural conditions of big economies like the Group of 20 (G20) and low- and middle-income economies.

● Any set of inclusive, green policies must be financially sound. Countries with constrained budgetary and debt space must discover fresh wiggle room. Pricing and market-based incentives are crucial for promoting green investments and technologies as well as for generating income to pay for the rise in government spending.

All countries are bearing an increasing financial burden as a result of the pandemic's impact on the world economy and public health. Developing nations are also more vulnerable to the epidemic than they should be due to the lack of international assistance and cooperation for guaranteeing progress towards the 17 Sustainable Development Goals (SDGs). Supporting private sector green innovation and infrastructure, creating smart grids, transportation systems,

charging station networks, and creating sustainable cities are among the G20 economies' top goals for public spending. Accelerating the transition, raising funds for the required public investments, and reducing fossil fuel subsidies can reduce the overall cost of the green transition.To attain sustainability and development goals in the absence of considerable infusions of extra funding from big economies and international organizations, developing countries will need to establish cost-effective and creative policy instruments. Instead of compromising certain objectives to achieve others, this calls for identifying cheap solutions that can advance numerousSDGs at once.

These criteria are met by three policies: a fossil fuel subsidy swap to finance clean energy investments and the spread of renewable energy in rural areas; a reallocation of irrigation subsidies to enhance water supply, sanitation, and wastewater infrastructure; and a tropicalcarbon tax, which is a tax on fossil fuels that funds non-man made climate solutions.

3.The Economic Impacts of Covid-19

The COVID-19 epidemic caused the worst global economic crisis in more than a century and sent shockwaves through the world economy. The crisis caused a sharp rise in inequality both within and across nations. According to early indications, the economic recovery from the crisis would be unequal, taking far longer for emerging nations and economically disadvantagedgroups to make up for income and livelihood losses brought on by the epidemic. Contrary to many prior crises, the pandemic's start was met with a significant, forceful economic policy reaction that, for the most part, was successful in reducing its severe human consequences in the immediate term. However, the emergency reaction also produced new dangers that, if they are not resolved swiftly, might jeopardize a fair recovery from the crisis, such as drastically higher levels of private and public debt in the global economy.

The main impacts are related to the following-

- Increasing inequality both within and between nations- The pandemic's negative economics effects were particularly severe in emerging nations, where the revenue losses it producedexposed and exacerbated some latent economic fragilities. It became evident that many people and businesses were unprepared to absorb an economic shock of that size and duration as the

epidemic played out in 2020. Prior to the crisis, a large number of people and businesses in emerging economies were already saddled with unmanageable debt levels, and many struggled to make payments after the pandemic and related public health measures caused a rapid decrease in income and business revenue. The crisis had a significant influence on inequality and poverty around the world. For the first time in a generation, global poverty increased, anddisproportionate income losses among marginalized communities caused a sharp increase in inequality both within and across nations. Youth, women, self-employed individuals, and casual workers with lower levels of formal education also experienced greater income losses. 5 Due to their propensity to work in industries more impacted by lockdown and social isolation measures, women in particular were impacted by income and employment losses. Similar trends areobserved in enterprises. The pandemic's effects on income losses were especially severe for smaller businesses, unofficial enterprises, and enterprises with little access to formal credit.

● The crisis's immediate government responses- The government's immediate responses to the pandemic were incredibly quick and comprehensive. Governments adopted a number of policy instruments that were either completely novel or had never been applied to this degree inemerging economies. Examples include significant direct income support measures, debt moratoria, and central bank asset purchase programmes. The scale and scope of these projects varied greatly, in part because many low-income nations found it difficult to raise funds due to their restricted access to credit markets and their high levels of government debt prior to the financial crisis. As a result, the budgetary reaction to the crisis was virtually always considered as a percentage of the gross domestic product (GDP) in high-income countries and consistently minimal or nonexistent in low-income countries. The fiscal responses differed significantly in middle-income nations, reflecting dramatic disparities in the capacity and willingness of governments to fund assistance initiatives. As a result of resource constraints and the unique nature of the dangers that each country faced, the combination of policies chosen to address the short-term effects varied greatly among nations. Although support programmes reduced the short-term liquidity issues that affected people and businesses, they also unintentionally obscuredthe borrowers' genuine financial situation, which gave rise to a new issue: a lack of openness regarding the borrowers' financial situations. Even though the extensive crisis response was necessary and successful in reducing the worst effects of the crisis, it also resulted in a global

increase in government debt, which increased worries about the sustainability of debt and widened the gap between emerging and mature countries.

● Threats that are now present to a fair recovery- The financial risks that result from the pandemic have an impact on the wider economy through mutually reinforcing channels that connect the financial health of households, firms, financial institutions, and governments, even though households and businesses have been most directly impacted by income losses resulting from the pandemic. Due to this interdependence, increased financial risk in one sector has the potential to spread and destabilize the entire economy.

4. The IMF and Green Economic Recovery

When it comes to green economic recovery in the aftermath of the pandemic, the following implications are to be considered, as put forward by the Indian Monetary Fund:

● The fundamental climate threat and the appropriate answer remain unaffected by the economic catastrophe brought on by COVID-19. Even a severe global economic downturn would onlyhave a little effect on the stock of greenhouse gas emissions in the atmosphere. Raising the cost of emissions is therefore still necessary to address the externality issue at the core of climate change. The necessary policy changes are still ambitious; for instance, to limit global warming to2°C or less, it would be necessary to quickly phase in policies equivalent to a global tax of atleast $75 per tonne by 2030. At the moment, the average price of carbon around the world is $2 per tonne.

● The climate will change as a result of decisions made now. A health and economic crisis working together poses a serious threat to economies and human lives, which has, properly, led to swift and unprecedented policy action everywhere. The severity of the crisis and the breadth of the response indicates that the policy decisions made at this time will probably have a long-term impact on the global economy and society. As a result, the climate and emissions will be impacted. For instance, the additional investment brought about by stimulus will be misallocated between clean and dirty sectors unless the appropriate energy costs are put in place.

● Therefore, fiscal planners ought to foster a "green" recovery. Given the imperative overriding priority of providing immediate relief for homes and businesses, which should not be delayed or hindered by climate considerations, the scope to do so may be restricted in the immediate crisis containment phase. The scope and necessity of broad-based fiscal stimulus, particularly forgreer policies that both enhance aggregate demand and employment, will, however, grow as economie stabilize and shutdowns subside. Furthermore, there may still be policy measures that suppor climate goals without diminishing the efficacy of crisis-containment measures even during th crisis-containment period.

● After the COVID-19 disaster, public support for green initiatives could increase. As witl pandemics, policymakers will be able to argue that: (1) climatic crises may seem far off, but the can strike swiftly; (2) preparation is necessary and requires time; and (3) the expense of preparatio is dwarfed by the cost of not preparation. In fact, reducing emissions would probablylower th likelihood of respiratory disorders.

● The goal for finance ministries should be to "shovel-ready" these policies and initiatives. Thes climate-conscious policies and initiatives will need to be quickly prepared so they can beincludec in stimulus packages, which are now being created. Building up the capacity within financ ministries to assist in managing the implementation phase of the stimulus' green components ma also be a part of this phase of preparation.The IMF has also proposed feasible suggestions fo countries to implement green policies to the best of their abilities:

5.Opting to support green initiatives rather than brown ones

● Public investment initiatives could be directed toward enhancing climate-smart infrastructure

● Creating and implementing climate-smart technology (such as batteries, hydrogen, and carbo capture); promoting adaptation (such as flood protection, resilient roads, and buildings); an avoiding investments that are carbon-intensive (e.g., fossil-fuel power and high-emission vehicles)

● Public works projects that encourage adaptation could be the focus of programmes to help th poor affected by the crisis with their income (e.g., irrigation).

● Debt guarantees and other forms of assistance could be given to green businesses and activities instead of brown ones.

6. Making climate progress a prerequisite for supporting brown initiatives

Crisis support for carbon-intensive businesses/industries may call for pledges to emissions reduction goals and/or guarantees of a fair transition to a low-carbon economy. Large corporations may be obliged to reveal their carbon footprints if they win long-term public support.

7. The right price for carbon

● Raising carbon taxes (or similarly related instruments, such as gasoline taxes) and removing fossil fuel subsidies are particularly timely given the low price of oil and the necessity to improve fiscal positions. For many nations, a carbon tax of $75 per tonne would result in less ofa rise in gas prices than the recent drop in oil prices globally.

● Carbon taxes should be backed up with assistance for low-income households, particularly those that are disproportionately affected by employees and communities, and with fees to encourage the use of zero-emission cars and energy efficiency upgrades.

● Support for the transportation industry and other sectors that are most immediately impacted shouldn't be given in ways that conflict with the goals of carbon pricing, such as cutting back on fuel or travel-related costs.

8. Analyzing the effects of support initiatives on the climate.

● The effects of stimulus policies on the climate, both good and bad, should be examined. Environmental regulations shouldn't be loosened.

● If it does not cause a substantial delay, it may be necessary to mandate that stimulus programmes be evaluated for their impact on the climate and reflected in the budget. (More generally, nations shouldn't stop attempting to incorporate environmental and climatic considerations into budgeting processes; this is known as "green budgeting").

9. Green financing options

● Think about using green bonds to pay for the additional climate spending.

● Private capital may be used for green investment (e.g., through targeted and transparent guarantees).

● Demand that banks with public backing disclose the portfolio's level of climate readiness.

10. Create a new, ambitious medium-term climate plan.

Finance ministries could collaborate with other ministries to present a revised emissions plan ("Nationally Determined Contribution") that takes into account their nation's new emissions outlook and policies before the stalled but crucial UN Climate Change Conference.

11. Organize and assist others.

● Like-minded countries might agree to a carbon-price floor, with a higher level for advanced countries, in order to scale up mitigation and prevent one country's efforts from being undermined by others. A "carbon border adjustment" that is applied to the carbon content of imports from nations that are not making enough effort to mitigate climate change could also be taken into consideration as an alternative to a carbon price floor.

● To assist low-income and vulnerable nations cut their emissions, adapting to the effects of climate change, and, most urgently, restoring their catastrophe coffers that may have beendrained by the COVID-19 crisis response, higher-income nations might enhance their financial assistance.

12. Green Economic Recovery Around the Globe

While nations embarked on ambitious green targets in 2020, the success they would experience was always ambitious: green economic recovery targets introduced by many countries boosted hopes and intrigue about the success they may achieve. However, one year into the pandemic, in 2021, a report produced by the University of Oxford's Economic recovery Project and the United Nations Environment Program, found that of all the economic recovery spending undertaken by

governments, only 18% can be considered green. Titled '*Are We Building Back Better? Evidence from 2020 and Pathways for Inclusive Green Recovery Spending*', the report was an extensive analysis of 50 leading economies in terms of fiscal rescue and revenue analysis.

Inger Anderson, the Executive Director at UNEP, recognised that governments have a rare opportunity to steer their nations on sustainable paths that simultaneously promote economic opportunity, poverty reduction, and health of the environment, with the Global Recovery Observatory (a joint initiative between the University of Oxford and the Green Fiscal Policy Network) even offering insights and tools to navigate this process. In spite of this, worldwide green expenditure so far "has been incommensurate with the extent of continuing environmental issues," such as pollution, nature loss, and climate change, missing out on huge social and long-term economic advantages.

13. Key conclusions from the analysis regarding spending for recovery:

● A limited number of high-income nations accounted for the majority of the $341 billion or 18.0% of spending that was green. Green investment opportunities have so far been passed up by global recovery expenditure.

● $66.1 billion was spent on low-carbon energy, mostly as a result of Spanish and German subsidies for hydrogen and infrastructure projects as well as renewable energy projects.

● $86.1 billion has been announced for investments in public transportation, cycling and walking infrastructure, electric car transfers and subsidies, and electric vehicle ownership.

● An investment of $35.2 billion, primarily through retrofits, was announced for green building improvements to boost energy efficiency, particularly in France and the UK.

●Natural capital, also known as Nature-based Solutions (NbS), or reforestation and ecosystem regeneration projects, will get $56.3 billion, which is only 3% of recovery spending, even though the pace of ecosystem destruction is increasing and there is a link between zoonotic diseases and habitat loss. Two-fifths of the funds were allocated to public parks and anti-pollution initiatives,

particularly in China and the US, which improved quality of life and addressed environmental issues.

● In green R&D, $28.9 billion was announced. Technologies for carbon sequestration, decarbonizing industries including aviation, polymers, and agriculture, and renewable energy generation are all included in green R&D. Meeting the goals of the Paris Agreement would necessitate significant adjustments in pricing and way of life without advancements in green R&D.

14. Green Economic Recovery in India

The highlights of India's 20 trillion dollars economic recovery package are given below:

●The Reserve Bank of India (RBI) has initiated significant rate reductions, such as in the policy lending rates, cash reserve ratio (CRR), and liquidity coverage ratio, to provide banks with cheaper funds.

● A three-month loan freeze has been made possible for term loans.

● Corporate debtors and rural industries now have access to special windows.

● The RBI has been adding more liquidity to the banking sector to lower bond yields and inject more money into the monetary systems.

● India has made a variety of its sovereign bond markets available to foreign investors in an effort to draw them in and ensure access to global indices.

● State administrations have been given permission to borrow extra money for the current year in order to reduce the budget deficit of state governments.

● All capital and debt market services have been spared from the lockdown in order to stabilize the capital market.

Researchers across The Energy and Resources Institute, The National Institute of Public Finance and Policy and Jawaharlal Nehru University consulted industry representatives and scholars to analyze this economic package and to collate suggestions for long-term economic development.

Their findings were presented in a paper titled *'Shaping the Post-COVID-19 Development Paradigm in India: Some Imperatives for Greening the Economic Recovery',* and are given below.

1. None of the respondents had opposing opinions, and they all agreed that the current pandemic scenario should be used to further the SDGs and NDC (Nationally Determined Contributions) obligations.

2. For better balancing of government spending on environmental goals and the SDGs, SDG-aligned budgeting or green budgeting can be utilized as a framework. This will serve as an excellent foundation for eventually integrating environmental considerations and ideas into development planning and budgeting.

3. The government ought to provide incentives for green businesses. Relevant policies must be in line with one another, and state and local institutions must be strengthened, in order to achieve better environmental outcomes.

4. Large corporations claim that worldwide investors and financial institutions are starting to take ESG (environment, social, and governance) considerations into account. Additionally, encouraging industries to adhere to ESG standards would draw in additional investors. Industry respondents supported the institutionalization of open self-reporting methods of predetermined metrics, including threats to business and the environment. Data for various parameters should also be comparable.

5. The government will need to boost market demand for environmental goods and services if a green recovery route needs to be pushed. Green label adoption incentives (such as Eco-mark, ZED [Zero Defect, Zero Effect], and other internationally recognised labels) have the potential to be effective.

6. Green infrastructure investments are required, including those in cold storage facilities for agricultural products, locally sourced transportation fuel, renewable energy projects, resource efficiency, microgrids, and special economic zones that prioritize environmental goods and

services. There is a need to develop comprehensive incentive programmes for green MSMEs that include not only financial rewards but also the facilitation of resources based on intellectual property and marketing assistance to green MSMEs. Setting up a fund for greener MSMEs is promising, say several stakeholders.

7. Taxes on luxury goods and products with negative effects on the environment and human health may go up slightly.

Based on these interactions, potential avenues were identified for India to adopt green recovery measures across the demand, demography, economy, infrastructure and system sectors, in the short, medium and long terms. The short-term suggestions are particularly noteworthy because of their feasibility:

- Encouraging economic activity based on natural resource use and livelihoods that benefit.

the environment.

- The development of chances for green talents in both rural and urban settings, workforce

retraining and reskilling.

- Maintaining aggressive taxation and driving more money toward environmentally sustainable activities by taxing luxury goods and fossil fuels; Promoting greater investment in environmentally important sectors through banking sector rules related to COVID-19 recovery.

- Building up local government agencies and municipal companies to handle more

municipal solid trash and biomedical waste as well as providing conditional incentives

for the use of green technology.

- Modifying current decision-making procedures, such as converting state and federal budgeting into SDGs-related mapping exercises.
- Increasing the use of certification systems like ZED (Zero Defect, Zero Effect), Eco-mark, and other labels and standards.
- Increasing public procurement that is sustainable.

15.Discussion

In the nearly three years that we have grappled with Covid-19, both individuals and governments have experienced tumultuous shifts in their responses and outlook. Most countries, including India, began with exceedingly ambitious plans to integrate green ideals within their recovery measures, but the usual constraints to development, like finance and commitment, led to these ideas taking a backseat. Further, the Indian government's seemingly ambivalent approach has nothelped matters: its recovery packages include encouraging thrusts for renewable energy, but paradoxically they may boost the fossil fuels sector because most of this money supports transmission and distribution companies. This sparse commitment has yielded results that do not possess the significance for green economic recovery to be considered a work in progress in India. For all practical purposes, it may still be regarded as a utopian ideal, even though India's potential for green economic growth is thoroughly undeniable.

As we stand on the precipice of Amrit Kaal, we require a new model to integrate our ambitious economic plans with the inescapable realities of climate change. India has a perfect platform to enable this, with its demographic dividend being a bonus. To fully reap the benefits of its demography, India is in dire need of infrastructural reforms which also align with the green recommendations cited in this paper. By pursuing its development goals in this direction, India will be able to sculpt this massive potential into reality.

16.References

- *Are we on track for a green recovery? Not Yet*. (2021, March 10). UN Environment Programme.
- Retrieved February 1, 2023, from
- https://www.unep.org/news-and-stories/press-release/are-we-track-green-recovery-not-yet
- *Building a Greener Recovery: Lessons From the Great Recession*. (2019). UN EnvironmentProgramme. Retrieved February 1, 2023, from https://d1bf23g64f8xve.cloudfront.net/sites/default/files/learning-resources/action//Building%20 a%20Greener%20Recovery_%20Lessons%20from%20the%20great%20recession_UNEP.pdf
- *Green recovery*. (n.d.). UN Environment Programme. Retrieved February 1, 2023, from https://wedocs.unep.org/xmlui/bitstream/handle/20.500.11822/35358/GreenRecov.pdf
- *Greening the Recovery*. (n.d.). International Monetary Fund.
- *How green is India's stimulus for economic recovery?* (2021, March 1). Institute for Energy Economics and Financial Analysis. Retrieved February 1, 2023, from https://ieefa.org/resources/how-green-indias-stimulus-economic-recovery
- *Shaping the Post-COVID-19 Development Paradigm in India: Some Imperatives for Greening the Economic Recovery*. (2020, October 11). SAGE Journals. Retrieved February 1, 2023, from https://journals.sagepub.com/doi/full/10.1177/0976399620958509
- World Development Report 2022: Finance for an Equitable Recovery. (2022). World Bank
- Group. Retrieved February 1, 2023
- https://www.worldbank.org/en/publication/wdr2022/brief/chapter-1-introduction-the-econ omic-impacts-of-the-covid-19-crisis

Menstrual Health and Economic Growth In India: Policies & Implications

Sukanya Biswas
M.Sc. Economics
St. Xavier's College, Kolkata

Subtheme: Economic Policies and Reforms

Abstract

Menstruation is normal, but it is still a topic discussed in hushed tones and behind closed doors. As per World Bank, before the COVID-19 pandemic, an estimated 500 million of the 1.9 billion menstruators were unable to attain proper menstrual health. After the pandemic, it only grew worse. According to a country analysis of menstrual health in India, only 12% of menstruators used proper menstrual products, with 23% of girls dropping out of school and 71% of girls having no prior knowledge before their first menstrual cycle. The primary factor of such drastic statistics is the stigma that is too often attached to menstruation. This in turn adversely affectsthe economic growth of a country because girls and women are unable to reach their full potential. Thus, more action and investment in menstrual health are needed. There are existing policies in India that focus on Menstrual Hygiene Management (MHM) and such policies have been reviewed in the paper. The economic implications of poor menstrual health in the countryas well as certain policy recommendations are also provided.

The paper is divided into four sections. Section I consists of an introduction. Section II reviews certain policies involving MHM. Section III provides certain recommendations. Sections IV and V end the paper with a conclusion and bibliography, respectively.

Keywords: *Menstrual Hygiene Management (MHM); policy intervention; awareness; sanitation; menstrual equity*

1. Introduction

"Menstruation is the only blood that is not born from violence, yet it is the one that disgusts you the most." - Maia Schwartz

In Stigma: Notes on the Management of Spoiled Identity (1963), Erving Goffman referred to stigma as any stain or mark that sets some people apart from others. The word originated from Ancient Greece, where slaves were branded and people would associate them with disgust, avoiding any social interaction with them. He categorized stigma into three different types: abominations of the body, blemishes of individual character, and tribal identities or socialmarkers associated with marginalized groups. Menstrual blood fits all three of Goffman's categories.

Menstruators constitute half of India's population. But most of these girls, women, transgender men, and non-binary persons are unable to manage their menstrual health in a healthy, dignified way. Adolescent girls and women facing stigma, social exclusion, and harassment during menstruation have been normalized for centuries. Transgender men and non-binary persons face discrimination due to their gender identity, depriving them of the materials and facilities they have a right to. Menstruation brings a new phase – and new vulnerabilities - in the lives of such menstruators. Yet they have to face challenges acute in humanitarian crises regularly. Effective and adequate MHM requires access not only to proper menstrual products but also to private, clean, and safe spaces for using those products. While there is consistent evidence of wealth-related inequality being a key driver of unequal access to menstrual products and poor conditions of MHM spaces in India, this wealth-related inequality is in turn driven by several socio-economic, environmental, and household factors that need grave policy attention.

Poverty, gender inequality, cultural taboos, discriminatory social norms, and lack of basic facilities not only cause menstrual needs to go unmet but also have far-reaching consequences. InIndia, an estimated 70% of all reproductive diseases are due to poor menstrual health. More than 80% of adolescent girls in the rural parts of the country believe menstrual blood to be containing.

harmful substances and close to 60% believe it should not be talked about openly. Rossouw and Ross (2021) identified that 54% of menstruators in Rajasthan do not use proper menstrual products and 50% of them are unable to lock their unclean MHM spaces. 1 in 5 girls drops out ofschool after their first menstrual cycle and the ones that remain miss five days a month on average in India.

Altogether, these contribute to their restricted mobility and compromised education, affecting the economy as a whole. An individual's future earnings grow with every extra year of primary education. When a girl receives an education, she is more likely to marry later, and have fewer and healthier children. As a result, she is less likely to experience sexual violence. Chaaban and Cunningham (2011) found that with every 1% increase in the proportion of women with secondary education, a country's annual per capita income grows by 0.3%, and closing the unemployment gap between adolescent girls and boys would result in an up to 1.2% increase in GDP in a year. Narang (2022) addressed period poverty and estimated that India can make economic gains to its GDP by 2.7% if menstrual equity is achieved.

Interventions in menstrual health and hygiene can help overcome these issues. Fortunately, in recent years, menstrual health and hygiene have been increasingly gaining policy importance in India.

2. Policies

Swachh Bharat:

Swachh Vidyalaya Swachh Bharat: Swachh Vidyalaya is a national campaign under the Department of School Education and Literacy. The key feature is to ensure that every school in India has a set of functioning and well-maintained water, sanitation, and hygiene facilities. Water, sanitation, and hygiene in schools refer to a combination of technical and human development components that are necessary to produce a healthy school environment and to develop or support appropriate health and hygiene behaviors. The technical components

include drinking water, handwashing, toilet, and soap facilities in the school compound for use by children and teachers. The human development components are the activities that promote conditions within the school and the practices of children that help to prevent water, hygiene, and sanitation related diseases.

Such an initiative ensures adequate facilities to manage menstruation at school, reducing the reluctance to continue school and the possibility of dropouts among students who menstruate.

Failure

The financial dimensions of such a large-scale programme are huge. However, it could not achieve the desired level of the target.

Firstly, decentralization of the central government funds and entrusting the state governments with massive responsibility is a concern. The Prime Minister of India had appealed to utilize the LAD (Local Area Development) funds for constructing toilets in schools, but those funds lay unspent. Had they been used, it would have eased the financial strain on the state governments and contributed to the success of Swachh Vidyalayas. Secondly, the focus on rapidimplementation only led to poorly constructed toilets, not adhering to local geographical and design parameters. This is also partly due to the unfulfilled commitments of the Public Sector Undertakings (PSUs) and the corporate sector (as part of the Corporate Social Responsibility Act) to support the construction of toilets in schools. Thirdly, attaining the physical requirementshardly converged with the intended change in behavioral practices. The effective participation of teachers, people's representatives, PSUs, corporates, School Management Committees (SMCs), and children were envisioned. However, it is absent.

National Rural Health Mission: Menstrual Hygiene Scheme

National Rural Health Mission is an initiative under the Ministry of Health and Family Welfare that seeks to provide equitable, affordable, and quality health care to the rural population, especially vulnerable groups. One of the components of the National Rural Health Mission (NRHM) is the Menstrual Hygiene Scheme (MHS). It was introduced to promote menstrual hygiene among adolescent girls in the age group of 10-19 years in rural areas, where major objectives are to increase awareness of menstrual hygiene, increase access to and use of high quality menstrual products as well as ensure safe disposal of those products in anenvironmentally friendly manner.

Initially, the scheme was to provide a pack of 6 menstrual pads called "Freedays" to rural adolescent girls for Rs. 6. But now, funds are being provided to States/UTs for decentralized procurement and provision of menstrual pads to rural adolescent girls at a subsidized rate of Rs. 6 per pack of 6 pads. The ASHA workers continue to be responsible for the distribution,receiving an incentive of Re. 1 per pack sold and a free pack every month for her personal use. They are also responsible for convening monthly meetings at the Aanganwadi Centres or other such platforms for adolescent girls to focus on issues of menstrual health and its hygienic practices. A 360-degree approach has been adopted to create awareness that includes audio, video, and reading materials for adolescent girls and job aids for ASHAs.

Failure

The scheme had a promising beginning. However, it faced poor implementation, inadequate advertising, irregular supply, and lack of communication.

Not only are there breaks in the supply chain of menstrual pads in rural areas, but the "Freedays" pads turn out to be expensive, too small, and with low absorbing capacity. Even though menstrual pads are provided at a subsidized rate of Rs. 6 per pack, they are still unaffordable to girls from poor households. As a result, they continue to use unhygienic alternatives. Moreover, ASHA workers have many activities to cater to and tend to focus on activities that provide higher

incentives. This in turn renders counseling and provision of information to girls minimally effective, with no system of tracking ASHA meetings. There is also no system of ensuring that the pads are sold at the subsidized rate and that there is proper provision for the disposal of those pads.

Menstrual Health Management National Guidelines

Menstrual Health Management National Guidelines are issued by the Ministry of Drinking Water and Sanitation and outline the guidelines to be followed by state governments, district administrations, technical experts, engineers, school headteachers, and teachers to support adolescent girls and women.

The guidelines are as follows:

• Every adolescent girl and woman, and their families, including men and adolescent boys, must have the necessary menstrual knowledge and awareness.

• Every adolescent girl and woman must have easy access to sufficient, affordable, and hygienic menstrual products during menstruation.

• Every adolescent school girl must have access to a separate toilet with private space for cleaning and washing, including access to an adequate and sustained water supply as well as soap.

• Every adolescent girl must have proper information on the usage of menstrual products and access to infrastructure for the disposal of those used products.

Failure

There is a lack of clear guidelines on how the target individuals will be reached to efficiently implement the above-mentioned guidelines.

3. Recommendations

Education and Awareness

Amidst myths and taboos, providing menstruators with adequate and timely information on menstrual health and hygienic menstrual practices is of utmost importance. The capacity and knowledge of teachers and ASHA workers need to be improved to provide effective counseling and education at the school and community levels, along with an increase in the availability of written literature or guidelines for youth menstruators. However, awareness starts from within the households. Programmes and workshops on educating mothers as well as other familymembers are rare but highly needed. Doing so would create a safe, comfortable, and dignified environment to openly discuss about menstruation and manage their menstrual practices. Providing menstrual products at subsidized rates is not sufficient. No scheme focuses on eliminating religious restrictions and cultural superstitions that heavily affect the lives of menstruators. This too should be incorporated into the educational programmes and workshops.

Accessibility and Affordability of MHM Products

The major challenge for menstruators in rural areas is the unreliable supply chain and cost of menstrual products. To overcome these, there is a need for investment in research and development to innovate low-cost, yet high-quality menstrual products and ensure an increase in production capacity. For efficient distribution, improvement in infrastructure and transportation in rural areas is crucial. Additional research via market surveys is also important for understanding the ability and willingness of menstruators to pay for the products to develop a better pricing strategy such that they are within their affordability.

Disposal and Sanitation Facilities

Menstrual waste disposal adds to the environmental crisis by way of micro-plastic pollution. Improper burning of used menstrual products in low-cost, low-temperature incinerators can result in the emission of dioxins and furans, causing environmental and health hazards. Hence, it

is needed to develop innovative solutions for menstrual waste disposal in a safe, environment-friendly, and scalable manner. It is also important to continue improving the qualityof sanitation by following the necessary geographical and design parameters.

Policy Intervention and Inclusivity Although there are sufficient guidelines to be followed to improve menstrual equity, there are loopholes in their implementations. Hence, there should be a greater focus on the ground level by building a better and more efficient network of Community Health Workers (CHWs) and frontline workers. Certain groups of menstruators are excluded at the policy level. The understanding of gender in binaries is a barrier for transgender persons to access menstrual health services. No district, state, or union-level initiative makes menstrual services accessible to transgender persons. Thus, policies need to be inclusive in nature.

4. Conclusion

It is already 2023 and menstruation remains an obstacle in India. However, it should not be the case because it is just as normal as bleeding from any other part of our bodies. To address this, the government has several schemes and initiatives. But we find that these are not as effective as they potentially could have been. Although, with inefficiencies, there is also scope for improvement. We have seen that policymakers do not always hold themselves accountable forthe outcomes. However, accountability is important because inefficient policies have enumerable harmful economic implications. Here, it leads to the lives of young menstruators being defined by discrimination, affecting the entire economy as much as it affects them. Given the vast diversity in culture and socio-economic contexts of India, there is an increasing need to better understand menstruators and determine which intervention approach will be suitable for them.

5. Bibliography

- Goffman, E. (1963). Stigma: Notes on the Management of Spoiled Identity.
- Laura Rossouw, H. R. (March, 2021). Understanding Period Poverty: Socio-Economic Inequalities in Menstrual Hygiene Management in Eight Low- and Middle-Income Countries. International Journal of Environmental Research and Public Health.
- Jad Chaaban, W. C. (August, 2011). Measuring the Economic Gain of Investing in Girls: The Girl Effect Dividend. World Bank Group.
- Narang, T. (September, 2022). Addressing Period Poverty Can Boost India's GDP By 2.7%: Insights & Economic Implications. International Journal of Applied Research.
- Norris, J. (June, 2017). The Menstrual Taboo and Modern Indian Identity. Honors College Capstone Experience/Thesis Projects.
- ``````````Surjit S Bhalla, K. B. (April, 2022). Pandemic, Poverty, and Inequality: Evidence from India. International Monetary Fund.
- (n.d.). Retrieved from Department of School Education and Literacy : https://dsel.education.gov.in/sbsv 8. (n.d.). Retrieved from National Health Mission: https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1021&lid=391 9. 9. (n.d.).
- (n.d.). Retrieved from National Health Mission: https://nhm.gov.in/index1.php?lang=1&level=3&sublinkid=1021&lid=391 9.
- (n.d.). Retrieved from Department of Drinking Water and Sanitation: http://ccras.nic.in/sites/default/files/Notices/16042018_Menstrual_Hygiene_Manage ment.pdf

A Case Study of the Socio-Economic Condition of Women Construction Workers with Special Reference to Nelamangala Taluk

Dr. Sugant R
Dean of CMR University

Rimli Rajan
Research Scholar
CMR University

Abstract

One of the major developments in the industrial sector is the building construction sector. This sector employs a greater number of workers. These workers are prone to vulnerable situations. Their nature of employment is temporary. These informal workers are devoid of social security measures. Many times, they are exploited and harassed by their contractors. According to the Economic Survey, 2018, after agriculture, it is the construction sector which provides employment opportunities easily. In 2018-19, there were around 52 million workers employed in the construction industry. The most employed people in the construction sector are the female workers in India. The proportion of female construction workers is larger than that of male construction workers. The women workers face health complaints like cough, asthma and breathing, allergy, muscle pain. The women workers lack security in their working site. They also face financial problems too. The present study deals with the demographic profile of the women construction workers in NelamangalaTaluk, tries to determine the challenges faced by the women construction workers in their construction sites in NelamangalaTaluk and offers suitable suggestions for ameliorating the women construction workers. The results of the study found that the distribution of women construction workers is more among the age group 21-30 years. There are 26 percent of women workers amongst the age group 41-60 years. The least is found in the age group 31-40 years. The above table shows that around 46 percent of women workers are having the experience ranging between 11-20 years. 34 percent of women workers are having the experience ranging between 0-10 years. Around 16 percent of women workers are having the experience between 21-30 years and around 4 percent of women workers are having the experience between 31 and above years. Since the value of Pearson Correlation is within the limit, we can state that there is no significant difference between the age and the factors of the problems faced by the women construction workers. Since the value of t Statistic lies outside the limit, it can be stated that there

is a significant difference between the family type and the factors of the problems faced by the women construction workers. Since most of the women construction workers are facing wage discrimination with respect to their male counterparts, it is the duty of the Government to prevent such kind of biasness and thereby providing a fair equal remuneration to improve their socio-economic situations. The paper concludes by stating that these workers have no idea about the various government programmes to alleviate the poverty which they are facing. They have very poor accessibility to infrastructural facilities and are deprived of basic amenities. Hence the government must undertake suitable reforms and make changes for improving the socio-economic conditions of women construction workers.

Keywords: *construction sector, women construction workers, informal sector, socio-economic status, health issues*

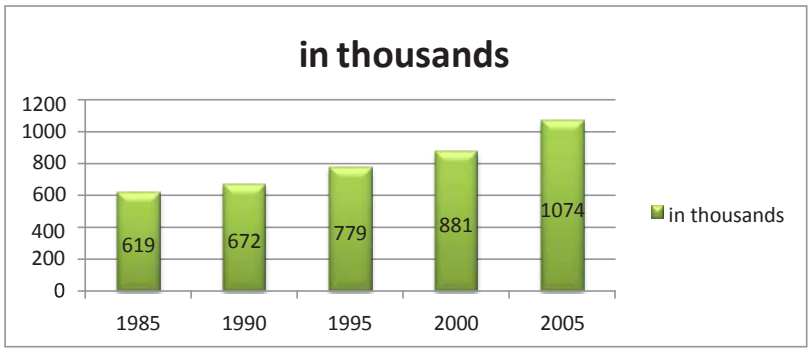
1. Introduction

The construction sector is the second largest employment providing sector after agriculture in India. This has been expanding much in India for the past so many years and has provided employment opportunities to a larger set of people in our country, thereby promoting economic growth. This has provided employment for both unskilled and skilled labourers. As per the report of the International Labour Organization 2016, there is a tremendous hike in the employment rate in the construction industry from 20.3 percent in 1980-81 and 35.74 percent in 1990-91 to 2015-16. The second place after agriculture, the fastest emerging industry in terms of providing employment opportunities is the construction sector. According to the Government of India 2018, this sector has provided employment opportunities to 31 million female workers in our country. In the construction industry, there is much demand for labour. As per Aajeevika Bureau 2007, most workers are quite migrant in nature and usually emerge from Karnataka, Maharashtra and Gujarat who are either semi-skilled or unskilled. It is the construction sector that has provided employment opportunities to millions of female workers in our country. Due to illiteracy, poverty and lack of skills, female workers easily get an opportunity to work in construction sites. The construction industry is operated through contractors, sub-contractors and labourers. First task is that it is the builders who hire contractors through supervisors. According to the various levels of skills attained by the labourers, it is the contractors who next delegate the work to the skilled and unskilled workers. For providing employment work, it is the builder who normally contacts different

contractors based on the status of the work needed. There are various kinds of activities being performed in the construction sites namely, electricity, plumbing, furniture and reinforced cement concrete. There are various contractors for assigning the different kinds of work to the workers.

One of the major developments in the industrial sector is the building construction sector. This sector employs more number of workers. These workers are prone to vulnerable situations. Their nature of employment is temporary. These workers are prone to vulnerable situations. Their nature of employment is temporary. These informal workers are devoid of social security measures. Many times they are exploited and harassed by their contractors. Majority of the construction workers are not literates and three-fourth of the workers are married at a young age itself. They find their work on a contract basis and though they work for more than 8 hours a day, they receive only 200 to 250 Rs as their wages. They are ignorant of government schemes to alleviate their level of poverty. They have no access to the infrastructure facilities and basic amenities of life. The most employed people in the construction sector are the female workers in India. The proportion of female construction workers is larger than that of male construction workers. The female workers in the construction industry are involved in the private sector as well as the public sector. In the construction sector, there are 30 million workers engaged in it; out of that, half of the workers are women. These women workers are involved in carrying bricks, sand, water, cement, mixing cement and breaking stones. According to the report of the Government of India, every year there are 31 million people employed in the construction sector. They create assets worth Rs 200,000 million every year.

Fig 1: Construction workers (in millions)



Source: NSSO, 2016-17

From the fig 1, we can see that in 1987-88, there were 8.6 million construction workers in India, in 1999-00, it was 17.62 million workers, in 2004-05 it was 25.71 million workers, in 2011-12 it was 51 million workers and in 2016-17 it was 74 million construction workers

Construction Workers in India

In India around 92 percent of workers are employed in informal sectors of which 50 percent of the unorganized workers are working in the construction industry. One of the major developments in the industrial sector is the building construction sector. This sector employs a greater number of workers. These workers are prone to vulnerable situations and their nature of employment is temporary. These informal workers are devoid of social security measures. Many times, they are exploited and harassed by their contractors. There is no specific time frame for their work. On an average they have to work for about 10 hours per day. These workers are migratory in nature and they have to encounter accidents and injuries (Tiwary, Gangopadhyay, & Mukherjee, 2012).The construction workers are very important for developing the infrastructure of the country. These workers dwell in unhealthy conditions and are considered as the society's weaker section. Majority of the construction workers are not literates and three-fourth of the workers are married at a young age itself. They find their work on a contract basis and though they work for more than 8 hours a day, they receive only 200 to 250 Rs as their wages. They are ignorant of government schemes to alleviate their level of poverty. They have no access to the infrastructure facilities and basic amenities of life (Khan, Alam, & Ahmed, 2015). Though the construction industry is a major part of the development of industries in our country, typically it is mainly dominated by men and proves to be serious challenges for women workers. In 2006-07, the contribution of the workers engaged in the construction sector was Rs 1,965,550 million towards the Gross Domestic Product (GDP) of our country. It is the Housing sector in India which generates around 4 million new job opportunities for the informal construction workers. These construction workers lack skills to sustain the growth prospects in housing and infrastructure sectors. The percentage of skilled construction workers dropped from 15.34 percent in 1995 to 10.57 percent in 2005. But now the proportion of unskilled workers rose from 73.08 percent in 1995 to 82.45 percent in 2005. Thus, there is a huge demand for skilled workers especially in the construction sector. Hence, there is a need to transform semi-skilled or unskilled workers into proficient skilled workers as we see in

offices (Ahuja & Kumari, 2012).From the past few years, there is a tremendous growth of infrastructure especially in the urban areas. Due to this, there is a surge in the movement of workers from rural areas to urban areas. As per the International Labour Organization (ILO), compared to other sectors, it is the construction sector which has a huge level of employment opportunities under the non-agricultural sector. The main reason for this is that it is the construction work which guarantees daily wages compared to all other sectors. According to the Economic Survey, 2018, after agriculture, it is the construction sector which provides employment opportunities easily. In 2018-19, there were around 52 million workers employed in the construction industry. Most of these workers are seasonal migrants coming from rural areas to urban areas in search of jobs. These workers have a low bargaining power, are unskilled, and socially backward, insecure nature of work and there is no cordial relationship between an employer-employee. They are prone to several socio-economic challenges relating to health, safety, education, nutrition and development.Their children are malnourished. They have no access to water or sanitation (Manasi, Tantri, & Kambara, 2021).According to CIA (2012), there are 487 million construction workers in India which occupies the second place after China. The main reason for this is that the intensity of employment is very high especially in those countries whose income is low than those countries whose income is high. In towns and urban areas of India, there is a hike in the number of workersin the construction industry. These workers are exposed to ill-health, poor level of quality work (Kumar, 2013).

Women Construction Workers in India

The most employed people in the construction sector are the female workers in India. The proportion of female construction workers is larger than that of male construction workers. The female workers in the construction industry are involved in the private sector as well as the public sector. Compared to the private sector, it is the public sector which provides more percentage of employment opportunities for female workers. But the wage disparity is more in the private sector than in the public sector (Rahul, 2014). In the construction sector, there are 30 million workers engaged in it; out of that, half of the workers are women. These women workers are involved in carrying bricks, sand, water, cement, mixing cement and breaking stones. According to the report of the Government of India, every year there are 31 million people employed in the construction sector. They create assets worth Rs 200,000 million every year. The contribution from the

construction industry towards GDP has hiked from 6.1 percent to 6.9 percent from 2002-03 to 2006-07. In Kerala there is a hike in women labour force from 0.63 percent to 24.3 percent from 2001 to 2011 in the construction industry. The women workers face health complaints like cough, Asthma and breathing, allergy, muscle pain. The women workers lack security in their working site. They also face financial problems too (Maneesh & Jasna, 2017). Compared to other manufacturing industries, the unskilled workers in the construction industry find the work more strenuous. Most of the women workers are violated in receiving the minimum wages. There is very poor enforcement of protective labour legislation. The women construction workers are deprived of acquiring adequate skills in the construction industry. The women workers in order to earn a living have been burdened with multiple jobs both at home and at the construction sites. They are devoid of attaining promotions in the workplace. The names of the women construction workers are not included in the record of the contractors (Prasanna & Bhardwaj, 2016). There are three categories of women workers in the construction industry. They work as engineers, architects, involve in administrative posts like HR, finance and work as construction workers in the construction site. There is a vast difference in the distribution of women workers between developing and developed countries. In UK, women working in the construction industry, hold 84 percent of secretarial positions, 10 percent work in professional capacity and 6 percent work as craft and trade level at the construction sites. In India, 25 percent of the women work as construction workers in the construction sites. India has 32.6 million workers working in the construction sites. Out of these, women construction workers constitute 8.2 million only 0.12 million women work as administrators, designers, architects and engineers (Ahuja & Kumari, 2008). Many a times women construction workers face gender discrimination relating to allocation of work and distribution of wages. These have made them to face a tough life and are devoid of social justice and equal status in the construction site. Though male and female construction workers perform the same work, the male workers are paid more wages than the female workers. Most of the women workers face severe sexual harassment at their workplace. The women workers are lacking in availing benefits such as health care, nutritious food, education, housing, child care, maternity benefits and clean drinking water. The governments as well as the private sector employers are not focusing much in providing the necessary social security benefits to the women construction workers. These women workers are facing severe health issues like headache, nausea and insomnia. Since the women construction workers are working with the male workers, they are

prone to sexually transmitted health issues. Due to problems in their health conditions, there is a hike in the rate of absenteeism amongst the women construction workers (Saini & Sharma, 2020). Most of the female construction workers face discrimination in wages. Women workers received Rs 40 per day as wages which was less than the male construction workers. Though male and female construction workers are performing the same work, it is the female workers who received 30 percent of wages less than that of the male workers. Working women construction workers face economical and physical exploitation from their male co-workers. Women workers are physically weaker and gentle than the male workers. Women workers face family problems like divorce, domestic violence, betting which put them into a lot of trouble. Most of the female workers are illiterate, ignorant of various rules and regulations introduced by the government (Keerthana & Singh, 2014). The female construction workers occupy one third of the workers coming from the rural areas in India. Women construction workers are facing severe constraints at workplace such as unhealthy relationship at job, absence of medical and accident care facilities, wage discrimination, insecurity and lack of continuity. In this study the sample size is 100 women workers from the construction industry. Through the interview schedule the research was conducted. The analysis was done with the help of statistical tools like factor analysis, percentage analysis, reliability analysis and also using SPSS Package. The results of the study showed that the plight of women construction workers were pathetic. Hence the study stressed the need for adequate social security schemes to overcome poverty and regular employment for women construction workers (Selvi & Veilatchi, 2019). SEWA (2000) conducted a study to find out the socio-economic conditions of women construction workers residing in Ahmedabad. The results of the study found that all the women workers were unskilled. They had to face severe physical strain at the workplace. Around 54.4 percent of the surveyed women workers were not given the basic amenities of life relating to the work site. Majority of the workers were facing problems such as inequality, poverty and unemployment. In Guwahati, the women construction workers are facing biases in the workplace. They are prone to economic inequalities. These workers produce legal goods but they are not registered by the health, fiscal, tax and labour laws. Their activities are mainly on a small scale. They are sometimes not paid for their work. Majority of the women find work in the informal sector. These workers face many issues related to their family, lack of healthcare facilities, education and become mothers at a young age. They are facing discrimination at the workplace and also in attaining wages (Gogoi, 2020).

Table 1: Number of women workers in construction sites 1985-2015

Year	In thousands
1985	619
1990	672
1995	779
2000	881
2005	1074
2007	1122
2009	942
2011	832
2013	812
2015	917

Source: CPWR, 2015

From the above table 1, it can be seen that in 1985, the women construction workers were 619 thousands, which increased to 881 thousands in 2000 and in 2015 it was 917 thousands. During 2007, it reached a high level of 1122 thousands and later it reduced to 942 thousands in 2009.

2.Objectives

1. To study the demographic profile of the women construction workers in NelamangalaTaluk.

2. To determine the challenges faced by the women construction workers in their construction sites in NelamangalaTaluk.

3. To render suggestions for ameliorating the women construction workers.

3.Hypothesis

1. There is no significant difference between the age of the women workers and the problems faced by them at their construction sites.

2. There is no significant difference between the type of family and the problems encountered by the women construction workers at their construction sites.

4. Research Design

The descriptive design has been used by the researcher to analyze the challenges faced by the women construction workers at their working sites.

5. Sampling and Universe

The sample size is 50 women construction workers which has been taken from the Nelamangala construction sites.

6. Data Collection Tools

The research has been conducted using the researcher's interview schedule. A list of questions had been listed in the questionnaire. Using these, the responses given by the respondents has been collected.

7. Results and Findings

Table 2: Distribution of women construction workers on the basis of age.

DISTRIBUTION OF WOMEN CONSTRUCTION WORKERS ON THE BASIS OF AGE			
SL NO	Age(years)	No of women construction workers	Percentage(%)
1	21-30	14	28
2	31-40	10	20
3	41-50	13	26
4	51-60	13	26

Source: Primary data

From the above table, we can see that the distribution of women construction workers is more among the age group 21-30 years. There are 26 percent of women workers amongst the age group 41-60 years. The least is found in the age group 31-40 years.

Table 3:Distribution of women construction workers on the basis of their experience

DISTRIBUTION OF WOMEN CONSTRUCTION WORKERS ON THEBASIS OF THEIR EXPERIENCE			
SL NO	**Experience(years)**	**No of women construction workers**	**Percentage(%)**
1	0-10	17	34
2	11-20	23	46
3	21-30	8	16
4	31 and above	2	4

Source: Primary data

The above table shows that around 46 percent of women workers are having the experience ranging between 11-20 years. 34 percent of women workers are having the experience ranging between 0-10 years. Around 16 percent of women workers are having the experience between 21-30 years and around 4 percent of women workers are having the experience between 31 and above years.

Table 4: Table showing the Karl Pearson's coefficient of correlation between the age and factors of the problems faced by the women construction workers.

KARL PEARSON'S COEFFICIENT OF CORRELATION BETWEEN THE AGE AND FACTORS OF THE PROBLEMS FACED BY THE WOMEN CONSTRUCTION WORKERS		
	age	**factors**
Mean	2.26	1.86
Variance	1.135102041	0.775918367
Observations	50	50
Pearson Correlation	0.039577635	
Hypothesized Mean Difference	0	
df	49	
t Stat	2.086996779	
P(T<=t) one-tail	0.021056273	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.042112545	
t Critical two-tail	2.009575237	

Since the value of Pearson Correlation is within the limit, we can state that there is no significant difference between the age and the factors of the problems faced by the women construction workers.

Table 5:Table showing the 't-test' between the family type and the factors of the problems faced by the women construction workers

t test between the family type and the factors of the problems faced by the women construction workers		
	family	problems
Mean	0.56	0.74
Variance	0.251428571	0.196326531
Observations	50	50
Pearson Correlation	-0.066136256	
Hypothesized Mean Difference	0	
df	49	
t Stat	-1.842609449	
P(T<=t) one-tail	0.035720211	
t Critical one-tail	1.676550893	
P(T<=t) two-tail	0.071440423	
t Critical two-tail	2.009575237	

Since the value of t Statistic lies outside the limit, it can be stated that there is a significant difference between the family type and the factors of the problems faced by the women construction workers.

8. Suggestions

- Women workers are unskilled and face numerous health problems related to construction industry. Hence there is a necessityto impart training program both bythe non- government and government organizations.
- There is a necessity to form Self-Help Groups by the women labourers and engage in income-generating activities.
- In order to improve the socio-economic status of women workers, there is a necessity for NGOs to figure out and solve the problems related to the women construction workers.
- Government must provide financial aid to provide training programs for self-employment.
- Most of the women workers were ignorant of their reproductive health. Their spouse consumed alcohol and faced domestic violence from their husbands. They also faced health related problems related to their work. These problems arose due to unhealthy living and working conditions of migrant women workers. Hence it is the duty of the Government to

safeguard the women construction workers by providing a conducive atmosphere for uplifting them.

- Since most of the women construction workers are facing wage discrimination with respect to their male counterparts, it is the duty of the Government to prevent such kind of biasness and thereby providing a fair equal remuneration to improve their socio-economic situations.

9. Conclusion

The research paper analyzes what are the socio-economic situations of the workers working in the construction sites and the problems faced by them at their construction sites. The weaker sections existing in the society are the construction workers. Though they dwell in abysmal conditions, they play a major role for the development of infrastructure of the Nelamangala taluk. Most of the workers are married and majority of them are illiterate. They are working on a contractual basis, working for more than 8 hours every day. But their income is only 200 to 250 Rs. These workers have no idea about the various government programmes to alleviate the poverty which they are facing. They have very poor accessibility to infrastructural facilities and are deprived of basic amenities. Hence the government must undertake suitable reforms and make changes for improving the socio-economic conditions of women construction workers.

References

- Ahuja, D. V., & Kumari, M. S. (2008). Issues and Challenges for women in construction industry in Indian perspective. *Indian Journal of Economics and Development*, 45-56.

- Ahuja, D., & Kumari, M. (2012). Issues and challenges for women in construction industry: Global as well as Indian perspective. *Proceedings of the regional conference of the International Network of Women Engineers and Scientists (INWES)* (pp. 23-34). New Delhi: Women in Science and Engineering (WISE) India in association with International Network of women engineers and scientists (INWES).

- Gogoi, H. (2020). A study on the conditions of women construction workers in Guwahati. *International Journal of Research and Innovation in Social Science*, 45-50.

- Keerthana, M., & Singh, D. J. (2014). A Studyon problem faced by the women workers in the unorganised construction sector in Trichy District. *Indian Journal of Applied Research*, 221-223.
- Khan, J. H., Alam, P., & Ahmed, N. (2015). Socio-economic condition of construction workers: A Case study. *International Journal of Advanced Research* , 795-802.
- Kumar, D. (2013, April). Inimitable issues of construction workers- A Case Study. *British Journal of Economics, Finance and Management Sciences, 7*(2), 42-53.
- Manasi, S., Tantri, M. L., & Kambara, C. (2021). *Migrant construction workers and question of inclusiveness: A Case study of Bengaluru city.* Bangalore: Institute for Social and Economic Change.
- Maneesh, P., & Jasna, P. T. (2017). Socio-economic condition of women construction workers in Kannur district, Kerala. *Indian Journal of Economics and Development*, 1-11.
- Prasanna, P., & Bhardwaj, A. (2016). Socio-economic empowerment of women construction workers in Tamil Nadu. *International Journal of Current Engineering and Scientific Research*, 73-77.
- Rahul. (2014). Participation of the female workers in the construction industry in India: A Review. *Women in Management Review*, 1-13.
- Saini, A., & Sharma, K. (2020). Problems of female labourers in construction industry in India: A Review. *Shodh Sarita*, 88-93.
- Selvi, D. D., & Veilatchi, K. (2019). Problems of women construction workers in Kovilpatti. *Think India Journal*, 33-45.
- Tiwary, G., Gangopadhyay, P. K., & Mukherjee, S. (2012). Construction workers in India. *Indian Journal of occupational and environmental Medicine, 16*(2), 66-71.

A Study on Challenges and Opportunities of Crypto Currency in India:A Special Reference to Bitcoin

Hamsa. A
The National College
Basavanagudi
Bangalore – 560004

Ruchitha Shree M
The National College
Basavanagudi
Bangalore – 560004

Guide : Dr.Prathima PS, HoD, Department of Economics, The National College, Basavanagudi, Bangalore – 560004

Abstract

In recent years, cryptocurrencies and Bitcoin have become the buzzwords of the economic industry. A cryptocurrency is a digital or virtual currency used on the Internet that is secured by encryption. The economic market has seen tremendous shifts because of cryptocurrencies, both good and unfavorable changes. Although the idea of cryptocurrencies is a little challenging to grasp, they are quite simple to utilize. This is taken into consideration because it differs greatly from the traditional currency that we have been using for a very long time. After the global financial crisis of 2008, Bitcoin was developed to operate independently of governments, central banks, and traditional financial institutions. Since then, the structure of Bitcoin has presented a difficulty to numerous regulators, as most of them have struggled to find a way to cope with it. Because of this, some countries have banned it or made it illegal, while others have remained cautious, and the others are looking for ways to tax and control its activities. This concept paper aims to examine the distinctive characteristics of cryptocurrencies, starting with their history, types, functionalities, benefits and drawbacks, challenges, and opportunities. The study additionally tries to research the legal reputation of Bitcoin in India.

Keywords: *Cryptocurrency, Bitcoin, financial institutions Challenges, Opportunities, legal reputation.*

1. Introduction

Cryptocurrency is a digital asset. The title originates from the reality that all of its transactions are extremely encrypted, making the exchanges tremendously secure. It is decentralised in nature, in contrast to usual currencies, which are managed and managed by means of a central authority. A cryptocurrency is finite in quantity and at instances equated to treasured metals like gold and silver. Cryptocurrency is created via mining, which is a technique of very complicated issues being solved via effective computers, commonly as a reward for making profitable cryptocurrency transactions. In different words, the change of cryptocurrency regularly results in extra cryptocurrency being delivered in the world. Many cryptocurrencies use blockchain for managing and recording transactions, whereby more than one entity keeps the same transaction records, making it an extraordinarily impenetrable science for your investments.

1.1 History of cryptocurrencies in India

- Crypto-currency in 1998, Wei Dai published a description of “B-Money " , an anonymous, distributed Electronic Cash system. Nick Szabo created “bit gold” like “bitcoin” and other crypto currencies.
- Crypto currency has been predicted as the future of currency with bitcoin becoming more popular than other crypto currencies. Crypto currency is any form of currency that exists digitally or virtually. As a digital payment system, its transactions are secured by cryptography. They are run on a public ledge called ‘Blockchain’
- Cryptocurrencies commenced its ride in 2008 after a paper titled “Bitcoin: A Peer-to-Peer Electronic Cash System” used to be published. Two years later, the first sale of an object the usage of Bitcoin took region with anyone swapping 10,000 Bitcoins for two pizzas, pronounced moneycontrol.com. After this, different cryptocurrencies additionally commenced popping up.
- The first crypto currency to capture the public imagination was ‘bitcoin’, which was launched in 2009 by an individual or group under the pseudonym SATOSHI NAKAMOTO.
- In 2013, the Reserve Bank of India (RBI) issued the first round related to cryptocurrencies. The RBI advised the users, holders, and merchants of Virtual Currencies (VCs), which includes Bitcoins, about the plausible financial, operational, legal, consumer safety and protection associated risks.

- A year after demonetisation, as the crypto market was once developing swiftly in India, a warning clarifying that digital currencies are no longer a felony smooth used to be issued by way of the RBI and the finance ministry by means of the quit of 2017.
- In 2018, RBI got here out with a round restraining banks and different price structures from dealing with digital currencies.
- n 1 November 2018, Nischal Shetty, Founder of WazirX, started out the #IndiaWantsCrypto marketing campaign for the fine law of crypto in India
- In March 2020, the Supreme Court struck down the crypto banking ban declaring the RBI round unconstitutional.
- On January 29, 2021, the authorities introduced an invoice to create a sovereign digital foreign money and as a result put a blanket ban on non-public cryptocurrencies. In November 2021 it was once determined via the authorities that cryptocurrencies ought to no longer be banned however regulated.
- During the annual finances in 2022, Union Finance Minister Nirmala Sitharaman had stated the authorities would tax positive factors made via cryptocurrency investments at 30 per cent. But India has nevertheless now not given the measure felony status.
- On May 30, a authorities reputable stated that the authorities are geared up with its session paper on cryptocurrencies.

1.2 Legal bitcoin reputation in India

Bitcoins are 100% legal in India. As of April 2022, there are no clear laws and regulations to regulate Bitcoin, but the government has imposed a fixed crypto tax of 30% on income transferred from cryptocurrencies to India, as well as a withholding tax from 1% (TDS) on all transactions.

What is the legal procedure to buy Bitcoin in India?

- The first step is to register with a trusted cryptocurrency exchange. This is the most important step as you need to choose the most trusted and reliable cryptocurrency trading platform for safe and secure transactions. WazirX is one of the trusted cryptocurrency exchange platforms.
- After registration you must verify your KYC by submitting legal documents like pan card, Aadhaar card etc. Again, it is recommended to choose an exchange with proper KYC and AML procedures to ensure 100% legal compliance.

- Add your bank details and UPI to the cryptocurrency exchange and wait for all the verifications to be completed.
- Finally, you can deposit money into your trading account through your bank and use it to buy bitcoins on cryptocurrency exchanges.

2. Objectives of the Study

1. To understand the functionalities of Cryptocurrency with special reference to Bitcoin.
2. Benefits and Drawbacks of Cryptocurrency with special reference to Bitcoin.
3. Challenges and Opportunities of Cryptocurrency with special reference to Bitcoin.

3. Review of Literature

In their book "Bitcoin and the Future of Cryptocurrency" (2019), Rahman and Dawood emphasized cryptocurrency as a creative and technically advanced alternative to globalisation. It looked into the possibility of a new method for processing payments across borders, and if properly regulated, cryptocurrency could solve many of the current financial problems.

In his article titled "Bitcoin as Emerging Virtual Currency and Its Related Impact on India," which was published in 2017, C.A. (Dr.) Pramod Kumar Pandey emphasised both the high risk and the high returns. He thought that because bitcoins are not backed by anything, investing in them would be like jumping into a dark well without knowing how deep it is.

Establishing it as a commodity or currency would be one of the challenges that would need to be overcome. On the off chance that this is laid out as a cash, most likely RBI will assume a main part in its guideline, while on the off chance that this is an item, SEBI will start guidelines.

In his Bitcoin and Its Prospects in India study from 2017, Komal Dhande focuses on the remarkable growth in the acceptance of cryptocurrencies, but he does not anticipate that they will ever completely replace paper currencies. The issue is how to structure it so that users and law enforcement agencies can both guarantee transaction security and figure out how to charge cryptocurrency taxes. There has been a lot of interest in bitcoins due to their rapid growth, but the high level of risk keeps investors from investing. Even though the study shows that people like virtual currencies, investors in India need a good legal and regulatory framework to trust them.

In her 2017 book CRYPTOCURRENCY-SCOPE IN INDIA, Dr. Vijeta Banwari talks about how money has changed and how it works. Despite their high-risk factor, cryptocurrencies are gaining

popularity and will be difficult for the government to regulate. More than 30 new exchanges have applied for membership in the last two months, according to the Blockchain Foundation of India, a lobby of approximately 45 crypto dealers. 2018 (The Print).Blockchain has a lot of potential to make data storage better. In spite of the prohibition on cryptocurrencies, various government agencies (Andhra Pradesh, Maharashtra, and so on) have adopted the blockchain. In the future, markets may emerge over the counter rather than banks to process transactions.

In his book The Growth of Cryptocurrency in India (2018), Shailak Jaini focuses on topics like the impact of cryptocurrencies on India and the opportunities that come with them. Additionally, it discusses the various aspects of other nations' laws and regulations regarding the introduction of cryptocurrencies. In his Model draft regulation on Cryptocurrencies in India (2018), Rahul J. Nikam focuses on how India should begin to take firm decisions and regulate cryptocurrency trading. He also discusses how the Reserve Bank of India should be more open to the idea of cryptocurrencies and understand the value and opportunities that come with them. In their article titled "Legal acceptance of bitcoin in India," Gunjan Jindal and Sheza Azeen (2018) discuss how bitcoin contributes significantly to the nation's growth rate and how this would not be possible unless the government pushes for the legalisation of transactions and imposes regulations on them.

Neil Shroff and Padma Venkataraman(2017) in their paper, try to set out an authoritative framework for Blockchain Convention Tokens, tending to both ICO Tokens and Digital currency. They describe three broad categories of tokens, further subdivided into five types based on their tendency, as well as the risks that both purchasers and controllers face. At that point, they suggested one of two approaches to administration: strict compliance with existing laws or increased compliance with rules, depending on the token's capacity and purpose. We have tried to maintain the anticipated motivations for various ICO Tokens while establishing consistent requirements in accordance with existing laws, such as Securities Regulations, Tax Laws, Companies Law, and KYC standards ("KYC/AML/CFT").

In his project, M Trivedi (2018) discusses the advantages, disadvantages, opportunities, and threats of cryptocurrency as well as its expansion into India. For a considerable amount of time, cryptographic forms of money have been regarded as profitable pursuits. due to the numerous attractions, it offers: Easy access, no middleman, quick payments, low exchange fees, and security of information are all features. Nevertheless, there are a few drawbacks to cryptographic forms of money as well. Information and digital currency security have been major concerns.

According to Rehman and AK Dawood's (2013) project, many of our daily activities have become more flexible and efficient because of the rapid development of information and communication technologies. Virtual Word concepts have been activated, and a new business phenomenon has emerged: a cryptocurrency designed to facilitate financial transactions like buying, selling, and trading. Important and intangible assets are represented by cryptocurrency, which is used electronically in a variety of applications and networks, including peer-to-peer networks, virtual worlds, online social networks, and online social games. In recent years, a wide range of systems have adopted virtual currency as their primary payment method. The goal of this paper is to meet the user's expectations for the cryptocurrency industry's future.

4. Research Methodology

In this study, the authors used secondary data.

Data was collected through various articles, magazines, and websites, including the official RBI and Trade records websites. A descriptive survey was used in this study. To achieve the goals of this research project.

The authors used qualitative data to explore and analyse the impact of cryptocurrency legalisation on the people and economy of India. Comparisons with other countries and the results they saw were made. The demographic limitation of this study is India. The authors sought to fill research gaps by analysing the secondary data collected.

4.1 Research Instruments

Secondary subjects include magazines, newspapers, books, periodicals, etc. This can be published data or unpublished data. Published data are available from a variety of sources, including,

- Printed publications.
- Public records
- Historical and statistical records
- Trade records
- Technical and trade journals

5. Types of Cryptocurrencies

Crypto currency is designed to work as a medium of exchange. The number of crypto currencies available over the internet is over 1600 and growing. A new Crypto currency can be created at any time. Many people today want to own digital currencies due to their advantages over traditional fiat currency. As per the latest data, there are about 21,000 crypto currencies listed by the crypto currency data authority. By market capitalization, Bitcoin is currently the largest blockchain network, followed by ripple, ethereum and litecoin. Other than Bitcoin there are other crypto currencies, which referred to as 'Altcoins' , such as Ethereal, Solana, Texas, Dogecoin, Litecoin, Carano and so on.

1. Bitcoin: It is a type of digital currency created for use in peer-to-peer online transactions. It was introduced as a solution to the global financial crisis of 2008. One Of the most known currencies, Bitcoin is considered an original cryptocurrency.

2. Ethereum: It is the second most famous name in the virtual currency market. It is somewhat like the concept of bitcoins but however it possesses some of the additional attributes.

3. Ripple: Ripple is more in the nature of payment protocol created and developed by a company named Ripple, which is based on the concept of real time gross settlement.

4. Litecoin: Initially litecoin was introduced during the year 2011. Litecoin(LTC) is mostly identical to Bitcoin.

5.1. How did Crypto Currency get its value?

The price of a single Bitcoin has seen a massive increase since the cryptocurrency was first introduced in 2008 — with big ups and downs along the way. It climbed to an all-time high of around $60,000 in April, and has continued fluctuating since.

Despite the volatility, Bitcoin continues to draw interest from investors for its long-term record of building and maintaining value. Whereas, One can argue that Bitcoin's value is similar to that of precious metals. Both are limited in quantity and have select use cases. Precious metals like gold are used in industrial applications, while Bitcoin's underlying technology, the blockchain, has some applications across the financial services industries. Bitcoin's digital provenance means that it might even serve as a medium for retail transactions one day.

Many people purchase Bitcoin for its investment value rather than its ability to act as a medium of exchange. Bitcoin has several risks too. There is a lack of uniform regulators, the security risk is high since all the transactions are digital and are thus susceptible to hacking; they're not insured as well; the market risk is high too.

But, Bitcoin derives its value in the same way any currency does: by fulfilling the six characteristics of money. Those characteristics are durability, portability, divisibility, fungibility, scarcity, and acceptability. Bitcoin's main source of value is its restricted supply and increasing demand. No single entity can make decisions on everyone's behalf.

Bitcoin has value for the same reasons as any other money does.

- Durability - Produce makes for poor money because it spoils. Gold, on the other hand, doesn't rust or otherwise decay.
- Portability - Cash is easy to carry, but gold can be physically taxing to transport in large amounts. It's hard to trade when you must hire an army just to pay your bills.
- Divisibility - U.S. dollars can be broken down into cents for small purchases.
- Fungibility - A dollar is a dollar, but one barrel of apples could vary significantly in quality and quantity from another barrel. If a currency isn't fungible, every transaction requires an audit.
- Scarcity - The easier it is to find or create a good, the less value it has. Money needs to have a limited supply to ensure that its purchasing power will remain stable.
- Acceptability - If money fulfils the first five criteria, the more likely it is that people will use it. The more people that adopt a currency, the easier it will be to spend.

5.2. Functionalities of Bitcoin

- Each bitcoin is a digital asset that can be stored on a cryptocurrency exchange or digital wallet. Each individual coin represents the value of the current Bitcoin price, but you can also own partial shares of each coin. The minimum value of each bitcoin is named after Satoshi Nakamoto, the same name as the creator of bitcoin. Each satoshi is worth one billionth of a bitcoin, so owning a few bitcoins is very common.

- **Blockchain**: Bitcoin runs on open-source code called the blockchain, which creates a shared public transaction history organised into "blocks" that are linked together to prevent tampering. The blockchain is a shared public ledger on which the entire Bitcoin network is based. All confirmed transactions are included in the blockchain. It allows Bitcoin wallets to calculate their spending balances to verify new transactions and make sure they really belong to the user. Cryptography enforces the integrity and chronological order of the blockchain.
- **Private and Public Keys**: Bitcoin wallets contain a public key and a private key that work together to allow the owner to initiate and digitally sign transactions. This unlocks Bitcoin's core functionality: the secure transfer of ownership from one user to another. Transactions are transfers of value between existing bitcoin wallets on the blockchain. Bitcoin wallets contain a secret piece of data called a private key, or seed, which is used to sign transactions, providing mathematical proof that they come from the owner of the wallet. Signatures also prevent anyone from altering transactions once they are published. All transactions are broadcast to the network and confirmation begins, typically within 10-20 minutes, through a process called mining.
- **Bitcoin Mining**: Users of the Bitcoin network verify transactions through a process called mining, which aims to confirm that new transactions match other transactions made in the past. This ensures that you can't spend bitcoins you don't own or haven't used. Mining is a distributed consensus system used to confirm pending transactions by including them in the blockchain. It drives chronological order in the blockchain, protects net neutrality, and allows different computers to agree on system state. To be confirmed, transactions must be grouped into a block that meets very strict cryptographic rules that will be verified by the network. These rules prevent previous blocks from being modified, as this would invalidate all subsequent blocks. Mining also creates the equivalent of a lottery, preventing anyone from easily adding new blocks to the blockchain. That way, no group or individual can control what's on the blockchain or replace parts of the blockchain to reduce their own expenses.

5.3. Benefits of cryptocurrency with special reference to bitcoin

1. Potential for Big Returns

There is no doubt that cryptocurrencies provide great returns when you invest in good projects. When you are a teenager, it is very important that you read a little about the currencies you want to invest in. With cryptocurrencies becoming the talk of the town, people have doubled and tripled their money effortlessly. Many of them say that investing in cryptocurrency is like investing in gambling. Well, we disagree. It is true that the risks may be similar, but each token has a benefit that makes it important. And we already know that the greater the potential of the project, the higher the price. Aside from the pros and cons of cryptocurrencies, the bull market is what makes cryptocurrencies so special.

2. Get Paid for Anything, Anywhere

anytime, anywhere if you hire a web designer for your website or a ghost-writer to complete your novel. When you make/accept international payments, payments are simple, fast, and hassle-free. Transfer (global transfers) becomes very easy if done in a cryptocurrency. Recipients typically need to wait at least -5 days after making a global transfer for the funds to reflect in their account. But in the case of cryptocurrencies, let's say if the payment is made through Bitcoin, the transfer takes only a few seconds.

3. Designed to Cut Out Middlemen Completely

Every time you transfer money, you must pay fees to middlemen such as banks, markets, etc. But when you deal with cryptocurrencies, you don't pay any payment fees. There are ways to make payments without paying a processing fee. The feature to completely remove builds is not the only advantage. We mean, it's always faster and better to talk directly to someone you like than ask a friend for help, right? Imagine how much fun it would be if us teenagers could use cryptocurrency as easily as UPI, cool, wow! very simple We really look forward to those days.

4. Safe and Secure Payment Methods

Cryptocurrencies are as safe, and password protected as today's teenagers keeping their phones . No one can open it unless you give them your private key. Cryptocurrencies come with a wallet or account address that only you can access. No one can cheat and steal your chips so easily. organisations widely use cryptocurrency to pay for orders. Money transfers are very secure and can be done at minimal cost. The advantages and disadvantages of cryptocurrencies should be discussed when discussing security reasons, while some believe that they bring more security, while others believe that cryptocurrencies remove the security of the state or the individual from status due to the anonymous payment system.

5. Growing Acceptance and Investment

Cryptocurrencies are used at least 5 times more today than in 2 years. As crypto advances, people realise that this is the future. Recently, your favourite restaurants like Burger King, Starbucks, etc. have started accepting cryptocurrencies. In fact, you will be surprised to know that there is even an ATM that allows you to withdraw cash using Bitcoin. Cryptocurrencies have been marked as more powerful than fiat currencies. In simple terms, the money in your bank account will decrease (decrease) in value year after year. However, if you have the same amount of money, it fights inflation and grows day by day. Suppose 10 rupees is worth more than it is worth now. At that time, you could buy something for 10 rupees, today it is 20-30 rupees. But if you keep this amount in any cryptocurrency like BTC, the value will increase and now it becomes 10 rupees, 20 rupees or 30 rupees. (This means we can buy three times more than a year ago).

5.4 Drawbacks of cryptocurrency with special reference to bitcoin

1. High volatility and huge losses

This is a common factor for and against cryptocurrencies. Although there are great opportunities for high returns, high risks cannot be ignored. Cryptocurrency is decentralised, which means we are responsible for pumping and dumping it. So, we shouldn't be surprised when we wake up on a sunny day to find INR 500 converted to INR

300 or even INR 250. It's just coding to play. In general, encryption will always be beneficial. We must pay close attention when buying and selling cryptocurrencies.

2. High potential for misuse

The fact that we have control over cryptocurrency makes it unsupported and unregulated means that the potential for it to be used for criminal purposes is very high. A lot of illegal activities were done with Bitcoin in the past, because we don't need any identification to transfer money using cryptocurrency. Cryptography is also vulnerable to cyberattacks, meaning that if a hacker is strong enough to gain access to your private keys, we could end up losing all your tokens.

3. Limited acceptance and refund

The acceptance of cryptographic payments is growing, but currently very limited. We live in India, not all payments can be made using cryptocurrencies. People are still getting used to the idea of cryptocurrency. Even today, we won't find that everyone fully supports the idea of digital currency. Not to mention that we won't be able to get refunds in cryptocurrencies mainly due to high price fluctuations. Therefore, if we paid in cryptocurrency, we cannot get a refund in the same cryptocurrency.

4. Chances of losing your virtual wallet

It doesn't always happen, especially now that India has so many apps where people can create their own wallets. But if we use a decentralised wallet, we must remember your private key at all costs. If you forget your private key, we probably won't be able to keep our funds. But if we are using a centralised wallet like wazirx, zebpay, coin switch etc then we can login to your account just by entering our phone number. While we strongly believe that there is no chance that a cryptocurrency will lose all of its value and become worthless, it is possible. Because? Perhaps if institutions start to withdraw from cryptocurrency projects that are good for institutional use, demand is likely to decrease significantly, and of course the price of cryptocurrency will decrease as well or if future companies find something more exciting than crypto and decide to pivot in that direction,

digital tokens lose all value. But like we said, we don't expect that to happen anytime soon because crypto is just the tip of the iceberg at this point.

5.6. The cryptocurrency Challenges.

1. Cryptocurrencies were hailed as the future of finance, but it wasn't until 2020 that traditionally conservative and risk-averse institutions became an active asset class and witnessed a large price fluctuation. Cryptocurrencies and blockchain technology are often described as major challenges to today's financial system, promising to combat corporate bureaucracy, increase financial inclusion, and create a fairer and more transparent economy.
2. Cryptocurrencies are qualitatively different and cannot be exchanged. An incredible range of cryptocurrencies in terms of security, programmability, and governance capabilities. Adding to the complexity are cryptocurrencies such as "stablecoins" whose value is tied to fiat currencies.
3. One of the first steps in managing the risk of any financial instrument is to quantify the exposure using standard market-level approaches. But cryptocurrencies are different; There is no uniform and widely accepted rating methodology, and reported pricing information may vary by location. To determine the fair value of cryptocurrencies, risk managers must understand the widespread use of complex and sometimes inconsistent valuation methods.
4. Unlike financial instruments, cryptocurrencies are not regulated products and do not benefit from the standard legal protections afforded to traded financial instruments. This creates complex legal risks and creates uncertainties that can affect the investment and risk management of these digital assets.
5. In fact, modelling and forecasting these digital assets is like a guessing game because we are far from a consensus on the prices, returns or equilibrium generating functions of cryptocurrencies. This is why many risk managers turn to statistical tools to model their exposure to cryptocurrencies and identify what factors can be found in price, risk and trading patterns.
6. Cryptocurrency markets are generally less liquid and more expensive than traditional markets. The cryptocurrency market is likely to continue to struggle with limited liquidity and high volatility, making effective price detection difficult.

7. Cryptocurrency corporate custody solutions are both legally and technically complex. Part of the complexity is due to the encryption of the public and private keys that the system uses to cryptographically track and verify transactions.
8. Crypto's "safe haven" properties are not checked. From 2010 to 2022, 27 bitcoins experienced a decline of 25% or more.
9. Despite the hype surrounding digital gold, cryptocurrencies have failed to display "safe haven" properties, combat inflation in the face of real market volatility, or the first truly severe inflation in developed markets. Cryptocurrency
10. Goes against ESG goals i.e. From the environmental, social and management perspective.
11. The biggest problem in the cryptocurrency market right now is the lack of security.

6. Finding (future of cryptocurrency in India) - <u>Introduction to e-rupee</u>

6.1. What is the CBDC or country wide virtual forex?

A valuable bank digital currency (CBDC), or country wide virtual foreign money, is the digital form of a country's fiat currency. Instead of printing paper currency or minting coins, the critical bank issues electronic tokens. This token fee is sponsored by way of the entire religion and credit score of the authorities.

6.1.1 Running of e-RUPI:

e-RUPI is a cashless and contactless virtual payment medium, with a purpose to be delivered to mobile telephones of beneficiaries in shape of an SMS-string or a QR code. This can essentially be like a pay as you go present-voucher that can be redeemable at precise accepting centres without any credit score or debit card, a cell app or internet banking.

e-RUPI will connect the sponsors of the offerings with the beneficiaries and service carriers in a virtual manner without any physical interface. It is vital to note, however, that e-RUPI is neither a cryptocurrency nor an imperative bank virtual foreign money (CBDC). it is also not a virtual or e-wallet both, which might also admittedly sound peculiar to some.

6.1.2 Need for a CBDC:

The boom of cryptocurrencies which includes Bitcoin, Ethereum and so on has raised demanding situations to fiat currencies. At the side of their different vulnerabilities made the critical financial institution of every use discover the possibility of introducing their very own digital currencies.

A 2021 BIS survey of important banks, which determined that 86% had been actively gaining knowledge of the capability for such currencies, 60% have been experimenting with the era, and 14% were deploying pilot projects. The want for inter-financial institution agreement could disappear as it might be a primary bank liability surpassed over from one individual to every other.

6.1.3. India future in virtual currency:

Consistent with the RBI, there are at least 4 motives because virtual currencies are anticipated to do properly in India:

1. There's growing penetration of virtual payments in the country that exists along a sustained hobby in cash utilisation, particularly for small cost transactions.
2. India’s excessive foreign money to GDP ratio, in line with the RBI, “holds out every other benefit of CBDCs”.
3. The spread of private virtual currencies such as Bitcoin and Ethereum can be yet another reason why CBDCs grow to be vital from the factor of view of the principal financial institution.
4. Important bank digital foreign money (CBDC) may also cushion most people in an environment of risky non-public VCs.

6.1.4. Significance of e-RUPI and how is it distinct than a digital forex:

The government is already running on developing a primary bank digital forex and the release of e-RUPI may want to doubtlessly highlight the gaps in digital bills infrastructure with a view to be necessary for the fulfilment of the future virtual forex.

In impact, e-RUPI is still sponsored by way of the prevailing Indian rupee as the underlying asset and specificity of its motive makes it one of a kind to a virtual currency and places it toward a voucher-based totally fee gadget. Also, the ubiquitousness of e-RUPI inside the destiny will rely

upon the end-use instances. Even the personal area can leverage these digital vouchers as part of their worker welfare and company social responsibility programs.

7. Conclusion

The cryptocurrencies are a warm subject matter within the worldwide monetary device. There may be splendid volatility of cryptocurrencies trade prices. With this, there may be an excessive chance of buying and selling these cryptocurrencies. Their Growth has been able to advantage the eye of many speculators. they're effortlessly transportable. It's miles most effective after the required trust within the cryptocurrencies after which they may be used on a wider scale. If the cryptocurrencies fail to benefit that accept as true with, then their growth may decline. they are nonetheless in their infancy, and it's not certain as to whilst they may be maturely traded within the markets globally. Many different cryptocurrencies have received the desired attention. Some nations have started out to issue national cryptocurrencies. It is possible that shortly, bitcoins would possibly have a manner of cryptocurrencies to flourish. Despite the failings, bitcoins are still considered excursion-de-force in the digital currency. It has supplied an opportunity foreign money for the much less advanced international locations and has opened the doors of economic transformation. In this way, it offers the individuals greater alternatives to control their finances. without regard to bitcoins conducting the lofty variations, the cryptocurrencies are seen to be getting into the economic degree and changing the worldwide monetary landscape for all time.

8. Suggestions

The recent budget also clarified the Indian government's stance on digital assets, making them less likely to be banned in the future. Even a 30% tax doesn't seem to be much of a deterrent, as many people are making exorbitant profits from trading cryptocurrencies. But does this mean that we should start making the same investments right away?

As with any form of investment, before you invest your money, you first need to understand what you are going to invest in.

References

- https://www.insightsonindia.com/2022/11/16/sansad-tv-perspective-e-rupi-digital-currency-push/
- https://www.coursehero.com/file/p2ml915/Conclusion-The-cryptocurrencies-are-a-hot-topic-in-the-global-financial-system/
- https://www.motilaloswal.com/blog-details/top-tips-to-know-before-starting-cryptocurrency-trading/20537
- https://indiacsr.in/what-is-the-future-of-cryptocurrency-in-india/
- https://www.vifindia.org/article/2022/august/25/cryptocurrency-and-the-regulatory-challenges
- https://time.com/nextadvisor/investing/cryptocurrency/future-of-cryptocurrency/

Gender Discrimination in Higher Education in India

Aakashleena
University of Hyderabad

Abstract

Education is one of the key drivers of human capital development and hence the economic growth of a country. Starting from primary education enrollment till access to higher education entails the action path for human resource development. Higher education demography speaks a volume about the potential to be unlocked and portrays persistent discrimination. Aggregated metrics like the Gender Parity Index (GPI), Gross Enrolment Ratio(GER) mute the intricacies of understanding gender discrimination in higher education.

Added to the lacuna in such statistical indexes the current challenge to female higher education ismultifaceted. These include household attitudes toward education of girls, child marriage and falling Female Labor Force Participation Rate (FLFPR). These challenges are interconnected andshould be overcome to attain several targets that constitute Sustainable Development Goals (SDGs). We must guarantee "Quality, Equity and Inclusion" in addition to access to higher education. To ensure these objectives are achieved as a part of SDG-4, the social context of education for women and the purpose of their education should be reoriented: for its intrinsic value and as an instrument to attain future employment.

This reorientation will also lead to an increase in the following aspects: expected returns to female education, which would act as an incentive to invest in female higher education and as a disincentive for child marriage, FLFPR, the quality of education, and female enrolment in fields is considered "masculine." The increased FLFPR would reduce the time spent on unpaid activities. These steps could act as a foundation to achieve Gender Equality as envisaged in SDG-5.

Coming towards certain findings of the paper; the initial step in resolving the issue might be a bottom-up strategy that encourages female students to enroll in engineering and technology or law, in addition to the current top-down strategy of creating supernumerary seats. We also see how "time used" is a symptom of deep-rooted gender discrimination. As the differences in time use between men and women decreased, GPI increased. Through this paper, an attempt has been made to bring into literature the much-ignored aspect of "time" as a key indicator of Gender Discrimination. One of the intriguing anecdotes is the higher effectiveness of women's higher education cost reducing policies over Conditional Cash Transfers (CCTs).

Future research on this topic focusing on the relationships between FLFPR, the nature of female employment and the effects of these factors on women's higher education will provide deeper insights into the issue. This will further explain the low presence of women in professional courses (except in Medicine).

Keywords: *Gender Discrimination, GPI, Gross Enrolment Ratio, Time Use Survey, CCTs*

1. Introduction:

"If you educate a man, you educate one person. If you educate a woman, you educate a nation."
- Brigham Young

Education gives a passport to a golden future for an individual as well as fueling the economic development of a nation. The dismal scenario of educational disparity between genders has been a harsh truth since long ago. Female literacy rate in 1951 was less than 9%. The ratio of female to male students was 12 to 100 when it came to institutes of general education and universities.

(Chanana, 2022). Since Independence, there has been an increase in the percentage of women in higher education. By 1988-89, women enrolled in higher education rose to 31%. This figure hides the distribution of women in higher education space. Women's enrolment share was 44% in B.Ed./BT and just 8% in B.E/B.Arch. in 1988-89 (EPWRF India Time Series).

Post-liberalization, there has been an increase in enrolment of women in higher education with a reduction in gender disparities in distribution. For example, the percentage of female students in Engineering/B.Arch. increased to 29% in the year 2009-10 from just 8% during 1988-89 (EPWRF India Time Series). Female Gross Enrolment Ratio (GER) and Gender Parity Index (GPI) increased from 20.1 to 27.3 and 0.89 to 1.05 between 2012-13 and 2019-20 respectively, showing significant progress in higher education.

GPI trend as above does carries within inherent bias. GPI hides the following information: the distribution of students across disciplines, the educational expenditure spent on girls by their families, the time spent on education by the students and the nature of institutions the students get enrolled.

Complementing the methodological shortcomings are the added burden of household attitudes toward education of girls, vice of child marriage and falling Female Labor Force Participation Rate (FLFPR). These challenges are interconnected and should be overcome to attain several targets that constitute SDGs. We must ensure "Quality, Equity and Inclusion" in addition to access to higher education. To achieve these objectives as a part of SDG-4, the social context of education for women and the purpose of their education should be focused.

This reorientation will also lead to increased expected returns to female education, which wouldact as an incentive to invest in female higher education and as a disincentive for child marriage, FLFPR, the quality of education, and female enrolment in fields considered "masculine." The increased FLFPR would reduce the time spent on unpaid activities. These steps would be conducive to attaining Gender Equality as envisaged in SDG-5.

This paper attempts to elucidate gender discrimination in higher education in India by utilizing reports of "All India Survey of Higher Education" (AISHE), NIRF between 2012-13 and 2019-2020, and “Time Use Survey (TUS)” 2019 conducted by the NSO. To determine the distribution of women in the various cohorts of higher education, the intricacies of GERs, GPIs, FLFPRs, and state-specific policies are examined. Furthermore, we try to suggest certain policy measures as a way forward.

2. Literature Review:

Disparities in Education Expenditure:

Choudhury et al., using NSSO data shows that the probability of accessing Private Coaching during Higher Education increases if one is male by 2.2% (2021). The amount expended is 16.3% more for males than for females.

Kambhampati using data from NSS finds that a significantly higher number of boys incurred transportation costs compared to girls and that a higher percentage of boys attend private schools than girls (2008).

Saha using data from NSS finds that there is a pro-male bias in the household expenditure on education across all the states. The bias is the least among Scheduled Tribes followed by Scheduled Castes. Extreme gender discrimination is found to be present in the states of Bihar, Rajasthan, Uttar Pradesh, and Madhya Pradesh (2013).

Segregation in Higher Education in India:

Smith suggests "Critical Mass Model" as a possible explanation for the lower numbers of female students opting for Physics and Engineering when studying the gendered participation in STEM subjects in higher education in the United Kingdom (2011).

Amirtham S and Amardeep Kumar reveal that GPI is very low for Engineering and Technology especially in Mechanical, Civil and Electrical Engineering. The explanation is given in terms of the decision making at the family level (2021).

Data:

We use data from the annual AISHE and NIRF reports between 2012–13 and 2019–20, respectively, on enrollments and the proportion of female students in various institutions. The data regarding time spent on various activities is taken from TUS2019 conducted by NSO. Information regarding various government schemes to promote higher education has been taken from websites of the respective state governments.

Government Policies and Outcomes:

We now compare the government policies of the states with high female GER in higher education and the states with low female GER.

Among the states/UTs with high GER we have Goa, Kerala, Himachal Pradesh, Tamil Nadu and Delhi. These states have policies which either subsidize or provide higher education for free. These schemes are listed in the table:

State/UT	Scheme/Action	Impact
Goa	Bursary Scheme	Making higher educationalmost free of cost
	Fee waiver for SC/ST students at UG & PG level	
	Expansion of higher education institutions in rural areas	Enabling greater access
	Good transportation infrastructure	
Kerala	Vidya Samunnathi	Reduces the cost of higher education in general for a household
	Educational assistance under KCPR for SEBCs	
Tamil Nadu	Free Education scheme for BCs and MBCs	
	Financial grant to students from SC/ST/SCC communities studying in government and aided institutions who stay in paid institutional hostels	
Delhi	Merit cum Means linked financial assistance for pursuing higher education in state universities in Delhi	
	Beti Hai Anmol Yojana	Reduces the cost of school
Himachal Pradesh	Financial rewards for good attendance record	education thereby enabling. higher education

Conditional Cash Transfers (CCTs) like Jharkhand's Apni Beti Apna Dhan, Bihar's Mukhyamantri Kanya Utthan Yojana, and West Bengal's Kanyashree Prakalpa aim at encouraging girl child education and preventing child marriage. Low female GER in thesestates shows that these plans were not successful. Instead of funding education, CCTs are frequently utilized to marry off the girl children.

Thus, we establish that the policies which subsidize or provide higher education for free usually had a greater impact on improving GER than CCTs, which can easily be misused.

3. Conclusion:

Socio-cultural context creates and reinforces the gendered nature of higher educational institutions. The acute disparities in enrolment for Engineering and Technology offer a clear example. To break through the stereotypes, the number of female students and teachers in such fields should reach a "Critical Mass."

The initial step in resolving the issue might be a bottom-up strategy that encourages female students to enroll in engineering and technology or law, in addition to the current top-down strategy of creating supernumerary seats.

We have seen how time use is a symptom of deep-rooted gender discrimination. As the differences in time use between men and women decreased, GPI increased. Through this paper, an attempt has been made to bring into literature the much-ignored aspect of "time" as a key indicator of Gender Discrimination.

The schemes which reduce the cost of higher education work better than CCTs. Policies that increase the returns from educating girls beyond the secondary level tends to have the following effects: greater freedom in course selection, encouraging parents to invest in their education expenses and deterring parents from assigning girls to household chores.

Future research on this topic navigating the relationships between FLFPR, the nature of female employment and the effects of these factors on women's higher education will provide deeper insights into the issue.

4. References:

- Amirtham S, N., & Kumar, A. (2021). Gender parity in STEM Higher Education in India: A trend analysis. *International Journal of Science Education*, *43*(12), 1950–1964. https://doi.org/10.1080/09500693.2021.1946867

- Chanana, K. (2022). Social Change or Social Reform: Women, Education, and Family in Pre- Independence India. In C. C. Mukhopadhyay & S. C. Seymour (Eds.), *Women, education,and family structure in India*. essay, Routledge.

- Choudhury, P. K., Kumar, A., & Gill, A. S. (2021). Who all access private coaching in higher education and how much do they spend? evidence from India. *Journal of the Asia PacificEconomy*, 1–23. https://doi.org/10.1080/13547860.2021.1954302

- EPWRF India Time Series. Higher Education Statistics [Data file]. Retrieved 2022, from https://epwrfits.in/

- Kambhampati, Uma. (2008). Does household expenditure on education in India depend upon the returns to education?. https://www.researchgate.net/publication/23544401_Does_household_expenditure_on_education_in_India_depend_upon_the_returns_to_education

- National Statistical Office, Ministry of Statistics and Programme Implementation, Government of India. (2019). *Tie Use Survey*. Retrieved 2022, from https://www.mospi.gov.in/

- Saha, A. (2013). An assessment of gender discrimination in household expenditure on educationin India. *Oxford Development Studies*, *41*(2), 220–238. https://doi.org/10.1080/13600818.2013.786694

- Smith, E. (2011). Women into science and engineering? gendered participation in higher education stem subjects. *British Educational Research Journal*, *37*(6), 993–1014. https://doi.org/10.1080/01411926.2010.515019

Social Determinism of Development in Bihar

Dr. Ajay Kumar Mishra
Lalit Narayan Mithila University
Darbhanga

Dr. Shraddha Rishi
Magadh University
Bodhgaya

1. Abstract

The applicability of any development policy motivated by any approach is determined by the socio-economic and political milieu. The case of Bihar is interesting to examine the applicability of the neo-liberal phase of capitalism and democracy in a semi-feudalistic society. It is a novel investigation to study the existence of two diabolic and mutually contradictory ideologies of capitalism and feudalism. It presents an atypical scene. The possibility of capitalism-led feudalism is being investigated along with an attempt to develop an alternative way of development under capitalism itself. We must use an analytical approach of social determinism that synthesizes methods and insights derived from economics, political science, and sociology as conditioned by an understanding of history and philosophy.

Keywords: *Inequality, elitism, feudalism, utility, caste rivalry, discrimination, neoliberalism*

2. Introduction

The growth story of a country revolves around broadly depicted three scenarios. One scenarioshowed a peacock strutting in the centre with little birds scrambling for grain around it. The one who is in the centre of collected grain will benefit first thus creating inequality of opportunity to access the resources. The second scenario showed buffaloes wallowing in a pond while children waited outside. The buffaloes are the big leaders and experts on top, devising policies for the people. The children are waiting for improvements in their education, nutrition, and healthcare. The third scenario shows millions of little fireflies. As they rise together, they transform darkness into light. This is a picture of bottom-up growth and mass entrepreneurship (Maira 2020b).

The procedural setting of these scenarios depends on the socio-economic and political structure and Institutions and Policies in implementation. Economic reforms that sought to focus on policies but neglected institutions met with failure. The neo-classical approach failed to appreciate the policy and institutional environment under which savings, capital formation, and investment take place. Investment is not a function of savings and capital formulation alone but also depends on the institutional environment – things like property rights, macroeconomic management, and rule of law (Rasul &Eklabya Sharma 2014). Likewise, structural imperatives defined in terms of power relation and production relation in society decide the outcome of any institutional or policy-led intervention.

This article is a preliminary investigation to examine the forms and formulations of institutions and policies in the presence of the dichotomy of feudalistic society and the neo-liberal phase of capitalism in Bihar. Section II examines the idea of economic reforms based on the capitalistic proposition and its relational values for the institution and socio-political and economic structure. The study undertakes the superstructure, i.e., free-market economy, property rights, etc., level of the institution for present analysis to explain the required change in institution and policy. The paternalistic orientation of the compensation principle in new welfare economics is studied for its relevance in a socially and economically differentiated society. Section III analyses the prevalent structural issues of local elitism and feudalism under the neo-liberal phase of capitalism in Bihar. Section IV studies the tendency of patron-client relationships in major developmental theories. In these theories, technically backward and agricultural sectors are made subservient to the technically advanced and industrial sectors. Section V attempts to present an alternative empowering approach to development. The role of the state is also being analyzed in terms of developing the individual capacity to counterbalance neo-liberal policy influence. Finally, the conclusion follows that suggests equitable and participatory development is the way to let millions of fireflies rise together.

3. Institutions and Policies

The importance of institutions has been well acknowledged in the diversity and dichotomy of economic growth and development experiences across countries. It would be a great mistake to take reform to be some means-centred, goal-independent institutional requirement that must be pursued without asking any questions about how that institutional demand would influence the lives of the people that are involved (Sen 2005). Differences in the nature and quality of institutions across countries give rise to the possibility that the same policy may have different effects in different countries. Institutions are defined as the rules of the game –both the formal (constitution, laws, rules) and informal (norms, conventions, codes of conduct) and organisations and their entrepreneurs as 'players'. Institutions signal the structural constraints in societal interactions. These interactions cover socio-economic, political, and cultural aspects (p 2343, Virmani 2005). Thus, institutions are endogenous and emerge because of +societal interaction. Neo-classical theory based on marginal productivity does not advocate for institutions as it supposes that each agent is getting what she is contributing to a competitive market. It held that a society's institutions are simply a facade; economic behaviour is driven by the underlying laws of demand and supply (Stiglitz 2016).

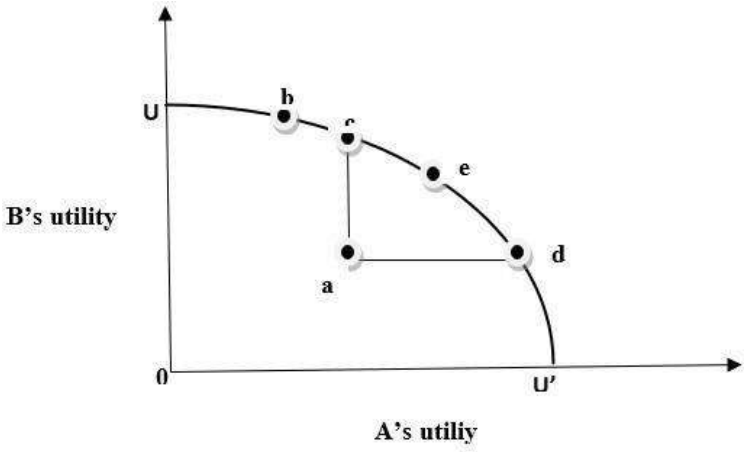
In the aftermath of the Asian financial crisis, neo-liberalism bridging pristine neoclassical economics led to the emergence of new institutional economics and a new political economy. In the post-Washington consensus, the role of the state is to create the right investment climate for private capital by protecting private property rights and ensuring the rule of law. It should be anti-corruption and a pro-democracy regime (Gupta 2010). It was a great departure from the supposition of the institution as a facade in a neoclassical view to recognition of the Institution as an entity even as a subsidiary entity of the free market. Inequality is a social phenomenon driven by human institutions. Institutional change, in turn, reflects the ideology that dominates society. Inequality is neither economic or technological, it is ideological and political (Krugman 2020).

However, as a subsidiary of a market economy, the state was supposed to act as a police state to ensure rule of law and protect private property. This mediaeval connotation of the police state has impacted the present-day neo-liberal propositions, that replace landed aristocracy with the protection of private property, the sovereignty of Christian doctrine with the sovereignty of free market, the conception of the minority of nobility and knighthood with inequality as an

instrument of investment and the conception of centralized governance of Kings with corporate governance varying to promote narrowly defined corporate interest.

Democracy is prone to be converted into a majoritarian one under first past the post electoral system. Political parties *in the race to capture the seat of power and authority* (italics added) have increasingly tended to fix the voters in social silos, rather than help them redefine their affiliations and connect to the wider social ensemble. Redistribution of resources and opportunities has been lost in the endless litany of promises of goods and bounties (Rodrigues 2019). The majoritarian democracy and Keynesian welfare state have legitimized the practices of neo-liberalism and gave a new lease of life to capitalism and *neoliberalism* (p8, Schmidt,

Drags back and Jacques Hersh 2000). The Keynesian welfare state has two limitations; first, the legitimacy of the Nation-state comes into crisis amid the growing prevalence of finance capital, and second, its functioning leads to growing inequality as it relies on fiscal deficit andtaxation to finance the deficit (Patnaik 2006). Moreover, the concept of the welfare state owesits origin to mediaeval conservatism where the existing order based on loyalty and philanthropyshould be protected and preserved to ensure the exploitation of common people peacefully andsmoothly. The functioning of the welfare state under majoritarian democracy establishes the patron-client relationship with a greater degree of legitimacy and stability. The limitation of the institution of the welfare state under the neo-liberal policy can be presented by the KaldorHicks compensation principle of new welfare economics.



The traditional utility possibility curve shows the competitive utility of two individuals, A and B. In a society that is ridden with class and identity prejudices, these individuals can be categorised into rich and poor to make the discussion simple. A change in policy that signals redistribution or reallocation is to pass through the interest of competing individuals. Suppose individuals B and A are rich and poor respectively. Initially, the utility of both is within UU'. A policy change that benefits B occurs, and it readjusts the position of the utility of both. Now

at position "b" the utility of B increases and that of A diminishes. It thus violates Pareto optimality. B can compensate A by moving to position "c". B is an advantage even if it comes to position "e" to compensate A.

The Kaldor-Hick's compensation criteria necessitate state intervention in the face of its shortcomings. First, Its voluntariness in compensation poses a severe limitation for the principle to act. Second, the compensatory measures are trapped in the problem of appropriate location on the Kaldor-Hicks compensatory curve. Third, no mechanism does ensure how much of the compensation package is required to compensate A. However, the capacity of the state to direct the movement of compensation from position "b" to position "c" or "e" depends on the relationship between the state, individual and society. The relationship manifests in many ways. First, Individual B can bribe the state officials to bring out the policy change that may be lop-sided and discriminatory. In this way, democracy based on majority rule becomes the means of exploitation of less advantageous sections of society and that is with the support of democratic institutions. Second, neo-liberalism based on the theoretical justification of marginal productivity promotes individualism. The latter justifies individual rationality over collective rationality. Third, the possibility of a change in policy mechanism that encourages paternalistic, discretionary, and top-to-bottom regimes of compensation is much more in a capital-scarce economy. The threat of capital exiting the domestic market is enough to bend the state functioning under the neo-liberal framework to its knees. Finally, the beneficiary of the policy change may turn to rent-seeking activities. Rent seeking means getting an income orthe *policy change* (italics added) not as a reward for creating wealth but by grabbing a larger share of the wealth that would have been produced anyway (Stiglitz 2016). It adds to the concentration of benefits in a few hands at the cost of mass deprivation and misery.

The advocates of neoliberalism continuously propagate laissez-faire policies. It presents the trade-off between equality and economic efficiency and justifies the rise in inequality in the developing stage to get higher, more equal benefits in the future (Singh 2017). It does not take into consideration that the resources used up to benefit someone even if not worsening others will not be available in the future. It yields rising inequality of income and assets. It leaves the underprivileged in a persistently deplorable situation. Marginal productivity theory denies the role of institutions and heavily relies on market forces. Meanwhile, the institutional set-up of the state under neoliberalism enables the rent-seekers to capture the resources, policy decisions, and market. Thus, neoliberalism has provided institutional support to neo-classical thinking even though their policy outcomes differ. The much talked about competitive society is merely

a facade and not an institution as such. It shows the contradiction in the policy and practice of free-market proponents.

All the contours of neo-liberal policy depicted here are to build and promote institutions that have been instrumental in furthering inequality. As it is said, it is necessary to encourage investment and capital formation. The neo-liberal ideology knew very well that it is quite easy to sell such discriminatory and inequality-led regimes in capital-deprived countries. This is an institutional and policy-driven attack on homogenization that talks about one-size-fits-all prescriptions. The unholy company of neo-liberal policy of capitalism and majoritarian democracy results in affluence entailing social privilege; extreme wealth translating into power that is self-serving and predatory, socio-economic inequality, and marginalization of the minority.

It leads to growing inequalities in the allocation of resources, political representation, and decision-making. Then the realistic remedy is not redistribution but countervailing power: trade unions and other mass organizing; strong, principled political parties; prosecutions for financial fraud; and vigilance against state capture (Maira 2020b). Strengthening communities through greater awareness of their duties and rights and the use of community traditional knowledge through participation in the development process can at least partly act as countervailing power (p 233, Bhaduri 2019). The institutional set-up of the state needs an inclusive and bottom-to top approach to get rid of strutting peacocks and wallowing buffaloes and moving towards millions of fireflies that together transform darkness into light. Democracy needs a competent state, but one that is tamed to work for it. To be democratic, the state must be relatively independent of classes, ethnic groups, and *identity-based pressure groups* in society (Bhargava 2018). The fancy and non-living concept of homogeneity has been implanted in the living body and thought of human (social) beings. The differing power and product relations that define societalstructure lose their relevance. It ignores the structure-specific institutional intervention.

4. Structural Issues

Neoliberal policy has been a well-accepted reality in democracies nowadays. It has impacted countries differently. Institutionalists could not provide a satisfactory explanation of the asymmetrical consequences of the same policy treatment. Structuralism overcomes the disadvantage of Institutional and policy-level silence by drawing attention to broader social forces ingrained in the historical and socio-economic milieu. In contrast to the classical and neoclassical views, structuralists think that the comparative advantage of a nation is not its physical or even its human capital, but rather its social structure (p 226, Rasul and Sharma, 2014). According to the CPI-MLsocio-economic survey of Bihar, 60.74% of families living in the rural areas of the state are landless. If we consider those families which have less than 1 acre of land with them, then the percentage will rise to 92.2 (DNA 2014). About 90%of the landowners are small and marginal farmers and 81% of the workforce in Bihar depends on agriculture (p 63, Mishra 2017). About 35% of cultivable land in Bihar is under the *batai* system. A bataidar has no incentive and capacity to apply costly technology on land to improve its productivity. Another one-third of cultivable land is owned by only 3.5% of landowners. Land to them is not a factor of pro-duction. It is a symbol of power, influence, and status (p 12, Bandyopadhyay 2009). The economic rents on land are increasing. So overall wealth increases, but this does not lead to an increase in the productive capacity of the economy or the mean marginal productivity or average wage of workers (Stiglitz 2016). The State acquires a degree of autonomy vis-a-vis civil society *under neoliberalism* (Patnaik 2007). The objective of a more equitable distribution of some collective goods such as security, property, and justice can be met by policies grounded in individualistic political theory. However, claims for the equal right for the expression of cultural particularity.... or even equal treatment cannot be easily accommodated by them (p10, Bhargava 2007). Societies with greater inequality are less likely to make public investments that enhance productivity, such as in public transportation, infrastructure, technology, and education...Rich worries that a strong government that could increase the efficiency of the economy might at the same time use its powers to redistribute income and wealth (Stiglitz 2016). It creates a dysfunctional democracy.

Moreover, the skewed distribution of landed assets generates feudalism and local elitism in the social structure. In a privilege-laden or feudal society, not only economic entitlements but also

political and social entitlements are denied to all except a small minority of elite groups (p6, Nayak 2012). The state of Bihar is suffering from a double attack of neo-liberal institutions and feudalism. The extraction of surplus from the direct producers is both ways, direct and indirect. It takes place directly through the use of personalised coercion camouflaged as "custom" or "tradition" and indirectly through voluntary commerce under the free market. The rural areas and urban areas are faced with the complex relationship between society and individuals (Patnaik 2007).

Besides acute inequality in assets and wealth, the society in Bihar is in the grip of caste-based discrimination and caste rivalry that decides access to resources. Caste is not merely a principle of social division but a comprehensive system of life dealing with food, marriage, education, association, and worship (p8, Nayak 2012). It decides the share of tangible as well as intangible assets in Bihar, as 79 per cent of illiterate households, 80 percent of the agricultural laborer households, and 75 per cent of SCs are counted as poor (p19, IHD 2010). As per NFHS 200506 data, more than two-thirds of the SC children and over half the Backward Caste (BC) children suffer from stunting and are underweight. Bihar has the highest incidence of chronic energy deficiency (CED) among women (p24, IHD 2010).

It was expected that the individualistic thinking of neo-liberalism based on crude marginal productivity will reduce non-economic discrimination as it values the specialization of tasks. In reality, the capitalism-led neo-liberal policy as a predecessor of Smith's free market and division of labour has promoted casteism. First, both systems are based on the division of labour. Second, socioeconomic inequality is the water of plants for both survival and sustainability. The casual relationship between economic stratification and social stratification is intertwined in India. The separation of interest among social groups transforms into active hostility and antagonism of class–caste interests (Kumar 2020). Third, the consonance of marginal productivity and rent-seeking is the norm in both systems. Instead of the accepted sequence, that there is a unidirectional flow of instruction, from consumer to market to producer of the neo-classical school, we have to fall back on the Marxian dictum of the primacy of production over consumption (Biswas 1972). The idea of rationality and sovereignty of consumers is subsided with monopoly capitalism. The neo-classical proposition manifests

similarly in the social structure. It encourages a rent-seeking attitude in a society of landed aristocracy and maintains hierarchical caste practices. Fourth, a Society with greater inequality of caste or class is less likely to make public investment in general infrastructure benefiting all. One of the most significant obstacles to the provision of public health in India is that the Brahmanical elite demand and receive more public investments in private healthcare services, while the masses suffer precisely because of the lack of public health facilities (Kumar 2020). Neo-liberalism cannot encourage public investment as it is focused on profit/growth maximisation through the primitive accumulation of capital based on the exploitation of the labour class.

For it, they need to restrict public investment that creates positive externalities. A society that is structurally divided by identity norms of caste, language, religion, etc is susceptible to gaining disproportionately positive externalities. In this way, the creation of public investment without addressing the socio-economic and political inequalities accentuates the degree of inequality. Darwinian Competition has not altered the pattern of allocation. It only suggests the theory of marginal productivity and division of labour to allocate the shares of factors of production equalizing their contribution. In an unaltered pattern of allocation, the privileged class has succeeded in capturing a disproportionately larger share consequent upon free-market competition.

4. Strategies of Development

These theories of development explore the possibility of growth and development in an economy facing severe socio-economic inequalities. It is very interesting to study some theoretical propositions of growth and development for an underdeveloped region. We shall undertake a textbook sojourn of theories of underdevelopment to study their applicability in the specific socio-economic soil of Bihar. This section will categorize theories of underdevelopment although it is not a watertight categorisation. The analysis is based on the study material of IGNOU on theories of underdevelopment (IGNOU 2017).

Investment-centric Theories of Development

The study of Ragnar Nurkse on the vicious circle of poverty initiated a debate on the process and causes of poverty. The Big Push theory of Rosenstein Rodan asserts that indivisibilities of the production function, demand, supply of savings and psychology necessitate a lump-sum big investment to break the vicious cycle in the regions where the marginal productivity of capital is large. It will raise the per capita availability of capital and raise the productivity of labour. However, the theory ignores the digestive capacity of regions. It also ignores the importance of small savings and investments in inducing a multiplier effect. Likewise, the Critical Minimum Effort theory proposes to encourage investment (called stimulants) and hinder population growth (called shocks) to maximise per capita income. For it, Leibenstein argues for a minimum level of investment that is critical to raise the stimulants above the levelof shock for the economy to come out of the vicious cycle. The theory focused on profit maximisation and entrepreneurial skills. However, the former may increase inequality and thusdepress external economies created. It is not only entrepreneurship but demand also that stimulates production in an underdeveloped region.

Dualistic Theories of Development

J.H. Boeke's theory of social dualism characterizes society into an advanced imported western system and an indigenous pre-capitalist agriculture system. It explains that economic development is generally hampered by the inadequate demand of the pre-capitalist society to match the increasing supply by the advanced capitalist system. It creates a glut of commodities in the market that leads to recession and a fall in investment consequent upon falling prices. However, the theory overlooks the presence of a higher marginal propensity to consume in the pre-capitalist society. Another theory of dualism i.e. technological dualism developed by Benjamin Higgins implies the use of different production functions in the advanced sector and the traditional sector of an underdeveloped economy. The existence of such dualism has aggravated the problem of structural or technological unemployment in the industrial sector

and disguised unemployment in the rural sector. It relies on fixed factor proportion in the industrial sector and growing population and varying factor proportion in the rural sector. The scarcity of land and abundance of labour makes the case for rent-seeking and feudal practices stronger. The fixed technical coefficients and capital-intensive job creation in the industrial sector reject the migration of labour from agriculture to industries. The theory implies jobless growth. Moreover, agriculture acts as a sink of capitalism in a time of crisis in industries (Patnaik 2020). The policy implication of the theory is to recognise the independent role of the agriculture sector. The needful institutional and structural changes must be implemented to revive the primary sector.

Industry-centric Theories of Development

Lewis's model of development assumes a large labour force in underdeveloped countries whose marginal productivity is negligible, zero, or even negative. It is available at a wage equal to the subsistence level of living plus a margin sufficient to overcome the friction of moving fromthe subsistence sector to the 'capitalist sector', which may be called a "subsistence-plus" wage.Since the marginal productivity of labour in the capitalistic sector is higher than the market wage rate, it accrues a surplus with the entrepreneurs. This surplus is reinvested which makes it possible for the employment of more people from the subsistence sector.

An explanation of the model is presented by Amit Bhaduri in which the relative wage rate (w/P) is downward inflexible that regulates the pace of industrial growth. If relative prices of products of the subsistence sector and industrial sector (Ps/Pi) rise it reduces industrial profitability and industrialisation due to forward linkages with the subsistence sector. Thus the surplus in the subsistence sector becomes the binding constraint when real wage is insufficiently flexible in terms of subsistence goods. If a limited surplus in the subsistence sector is the problem in the predominantly agricultural economy then the focus should be on the decentralisation of local investment for raising the productivity of land rather than of labour. It means industrial development is no guarantee to absorb excess labour of the agriculture (subsistence sector) sector. Less labour productivity in agriculture limits the expansion of the market (p 223, Bhaduri 2019).

5. An Alternative Approach to Development: Individual-centric Communitarian Model

There is no society anywhere in the world-except for marginal cases-with resources so scarce that it could not, were it reasonably and rationally organised and governed, become well ordered (p108, Rawls 2000). Here, Rawls presents a defence of the neo-liberal policy. For Rawls, a commitment to liberalism can flow from external reasons. Bilgrami opposed it. He claims that a policy justified by external reasons, that is, with no place in the motivational set of agents, is necessarily coercive. No person has a reason from within to comply with it... Therefore, a Rawlsian defence of liberalism is open to communitarian objections (pp 26-27, Bhargava 2007). The adverse impact of the externality of a policy regime can be found in its insensitivity towards the structural issues of the 'central' agent and society. For a society that is committed to egalitarian values, the centrality of the agency must exist in marginalised people. For it, the socioeconomic and political structural milieu of these people must be recognised. The neoliberal phase of capitalism largely ignores the structural peculiarity of developing regions such as Bihar. Moreover, the developmental theories based on the neoclassical framework essentially believe in trickling down growth to ameliorate the laggard sectors and people. They essentially have strong trust in lop-sided growth.

It led to a search for an alternative approach to development. The role of a democratic state is crucially required to be the arbiter between liberalism and communitarianism. The basic aim of this approach is to internalise and channelise the power of the market to serve society. Thomas Piketty has argued that everyone has the power to participate in the economy and termed participatory socialism. The basic notion of it is to use the good aspects of private property and the market forces and put them in the service of a much more equal and equitable development model and economic system (Lakshman 2020). The main contours of these policies are to make people and the community an agent of change. A community can be defined as a group of people who interact on a personal basis and are bound together by mutual trust. The community does not always solve problems about the division of labour, but it guides members to cooperate voluntarily based upon close personal ties and mutual trust. Thus, the market is based on competition, the state on coercion and command, while community relations are based on cooperation. Cooperative interactions among individuals build social capital which is defined by its functions. Unlike other forms of capital, social capital inheres in the structure of relations between actors and among actors (Coleman 1988).

Both the state and the market are open to manipulative abuses of power, and the design of economic policy must start by escaping the simplistic binary choice between the state and the market. Counter-posing the state and the market in a 'double movement' for balance against excesses by either is desirable (Bhaduri 2019). Exploration of alternatives in decentralization is imperative, particularly in constitutional democracies of large countries. It means bringing communities more directly into decision-making by strengthening democracy at the local level. It is to find the maximum feasible level of achieving direct democracy by emphasizing the capability-enhancing entitlement of individuals.

The distinct nature of the community must be recognised to overcome the aura of communitarianism. The premodern communities in India act as collective personalities, allowing no autonomy or private space for individuals and forcing into silence any dissent from a community's way of thinking and acting. Such communities do not allow individuals the right to exit (p 324, Alam 2007). A society with primitive values of local elitism, feudalism, landed aristocracy and casteism, etc., is unable to harness capitalism productively. The most deprived remains deprived of the most. Under capitalist development, possessive communal orientation regulates public contestation and political competitiveness. The rights-bearing autonomous persons acting together for common concerns are continuously thwarted by communities acting as collective personalities. In this condition, the State is reluctant to concede to class demands.... (p 339, Alam 2007). Moreover, the State functioning under the competitive compulsion of democracy and capitalism cannot but let the occurrence of exploitation of the masses in a much-disguised cover-up.

The presence of a huge reserve army of the labour force, slackening of labour laws, and obsession with removing supply-side bottlenecks exacerbate the problem and do not allow to address structural issues. Under the impact of capitalist development, rent seeking and monopoly tendencies gain ground helped by super assumptions of rational and sovereign consumers. The divisive tendency of the society and market develops a violent configuration of identity-based communities in which the sanctity of individual values is violated the most.

It signals the mutual reinforcement of capitalism and feudalism in a lop-sided structured society. It also shows that capitalism cannot be an advanced stage of feudalism in every society. Capitalism can very much coexist and reinforce local elitism and feudalism indeed.

The centrality of individuals at the receiving end gains currency in policy formulation to attain participatory development. Sen's concept of development enlarging and strengthening the freedom and capability of individuals empowers them to become decisive stakeholders in policy formulation and implementation. The market logic of 'one dollar one vote' discourages the production of the most needed goods, such as safe drinking water, basic preventive medicines, and health care, because they are unprofitable and encountered by novel instruments, like the concept of social rather than private wages paid in terms of improved community services in elementary and preventive local health care, facilities for child and old age care, and better local common schooling.

Simultaneously it also requires a greater degree of decentralization by empowering local democracy in villages and rural areas. Elinor Ostrom argued that common resources are wellmanaged when those who benefit from such resources the most are close to them. She concurs that the tragedy of commons can also be avoided as such tragedy occurred when external groups exerted their power (politically, economically, or socially) to gain a personal advantage (Maira 2020a). The role of the state is acknowledged to let individual basic rights be imbibed in the collective rights of society. The state-led indirect paternalistic reformism with needful interference to provide conditions to facilitate reform within the community is required (Bhargava 2007). The 'needful' of interference is effectively monitored by constitutional norms in a liberal democracy.

6. Conclusion

It is the realisation of the exacerbation of socioeconomic inequality in the presence of a top down approach to capitalism that encouraged Gandhiji to write in Young India in 1927,

"My ideal is equal distribution, but as far as I can see, it is not to be realized. I, therefore, work for equitable distribution" (p 86, Gandhi 1927). The neoliberal policy is based on the theory of trickle-down, top-down approach, and one-size-fits-all policy prescription. It may achieve equal distribution at the most motivated by the philanthropic spirit at the cost of disempoweringa society that is laden with socio-economic rigidities. In a structured and divisive society, It exacerbates the symptoms of feudalism. It also raises the concern of patrons and clients as wehave seen in development theories in which agriculture and technically backward sectors are made subservient to industry and technically advanced sectors for their revival and growth. It does not augur well for the millions of flies to fly together. It needs an overhaul in terms of strengthening the individual as an agent to counterbalance the profiteering class to gain a say in policy discourse and make participatory and equitable development a reality. The state's indirect paternalistic intervention is required through appropriate tax and expenditure policies to strengthen individual capacity.

BIBLIOGRAPHY

- Alam, Javeed (2007), "Public Sphere and Democratic Governance in Contemporary India," ined. *Multiculturalism, Liberalism and Democracy,*OUP: New Delhi.

- Bandyopadhyay, D (2009): "Lost opportunity in Bihar" *EPW,* Vol 44, No 47, pp12–14

- Bhaduri, Amit (2019), *"Macroeconomic Perspective on Development"* In Asian Transformations: An Inquiry into the Development of Nations, ed. Deepak Nayyar. Oxford: OUP.

- Bhargava, Rajeev (2007), *"Introducing Multiculturalism"* In Multiculturalism, Liberalism andDemocracy, ed. Rajeev Bhargava, Oxford: OUP.

- Bhargava R (2018), "Why we treasure democracy", *The Hindu*, 24 June https://www.thehindu.com/opinion/columns/why-we-treasuredemocracy/article24241789.ece

- Biswas, AK (1972), "Teaching Of Economics in India Theory of General Equilibrium andWelfare Economics : A Critical Assessment" *EPW*, Vol 7, No 5, pp

345–50.

- Coleman, J (1988), "Social Capital in the Creation of Human Capital" *The American Journalof Sociology*, Vol 94, pp 95–120.

- Krugman, P (2020), "Thomas Piketty Turns Marx on His Head" *The New York Times*, 8March https://www.nytimes.com/2020/03/08/books/review/capital-and-ideology- thomaspiketty.html.

- Maira A (2020b), "There's a Gandhian third way for an inclusive economy" *Livemint*, 23 January https://www.livemint.com/opinion/online-views/there-s-a-gandhian-third-way-foran-inclusive-economy-11579796187969.html

Sectoral Trends and Determinants of Female Employment in India

Ojasvi Ghai

B.A. Economics Honors (3rd year)

CHRIST (Deemed to be university), Bannerghatta Road Campus

Abstract :

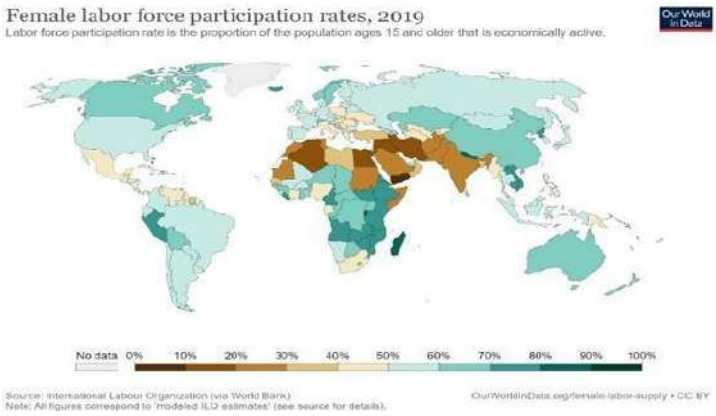
In the past decade, India has been witnessing high growth rates against the backdrop of declining female labour force participation rate. Even before the start of the pandemic, debates about the inability of the Indian Economy to create non-farm jobs were gaining traction. In India, contrary to the global trend of structural change where the contribution of the agricultural sector first declines, followed by growth in the industrial sector and leading to growth in the services sector; the economy has seen premature growth with the service sector driving industry as well as agricultural sector. However, an important insight that goes unaccounted for in major literature isthe low percentage of salaried workers in India. Within the service sector, according to huge variations, women are highly concentrated either in the education and health sector or unskilled women work in households as care workers. Even in other subsectors, women face occupational segregation on the basis of wages and the level of employment. Using the Periodic labour force survey data collected by the National Sample Survey, collected for the time period 2020-2021, the paper will dwell into sectoral employment trends of women, with a focus on the service sector, and occupational segregation of women within the service sector. Probability econometricmodels will be used to analyse the impact of socio-cultural factors on the labour force participation of women and the determinants of the labour force participation rates of women.

Keywords: *employment, service sector, occupational segregation, premature growth, labourforce participation rate*

1. Sectoral Trends and Determinants of Female Employment in India

Labour Force Participation Rate in an economy, defined as the percentage of the population that is either working or actively looking for work (Bureau of Labor Statistics), gives a measure of the size of labor supply which is available to take part in economic activities, relative to the working-age population. Estimations of the Labor Force Participation Rates based on gender helps us understand existing gender disparities in the labor market. India has been witnessing a steady decline in its Labor Force Participation Rate, from 58.18% in 2005 to 46.29% in 2020. This is alarming as the Labor Force Participation Rate in India is now among the worst in the world (Vyas, 2022). Nath and Basole, 2021 illustrate that India saw a fall in the Labor Force Participation Rate and an increase in the unemployment rates between 2011-2017 due to weak employment growth in every demographic group, which was quite less than the population growth. Secondly, In India, between 2011-2017, there has been no growth in employment.

Apart from declining labor force participation, low levels of Female Labor force Participation rate, are alarming. In 2019, the female labor force participation rate was 20.79 (Modeled ILO estimate). The figure alongside shows that only a few countries have female labor force participation rates as less as India.



Source: Female labor force participation rates, 2019. Retrieved from https://ourworldindata.org/grapher/recent-ilo-lfp?tab=map&country=~EGY

Even before the start of the pandemic, debates of the inability of the Indian Economy in creating non-farm jobs were gaining traction (Basole, 2022). The unabatedly continuous decline in female labor participation rate since 2005 has been puzzling due to three main reasons. Firstly, at the time when the decline started, India had a high annual growth of around 8 percent. Secondly, fertility rates have been declining over the period of time which should result in higher female labor force participation rates. Thirdly, India started the MGNREGA program, aimed at improving public employment, in the year 2005 itself (Kapsos, Silberman & Bourmpoula, 2014).

The three-sector theory elucidates the structural growth of economies by dividing it into the primary sector, secondary sector and the tertiary sector. Fisher, 1939 and Clark, 1941 played a pioneering role in determining the three sectors of the economy (Schafran, 2018). The primary sector consists of agricultural activities and the secondary sector consists of manufacturing goods utilising the products of the primary sector (Schafran, 2018). However, a narrow boundary exists between the secondary sector and the tertiary sector which differs at different time and places (Fisher, 1939). As a result, due to technical efficiency, new types of services get created in the economy based on consumer demand (Fisher, 1939). In India, contrary to the global trend of structural change where the contribution of the agricultural sector first declines, followed by growth in industrial sector and leading to growth in services sector; the service sector drives industry as well as agriculture (Soni & Subrahmanya, 2020). Though, the service sector employs a higher percentage of labour force as compared to the manufacturing sector and the industrial sector, women employment in the service sector is comparatively lower. Finance, insurance, business services and community services lead to formal employment in the service sector in the country (Mukherjee, 2013), however, an important insight that goes unaccounted for in major literature is the low percentage of salaried workers in India. India is grappling with two anomalies. First, the high growth of the service sector in the economy, however, a comparatively lower share of employment and second, on the demand side of labour, a lower creation of jobs. In general, the Indian economy is witnessing a reduction in the output elascity of employment generation, within the organized sector, it is witnessing an increase in informalization, and the structural transformation is exhibiting a weak tendency (Basole, 2022). Against this backdrop, it is essential to look into the type of employment and the quality of employment in the country.

A huge proportion of the service industry consists of informal workers (Kedir et al., 2018), ranging from household paid and unpaid workers to informal workers in the tourism

economy. Within the service sector, according to huge variations, women are highly concentrated either in the education and health sector or the unskilled women work in households as care work (Bansal, 2013). In an era of continuous advancements in technology, the service sector is said to have a major impact on the country's growth and employment in the future. The IT industry within the service sector is considered to be contributing highly to the output of the country, however, it does not employ a large number of people and among the people that it employs, there are huge gender variations. Other subsectors of the service sector show varying trends with the kind of employment playing an important role in these subsectors. The role of technology in the advancement of female labour force participation rate presents contradicting trends (Mahapatro & Rani, 2013). Therefore, this study will assess the employment trends in the country and specifically look into the major factors affecting female labour force participation rates in India.

2. Literature Review:

The literature review is divided into theoretical literature review and empirical literature review.

2.1 Theoretical Literature Review:

Theoretical underpinnings on the work of women and their involvement in the economy through the Women in Development Approach goes back to the pioneering work of Ester Boserup. This highlighted the specific role of women in Development and the division of labour done on the basis of gender (Baneria & Sen, 1981). The Women in Development approach sought for greater integration of women in the development process and was used in the Human Capital Approach. Based on assumptions and theoretical structure of the neo-classical approach, Women in Development was criticised because it failed to include factors like class, ethnicity, race and had minimum focus on the reproductive aspects of women's lives. Boserup argued that with industrialisation, the share of women's employment reduces leading to defiminization of labour, however, the U-shaped hypothesis explained by Goldin (1994) reflected that across countries, when per capita income levels are low, women are employed into the agriculture sector. When the per capita income level increases, reinforced by the decrease in demand for

women in the agriculture sector, women retreat from the labour market. In countries with high per capita income and high education, female employment improves and their value of time in the market also improves.

A shift towards the Marxists approach and emphasis on distribution and redistribution of wealth in the society, led to increasing focus on the Women and Development approach, indicating that development has also been in the presence of women and pointed out that inequalities are created by the economic system (Beneria, Berik & Floro, 2015). However, the Women and Development Approach had limitations as it did not include the problems faced due to patriarchy and assumed that when international structure will become more equitable, women's employment in itself will increase (Baneria & Sen, 1981). The Gender and Development Approach, as an alternative to Women in Development approach and including some aspects of the Women and Development Approach, understood the contribution of women in work inside as well as outside the household and focused on women as agents of change and the role of states in improving the employment scenario of women (Baneria & Sen, 1981). The human capital approach, which points out a direct link between economic growth and reduced education as well as employment gap between women and men seeks to advance education and skills in order to increase the participation of women in the workforce (Chaudhary & Verick, 2014).

Becker's model (1985) and the human capital approach propagated that due to difference in schooling and household priorities, women choose low-paying jobs, thus earning less than men, however, it was critiqued due to its assumptions on individual preferences, choice making abilities and the provision of optimum solutions (Beneria, Berik & Floro, 2015). The Marxian Approach brought about work done by Engel and unlike the neoclassical approach addressed distributional concerns (Eswaran, 2014) and the extension of the Marxian approach was used to study unpaid labour of women, focusing on issues of class and the impact of social relations of production (Beneria, Berik & Floro, 2015). The study of economics further brought up Institutional Economics. An institutional and evolutionary perspective to economics gives us greater insight into the real world, as opposed to mainstream economics. For instance, paying attention to knowledge about the goods being traded in the market and implications of institutions like laws and regulations on their price is important, apart from determining prices being through supply and demand. It propagated that Governments should think about

institutions before implementing reforms because several institutions, taken together, form structures that are stable but not everlasting. Disruptions that happen at a large scale lead to the emergence of new institutions and routines that are different from the previous ones.

Institutional Economics along with Labour Market Segmentation was used to frame the Labour Market Segmentation Theory, that typically segments jobs for women and men and gendered institutions like the household, labour market, property rights, public services mediate this segmentation (Staveran, 2005). The classical approach of segmenting views of labour markets includes traditional labour institutions like caste, attitude to women's work and remuneration, however, modern institutions include trade unions and protective labour institutions like job security and non wage benefits (Kannan, 1994). Occupational segregation of labour can happen between paid and unpaid work, within the paid work across employment as well as within a particular kind of employment (Strober, 1984) and factors like government legislations impact occupational segregation of labour.

The Capabilities approach by Amartya Sen in the 1980s also led to further evolution of feminist economics by propogating that only focusing on the income based approach can be misleading, therefore, it is important for empirical studies to consider variables like lack of credit facilities or provision of assets.

2.2 Empirical Literature Review

Goldin, 1994, examined the role played by education and white collared sector in enhancing paid employment of women and analysed cross sectional data to provide a U shaped hypothesis. It reflected that across countries, when per capita income levels are low, women are employed into the agriculture sector. When the per capita income level increases, reinforced by the decrease in demand for women in the agriculture sector, women retreat from the labour market. In countries with high per capita income and high education, female employment improves and their value of time in the market also improves. This approach of focusing on paid employment and investing the U-shaped hypothesis has been used in order to test across countries and regions. While some studies show that the U shaped hypothesis is followed by countries and the income levels, other studies focus on the contrary aspects, showing that despite high education, labour force participation of women is low. It is important to consider that

employment in the case of India is not just restricted to paid employment, however, it also includes unpaid work and high levels of care work in the economy.

Mehrotra (2017) tested for the significance of the U shaped hypothesis in Indian states, showing that with an increase in education levels in India, employment of girls will increase in non agricultural sectors. On the contrary, Lahoti & Swaminathan (2015) show that there is no U shaped relationship between Labour Force Participation Rates and economic development, stating the reason that employment growth in India has not been labour intensive and the service sector employment only employs people who are skilled and who technical education abilities. Similarly, certain studies show that higher levels of education lead to higher levels of employment in India (Andres et al., 2017) however, other studies show contested results on the same. Klasen & Pieters (2015) investigate why the female labour force participation of women has stagnated despite education growth and economic growth in the country. They accept the U shaped hypothesis between education and labour force participation and seek to determine the level of labour force participation of women on the basis of education, income, age, number of children and social factors like caste.

The paper suggests that demand side factors stating that employment in manufacturing and white-collar services is not adequate to absorb the growing female working age population, moreover, most employment is growing in the construction sector and low skilled jobs. Basole (2022) shows that at the level of GDP per capita, the level of employment in the service sector is lower than predicted (Basole, 2022). On demand side factors and sectoral change, while Bosworth, Collins and Virmani (2007) argue that the growth in the services sector and its employing capacity might be overstated, it is important to note than within the service sector, some sectors have taken advantage, like finance, business and trade. However, the problem India is facing is slower decline in employment from the agricultural sector and slower rise in employment in the service sector (Bosworth, 2008). Klasen and Pieters (2015) argue that due to rising education and income, women are getting out of menial employment, however, jobs like healthcare, education and public service that are considered as more appropriate for educated women are not rising at the same level. The level of occupational segregation in India is higher in urban areas as compared to rural areas (Agrawal, 2015).

3. Research gap

Most studies in literature that analyse the determinants of labour force participation rates do not take into account the latest 2020-2021 data by NSSO, which will be used in this study. While literature looks at the demand and supply side of the labour force participation of women, this paper, specifically looks at the demand side structural change of the Indian Economy, delving deeper into the subsectors of the service sectors based on the type of employent and suggesting policy measures on the same. This is because, demand of labour force in the various sectors plays a crucial role, as, in the case of lower demand, an increased supply of labour will lead to lower earnings (Basole, 2022). It is being established in literature that on the demand side, the labour demand in the agricultural sector is decreasing and enrollment of women in educational institutions is increasing on the supply side (Mehrotra, 2018). Therefore, this paper delves further by asking, if this is leading to greater employment in the service sector, and if so, is this rate of increase in employment fast or so?

For the level of GDP per capita in India, the share of employment in the agricultural sector and the industrial sector is higher than predicted, however, the share of employment in India's service sector is lower than predicted, (Basole, 2022). This was also prevalent in 2000, 2005 and 2010 (Ghose, 2014). The paper thus implicitly accounts for the the internal changing dynamics within the sector service sector. To our knowledge, there have not been studies that have looked into the same. This study also includes variables based on institutions like paid leave eligibility and social security benefits that impact the labour force participation rates of women.

4. Research Question

The research question posed by the study is:
Why is the female employment lower in the Service Sector and under what conditions can labour force participation rates across sectors increase?
The study also poses sub research questions:

- What does the overall employment trend across different sectors of the economy indicate?

- Within the service sector, what are the trends of female employment in India?
- What are the determinants of Female Labour Force Participation Rates in India?

5. Research Objectives

- To analyse the female employment trends in India
- To analyse the female employment trends within the service sector of the Indian Economy
- To analyse the determinants of female labour force participation rates in India

6. Method of analysis

The study uses secondary NSSO data. Data of multiple rounds aids in getting a historical trend, with the latest round being the PLFS Survey of 2020-2021. The National Sample Survey Official Datasets collect required primary data through sample surveys conducted at a large scale. The government has been conducting the National Sample Survey since 1950s.

The PLFS was launched in 2017. It collects data on employment according to usual status (ps+ss) and current weekly status. Before PLFS survey was launched, employment and unemployment data used to be collected once in every 5 years but now, annual and quarterly data is available.

7. Methodology

7.1 Sampling Design

The PLFS survey uses rotational panel sampling design in urban areas, wherein, each household is visited four times, once in 'First Visit Schedule' and thrice in 'Revisit Schedule'.

7.2 Sample Size

In 2020-2021, the Sample Size of the survey had been -

7.2.1 12,562 FSU's (6930 villages and 5632 urban blocks) surveyed

7.2.2 1,00,344 households surveyed (55,389 in rural areas and 44,955 in urban areas)

7.2.3 410,818 people surveyed (2,36,279 in rural areas and 1,74,539 in urban areas)

The study will use descriptive statistics and probability models like the logit and the probit model to analyse the impact of marital status, caste, age, level of education, status code, type of employment, paid leave eligibility, household type, religion, social group, location of work and social security benefits on female labour force participation rates, thus studying the determinants of labour force participation in the service sector. The study will also consider variables like paid and unpaid activities and the division of labour in the household. It will qualitatively analyze the role of institutions like rules, norms and patriarchal norms that impact the labour force participation rates of women

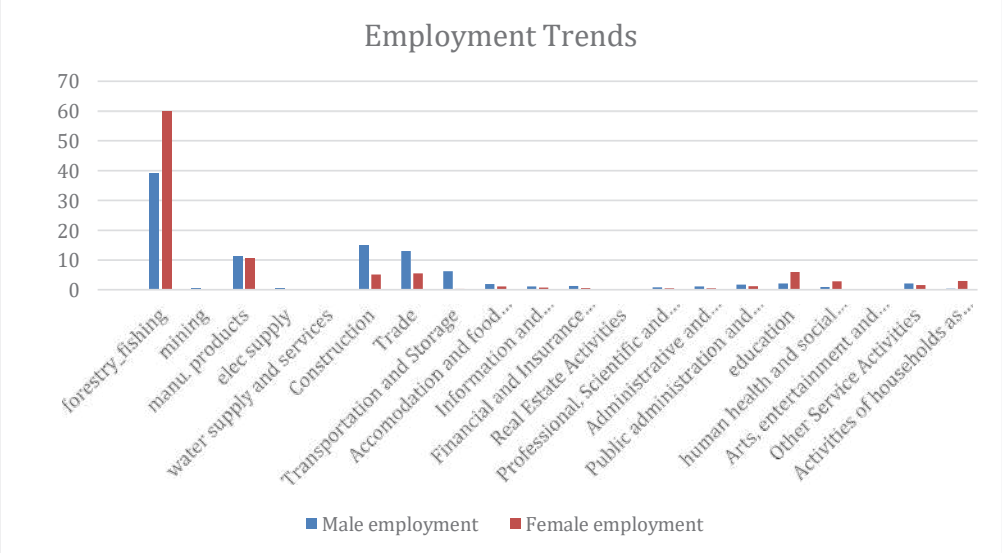
8. Descriptive Statistics

Table 1: Descriptive Statistics (2020-2021)

	Agriculture		**Industry**		**Service**	
	male	**female**	**male**	**female**	**male**	**female**
Illiterate	26.88	52.71	16.43	31.35	8.28	17.28
Literate without formal schooling	0.35	0.19	0.3	0.48	0.15	0.19
Literate with formal schooling	66.37	45.61	72.07	62.03	63.13	47.02
Post schooling (graduation, diploma and post-graduation)	6.4	1.49	11.2	6.14	28.45	35.51
Received formal vocational training	0.97	0.68	3.16	6	6.31	10
Received vocational training other than formal	22.91	15.09	28.4	26.33	22.16	14.25
Received no vocational training	76.12	84.22	68.44	67.67	71.52	75.31
No written job contract	93.65	93.55	87.77	82.58	66.15	60.72
Written job contract	6.35	6.45	12.23	17.42	33.85	39.28
Social Security benefits available	5.66	3.61	15.09	13.88	41.07	41.5
Social Security benefits not available	93.21	96.31	80.31	84.32	56.06	56.18
Gender	64.23	35.76	82.38	17.6	79.21	20.76
Rural sector	96.17	96.87	63.07	63.12	47.2	41.36
Urban sector	3.83	3.13	36.93	36.88	52.8	58.64

Descriptive statistics for the year 2020-2021 show that female employment is the highest in India in the agricultural sector, with higher concentration in forestry and fishing sector, followed by the services sector and the manufacturing sector. Employment trends of men across sectors reveal the same trend, however, female employment in the industry and the services sector is relatively lower than the employment of males. Higher employment of females in the agricultural sector reflects 75.42% women being self employed and 1.46% women engaged in regular work. In comparision to the agricultural and the industrial sector, the services sector has a higher percentage of regular work employment in the services sector, however, further classification of data depicts that the services sector subsumes highest percentage of women employed in education and trade. Subsectors like transportation and storage, public administration and financial and insurance activities witness lower employment of females.

Figure 1: Employment trends across sectors in India



The service sectors consists subsectors, namely trade, transportation and storage, accommodation and food service, Information and Communication, Financial and Insurance Activities, Real estate activities, Professional, scientific and technical services, administrative and support service activities, public administration and defence, education, human, health and social work,

arts, entertainment and recreation, other service activities and activities of households as employers.

Figure 1 depicts that female employment in the economy, within the service sector is higher for occupations like education, human health and sanitation and activities of household, however, all other sub sectors have low levels of female employment.

Education levels can be classified into illiterate people, literate without formal employment, literate with formal employment. Employment of illiterate people or people who are literate without formal education is the lowest in the services sector. Most people employed in the services sector are literate with formal schooling, however, the percentage of literate females with formal schooling in the services sector is 15.01% less than the percentage of literate females in the industry sector which comparatively higher than a gap of 8.64% for men. Adults who have received post schooling education have the highest employment in the services sector. This indicates that employment in the services sector is higher for people who pursue secondary education, diploma/certificate courses, graduate education or post graduate and above education. However, the striking gap between employment in the rural and urban areas for the services sector poses stark differences. Literate women with formal schooling are concentrated in the education and health sector in urban areas, however, the highest concentration is in activities of households as employers. On the other hand, literate women with formal schooling are employed mostly in the education sector, however, employment in other sub sectors of the services sector is dismally low, barring trade. Females who have completed higher education have greater prospects in the service sector, with the highest concentration in education, human health, information and communication, financial and insurance activities and the trade sectors. In rural areas, a skewed pattern of employment can be seen in the education sector, followed by the health sector, however, a minimal employment of women is seen in other subsectors.

For women who have received vocational training, within trade, the employment of females is almost half as that of men and in urban areas and the employment of females in trade is 2.56 percent, in comparision to 12.05 percent employment of males in rural areas. Within the financial and insurance sector, rural employment of females having vocational training is 1.14 % as compared to 3.71 percent employment of females in the urban sector, though, the employment of males in urban and rural sectors is higher in terms of financial and insurance activities.

Though in comparison to the agricultural and the industrial sector, a higher percentage of workers in the services sector have a written job contract, in the education and health sectors within the rural areas, a greater percentage of females have a written job contract in comparison to females in the urban areas. On the other hand, for all the other subsectors of the services sector, more percentage of women have a written job contract within the services sector in urban areas. Strikingly, in rural areas, the highest percentage of women in the education sector have a written job contract and the percentage of women not having a written job contract in the rural sector is also highest. This is possibly because maximum female employment in rural areas, after trade, is in the education sector and within rural areas, inequalities persist pertaining to written job contracts. A high percentage of women in the services sector getting social security benefits in comparison to the agriculture and industrial sector shows a positive picture, however, sectors like trade, in the rural areas, which have considerable higher employment of women, have only 1.92 percentage of women availing social security benefits, in comparision to 4.71 females in the urban areas. The statistics are more alarming because the percentage of women in urban areas availing social security benefits is quite less than the percentage of men availing social security benefits in the services sector, with the highest difference being in the trade and the transportation sector, implying the low occupational level of women. Only in a few sectors like the education and health sector, in urban areas, women receive greater social security benefits, which can be explained through greater employment. The gap between male and female employment in the services sector is 58.45 % in comparision to that of 64.78 % in the industrial and 28.47 % in the agricultural sector. However, when we look into segregation based on rural and urban areas, the gap between male and female employment in the services sector in rural areas is higher than industrial and agricultural sector.

An analysis of the descriptive statistics points towards interventions in enhancing vocational training, social security benefits and the requirement for reducing the gap between male and female employment in the various sub sectors of the service sector. However, female employment in the services sector also witnesses stark differences that arise due to occupational segregation of women, based on the position they undertake within their sector of employment. For example, a look at the statistics for the percentage of workers in the services sector taking up

employment as senior positions and managerial levels shows that the services sector subsumes highest level of employment in comparision to the agricultural and the industry sector. However, when we look at the percentage of workers taking high level positions on the basis of their gender, males occupy 21.31% employment and females, on the other hand, occupy 12.55% employment. The concentration of men and women in service and sales workers is higher. Particularly in the services sector, huge variation is seen across sectors, wherein, percentage of females in elementary occupation is 17.08% as compared to that of men, at 9.08% and concomitantly, there are more number of women employed as professionals, technicians and associate professionals. Disparity in the occupational level of women can be seen across rural and urban areas.

Table 2: Variable List

Variable	Description
Sex	0 (male) 1 (female)
Age	0 (25 to 60) 1 (15 to 24)
Education	0 (non educated) 1 (educated)
Type of Job	0 (no written job contract) 1 (written job contract)
Social Security Benefits	0 (not available) 1 (available)
Marital Status	0 (not married) 1 (currently married)
Sector	0 (rural) 1 (urban)

Table 2: Determinants of Labour Force Participation Rates

Males	Labour force	Coef.	Probability
	Age	0.0181261	0.071
	Education	-0.1386628	0
	Social group	-0.1036797	0
	Social security benefits	0.1233578	0.081
	Job contract Tyoe	-0.2472752	0.042
	Marital Status	2.005275	0
	Constant	-0.1763962	0.795
Females	Labour force	Coef.	Prabability
	Age	-0.0202659	0
	Education	-0.1253951	0
	Social group	-0.0996498	0
	Social security benefits	-0.2268284	0
	Job contract Type	0.0273358	0.721
	Marital Status	0.2618376	0.012
	Constant	4.115589	0

The study uses logit model to determine the determinants of female labour force participation rates. The logit model uses labour force participation rate as the dummy variable and the independent variables are sex, age, education, type of job, social security benefits, marital status and sector. For males, education level, social group type of job contract and marital status show results at significant level, therefore, they are important determinants of labour force participation rates. For females, age, education levels, social groups, social security benefits and marital status are important determinants of female labour force participation rates. The models show that age, social security benefits and marital status influence the labour force participation rates of men, however, both, age and social security benefits have a negative impact on female employment. Education, social group and social security benefits have a negative impact on female employment.

9. Conclusion

India has seen a premature growth from agricultural to services sector, however, the rise in employment has been slow. This study shows that sub sectors within the services sectors have

varying dynamics. Overall, larger employment of females in the services sector shows that employment is mostly skewed towards education and health services, however, occupational trends show that huge gender disparity exists with respect to the percentage of women at hgh positions. Moreover, compared to urban areas, rural areas have higher deviation with respect to employment of females in the services sector. While programs promoting upskilling are required, the model shows that factors like social security benefits influence female labour force participation rates. Policy makers should focus on strengthening institutions based factors along with other factors that have a significant impact on female labour force participation rates. In order to increase employment in the services level, it is important to increase investment in education. However, at the same time, socio-cultural aspects should move towards equity, where, women are provided with equal opportunities.

10. References

- Agrawal T., (2015). Occupational Segregation in the Indian Labour Market. The EuropeanJournal of Development Research. Retrieved from https://link.springer.com/article/10.1057/ejdr.2015.10
- Andreas et al. (2017). Precarious drop: Reassessing Patterns of female labour force participationin India. *The World Bank Group*. Retrieved from https://elibrary.worldbank.org/doi/abs/10.1596/1813-9450-8024
- Bansal T. (2013). Women as workers in the service sector: A study of metropolitan India.
- *Research Gate*. Retrieved from https://www.researchgate.net/publication/327690456_Women_as_Workers_in_the_Service_Sector_A_Study_of_Metropolitan_India
- Basole A., (2022). Structural Transformation and Employment Generation in India: Past Performance and the way forward. *The Indian Journal of Labour Economics*. Retrieved from https://link.springer.com/article/10.1007/s41027-022-00380-y
- Becker, G. S. (1985). Human Capital, Effort, and the Sexual Division of Labor. *Journal of LaborEconomics*, *3*(1), S33–S58. http://www.jstor.org/stable/2534997
- Benería, L., & Sen, G. (1981). Accumulation, Reproduction, and "Women's Role in EconomicDevelopment": Boserup Revisited. *Signs*, *7*(2), 279–298. http://www.jstor.org/stable/3173878
- Beneria, L., Berik, G., & Floro, M. (2015). Gender, Development and Globalization:

Economicsas if All People Mattered (2nd ed.). Routledge. https://doi.org/10.4324/9780203107935

- Eswaran, M. (2014). *Why Gender Matters in Economics*. Princeton University Press.https://doi.org/10.2307/j.ctvvh853j
- Kannan, K. P. (1994). Levelling up or Levelling Down? Labour Institutions and EconomicDevelopment in India. *Economic and Political Weekly*, *29*(30), 1938–1945. http://www.jstor.org/stable/4401520
- Kedir A. (2018). Services Industry and Informal Economy: An introduction. *The Service Industries Journal*. Retrieved from https://www.tandfonline.com/doi/pdf/10.1080/02642069.2018.1486959?needAccess=true
- Strober, M.H. (1984). Toward a theory of occupational segregation: The case of public schoolteaching. In ed. Reskin. https://nap.nationalacademies.org/read/58/chapter/11

Mahapatro & Rani S. (2013). Declining Trends in Female Labour Force Participation in India:

Evidence from NSSO. Institute for social and economic change. Retrieved from https://mpra.ub.uni-muenchen.de/44373/1/MPRA_paper_44373.pdf

COVID-19 and its Impact on the Sectors

Arundhuti Roy
St. Xavier's College (Autonomous), Kolkata.

Abstract

Covid-19 initially started in China in late December 2019, but gradually started spreading all over the world severely affecting different sectors, especially the educational sector, thus resulting in nationwide lockdown on 25th March, 2020; resulting in the shutdown of educational institutions and transforming physical to online classes. This paper uses secondary data and would try to explore the major problems specially faced by the educational sectors, along with other sectors, focusing mainly on the problems experienced by the students during the pandemic due to lack of access to major facilities. The data and information presented in the study are gathered from various websites and articles. The provision of free internet and network connection to students in rural areas can significantly make an improvement in the participation of them in online classes. The paper also seeks to show both the positive and negative impacts of Covid-19 on the educational sector. has some positive impacts like giving educators worldwide exposure to interact with people all over the world. However, it also impacted the educational sector negatively, for example, the educational activity was hampered due to the closure of schools and suspension of regular physical classes and both students and teachers weren't prepared for this transformation of physical to online classes.

Keywords : *COVID-19; Impacts; Education; Secondary data; Sectors.*

1. Introduction

COVID-19 emerged in 2019, is the latest example of an unprecedented and devastating pandemic disease. Being on anticipated citizens were not ready enough to face social adverse situations. It affected more than 52 million people

and brought about major public health issues worldwide.This pandemic posed a threat to both people's lives and also the economies. It caused a tragic ending inthe lives of many people who suffered from bronchial respiratory problems or other major issues. The surgeon's emergence of this novel virus led to serious issues, and environmental activities all around The world halted thus, pushing the economy towards recession. The newly emerged COVID-19 has detrimental effects on health, tourism, educational and many other sectors. This paper focuses, along with other sectors, how the educational sector got adversely affected, thus darkening the career of future generations through shutting down schools, colleges, etc.

1.1) Review of literature

Nearly 55% of electronics are manufactured in China; these have already slipped to 40%, in response to the coronavirus outbreak and subsequent quarantine *(Kumar, 2020)*. As per the report on April 8, 2020, nearly 1.716 billion students have been significantly impacted in response to COVID-19 because of school shutdowns *(UNESCO, 2020a)*. During crises, Brokerage Housing Development Finance Corporation (HDFC) securities predict revenues from the IT field to drop by 2%–7% because of a gap in decision-making over the next six months, as corporates determine the severity of the epidemic *(Kumar, 2020)*. Experts think that a massivehit is likely to occur in the tourism industry and may end up damaging the industry for the coming years *(Muthukrishnan, 2020)*. The total impact of the virus on India's economy was estimated to hit about INR 8.8 trillion *(Kumar, 2020)*. Approximately 90 domestic flights were cancelled, resulting in a dramatic decreasein airline process and prominent local routes *(Muthukrishnan, 2020)*. With the closure of educational institutions, the need for a rapid transition from physical learning to the digital sphere of learning emerged *(Kapasia et al. 2020)*. Between 10 March 2020, a day before the WHO declared COVID-19 a pandemic, and 28 February 2022, 122,823 movement restrictions were implemented around the world (IOM, 2021a).

1.2)<u>Impacts on different sectors</u> :

- ***Healthcare Sector :***

The most important and core sector of the Indian economy during the phase of Covid-19 was the healthcare sector. 70% of the total quantities of medicines supplied by the Indian companies are imported from China. The Covid-19 epidemic adversely affected the supply chain services along with the manufacture of pharmaceutical ingredients. In India, the biggest challenge in overcoming the novel pandemic is the lack of medical investment and healthcare infrastructurelike shortage of beds, lack of oxygen cylinders, lack of stock of vaccines and many more.

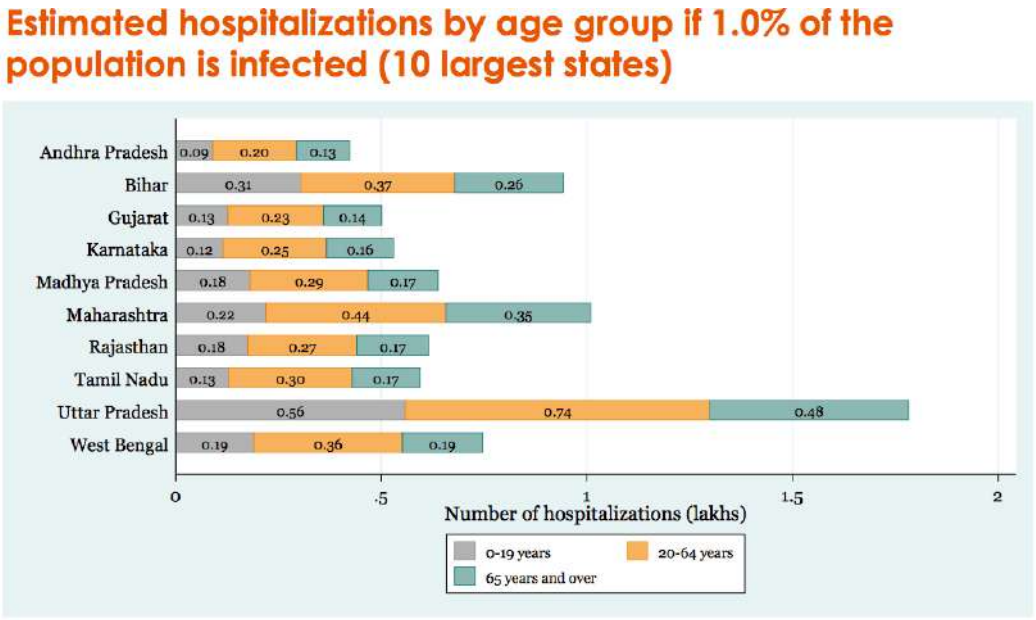


Fig 1.: Estimated hospitalizations in 10 largest states (considering 1% of population)

In the above figure we consider that 1% of the population is infected By COVID-19 and thereby observe the estimated hospitalizations by age group. In the range 0-19 years, we observe the highest number of hospitalizations in Uttar Pradesh (0.56 lakhs) and that of the lowest number of hospitalizations in Andhra Pradesh (0.09 lakhs) among the other states considered. Again, considering the range 20-64 years, we observe Uttar Pradesh still having the highest number of hospitalizations (0.74 lakhs) and Andhra Pradesh ranking the lowest in hospitalizations (0.20 lakhs). A similar type of scenario can be observed while considering the range of 65 years and over, Uttar Pradesh being the highest in hospitalizations (0.48 lakhs) and AndhraPradesh being the lowest (0.13 lakhs) respectively.

- ***Information Technology Sector :***

The crucial role in fulfilling the dream to achieve success by the middle-class people of the country, resulted in projecting the IT sector as the most dominant sector in the development & growth in the economy of India in the past few years. As stated by the industry professionals, competitors in India's IT sector including TCS, HCL, Infosys etc., had faced quite an adverse slowdown in growth, resulting due to the sudden breakdown of the pandemic. The most possible reason behind the slowdown is the cutdown of IT expenditures by the prominent clients, on the grounds of an uncertain economic situation.

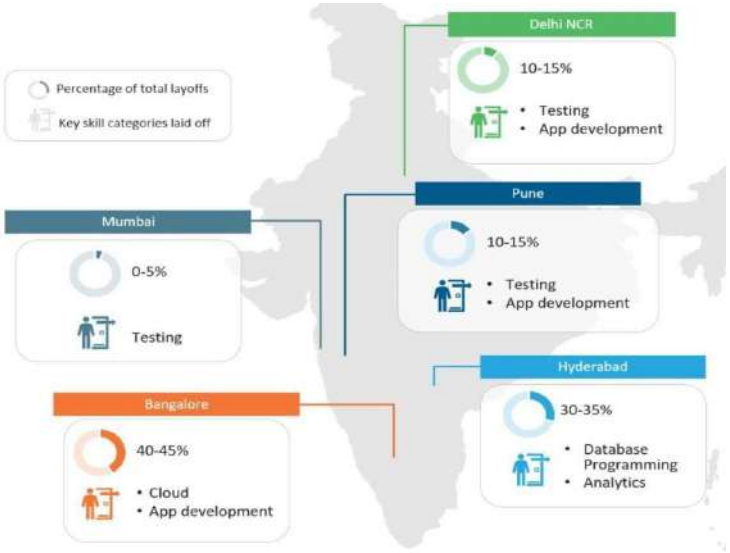


Fig2 : Lay-offs in IT Sectors

The above figure explains the significant layoffs that took place in the startups andlarge tech firms. during the pandemic phase which can be put forward as aprominent example of how COVID-19 impacted the IT sectors adversely. Putting together Bangalore and Hyderabad, we observe around 75% of employees were laidoff during this phase. In cities like Delhi NCR And Pune, the percentage of laid-off employees are around 10-15%,whereas in Mumbai it's around 0-5% in the skill categories mostly testing and also app development.

- ***Tourism & Aviation Sector***:

Among all the other sectors being looked upon, another worst affected sector by this pandemic is the Tourism & Aviation Sector. It is observed that the vast number of cases confirmed in India are of foreign tourists. The international travel lessenedby around 25% being equivalent to a loss of 3 months of travel, bringing out the biggest challenge faced by the sector in India. The sudden & indefinite suspension of visas of tourists by the Government of India , in order to avoid the spread of the pandemic, imposed pressure on the functioning of the airlines. One of such suspensions is the cancellation of nearly 600 flights to & from India for a prolongedperiod of time.

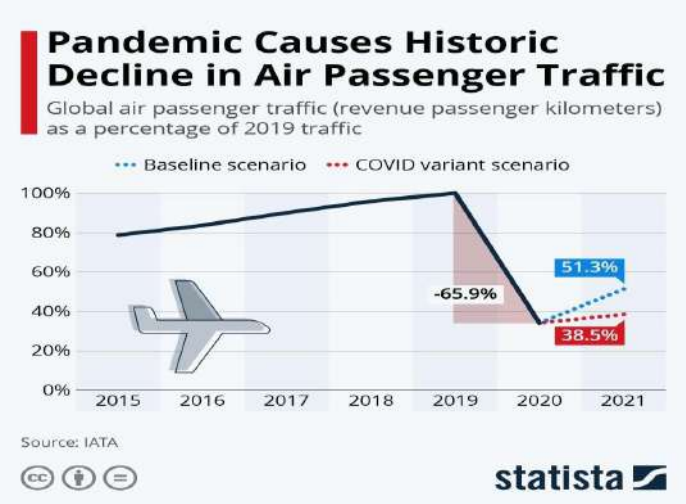


Fig 3: The IATA predicts air travel demand to reach just 50% of 2019 levels in 2021

ıe above figure shows the prediction by IATA regarding the air travel demand. The IATA edicted that the air travel demand would reach around **50%** of 2019 levels in the year 021, though it's quite an optimistic scenario keeping in mind the pandemic. If the new rus continues to prevail, then the scenario can get even worse than this and the covery from drastic fall would be just around **38%** of 2019, which will be just **13%** ove the 2020 level. Due to a sudden halt in international travel In 2020 because of the OVID-19 pandemic, the aviation industry suffered its so-called "worst year in the history air travel demand." According to the International Air Transport Association (IATA), obal passenger traffic was reduced by around **65.9%** compared to the year 2019 measured terms of revenue passenger kilometer. This is due to the sudden decline in the ternational passenger demand of **75.6%** and domestic demand of **48.8%** below the 2019 vel.

- ***Educational sector*** :

ıe educational sector, which is also termed as 'the base of the development of society', ıs observed to be significantly affected with the sudden breakdown of the COVID-19. ıis pandemic impacted the global educational systems in such a way that numerous hools, colleges, and universities shut down. According to UNESCO, 191 countries in the orld switched to online sessions during this phase. About 32 crores learners stopped going school and colleges and educational activities came to a halt. During initial periods, the ıdents and teachers faced a lot of difficulty handling the sudden transformation from ysical to online classes. It took a lot of time for them to become accustomed to the use of is modern technology. The pandemic leading to prevalence of online classes affected the ıdents in rural areas compared to that of the urban areas. This can be explained using some ta from the chart below. In Jharkhand, Uttarakhand, West Bengal. 1.3%, 7.0%, 3.3% of ral areas are able to operate computers which is quite a worse situation compared to the ban areas with percentage 15.6%, 32.5% and 23.0%, respectively.

Table 1 : State – wise rural and urban digital operation and access

Sr No	State	Rural		Urban	
		Operate Computer (%)	Access Internet (%)	Operate Computer (%)	Access Internet (%)
1	Andhra Pradesh	1.5	10.4	11.6	29.5
2	Assam	3.7	12.1	30.8	46.9
3	Bihar	2.7	12.5	20.0	38.6
4	Chhattisgarh	3.2	10.6	22.0	34.6
5	Delhi	NA	NA	34.7	55.8
6	Gujarat	4.4	21.1	20.1	49.1
7	Haryana	5.9	37.1	29.5	55.5
8	Himachal Pradesh	10.5	48.6	28.3	70.6
9	Jammu & Kashmir	3.5	28.7	16.0	57.7
10	Jharkhand	1.3	11.9	15.6	40.2
11	Karnataka	2.0	8.3	22.9	33.5
12	Kerala	20.1	46.9	27.5	56.4
13	Madhya Pradesh	2.3	9.7	17.2	35.4
14	Maharashtra	3.3	18.5	27.4	52.0
15	Odisha	1.8	5.8	17.2	31.2
16	Punjab	9.4	39.4	26.7	57.1
17	Rajasthan	6.4	18.5	26.6	49.9
18	Tamilnadu	11.6	14.4	24.7	24.8
19	Telangana	1.6	9.9	17.6	41.9
20	Uttarakhand	7.0	35.2	32.5	64.3
21	Uttar Pradesh	4.0	11.6	22.3	41.0
22	West Bengal	3.3	7.9	23.0	36.0

Source: 75th round of National Sample survey conducted between July 2017 and June 2018

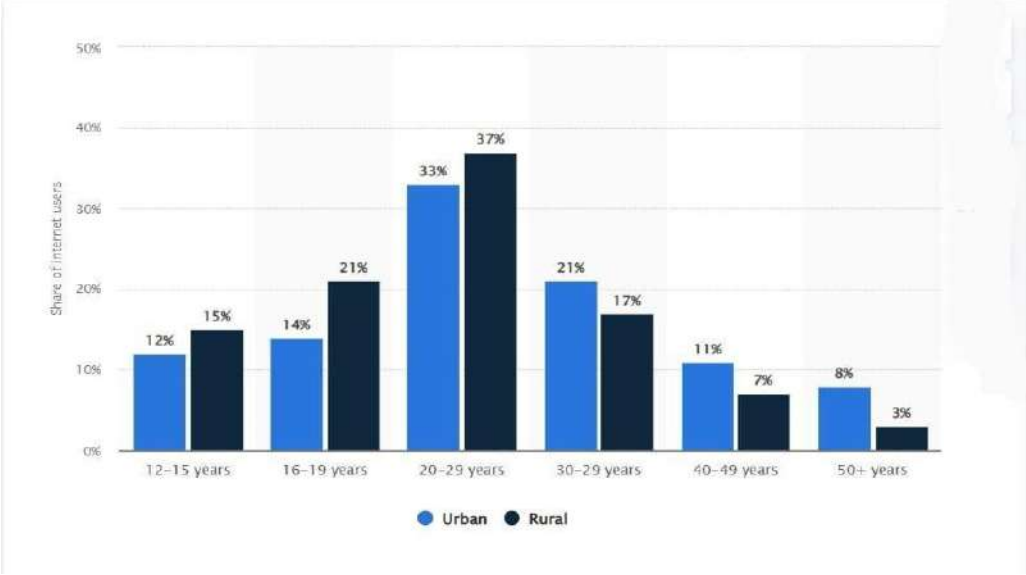


Fig 4: Internet users in rural and urban areas.

In the above chart, we project internet usage in both rural and urban areas of India.It is observed that around 8% of the total urban population above 50 years of age, uses the internet, while it's around 3% in the case of rural areas. In the urban areas,12% of children aged 12-15 years and 14% of children aged 16-19 years use the internet which is a bit lower than that of the rural areas with 15% of 12-15 years and21% of 16-19 years using the internet. So, from the above data, we can understand that it is difficult for old-aged professors to commence classes through online classes using internet connection.

- ***Informal sector and public employment*** **:**

In the year 2020, India experienced a reduction in revenues In the form of taxes. A reduction in the revenue of sectors like tourism, restaurant industries, etc. led to erosion of the state's revenues. This economic deterioration had a negative impacton both state and local government employment. According to reports from the Center on Budget and Policy Priorities (CBPP), About 1.2 million fewer public employees showed up during September compared to that of February.

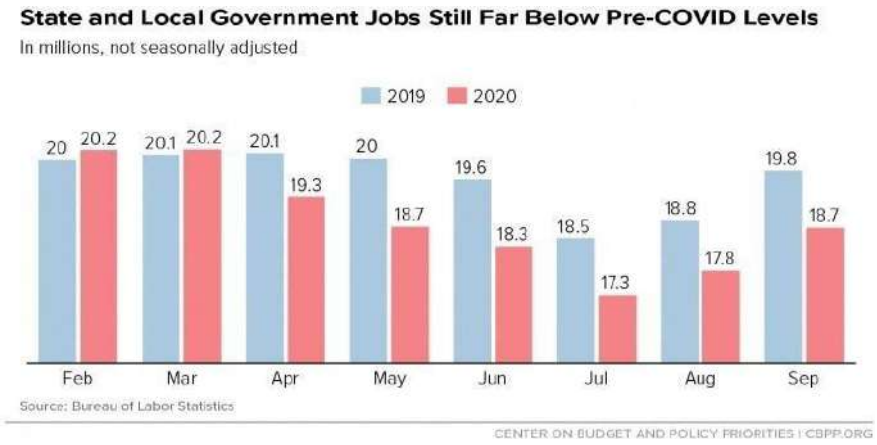


Fig 5: State and Local Government Jobs available

The COVID-19 pandemic and the succeeding lockdown in India yielded an unpredictable and adverse spike in India's unemployment rates, particularly during

months of April and May. According to the above chart, the estimated labor participation rates in April and May were around 35.57% and 38.15%, among whicharound 23.52% and 23.48% were estimated to be unemployed. The rate of unemployment prevailing in the month of April 2020 was much more than that of the month of March.

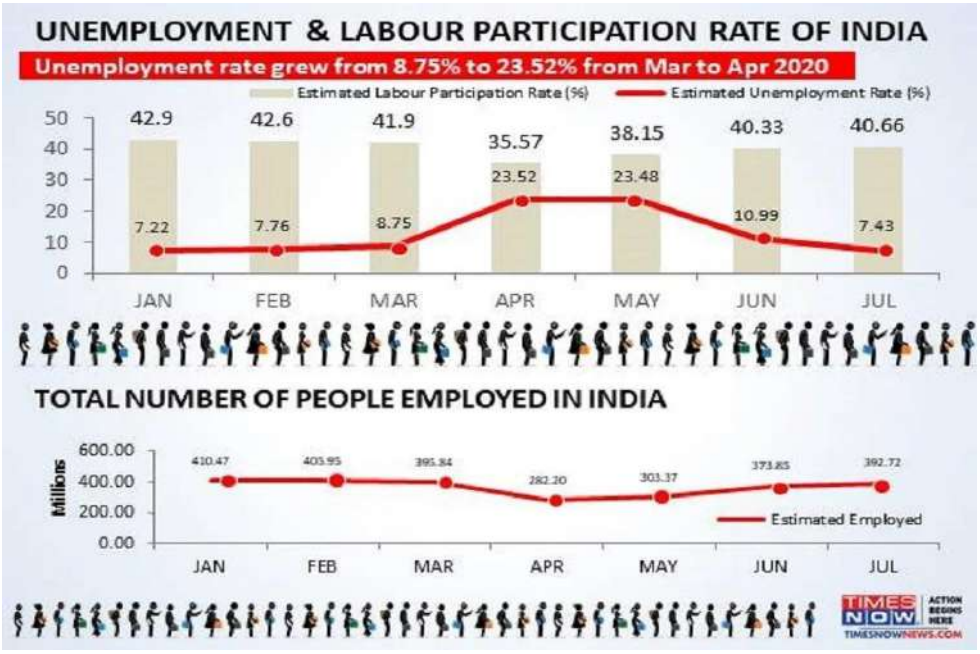


Fig 6: Unemployment and Labour Participation rate of India

Let us now consider the chart provided below. According to the data from Center for Monitoring Indian Economy (CMIE), India had its unemployment rate equal to 7.43% by the month of July. Among the other states, the states which need most concern are Bihar (12.19%), Andhra Pradesh (8.35%), Rajasthan (15.23%), Telangana (9.05%), And Delhi (20.3%), because of their higher recorded rates than the national average.

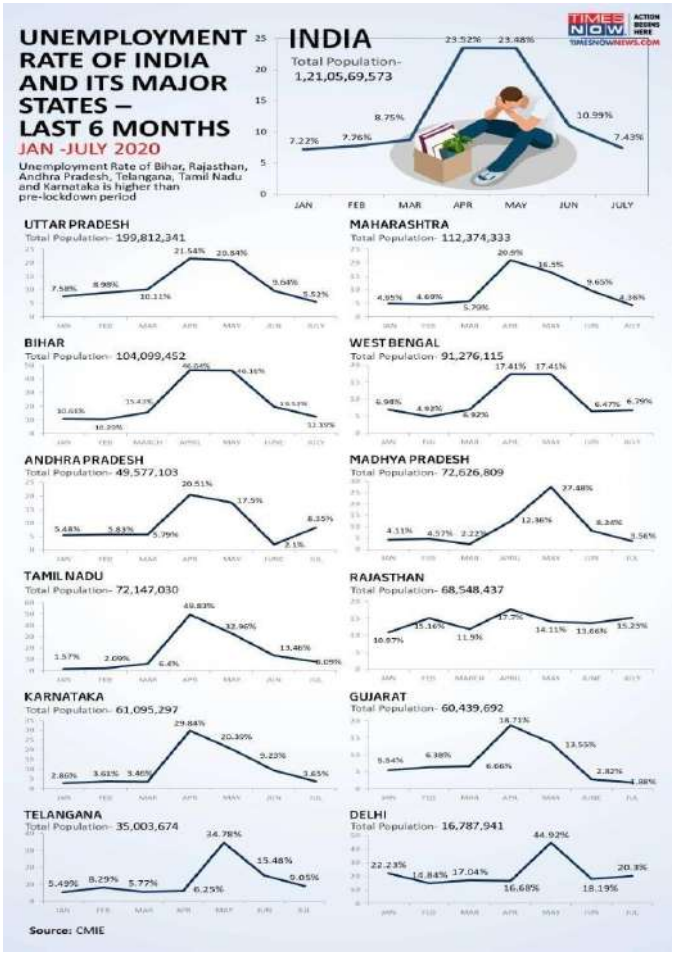
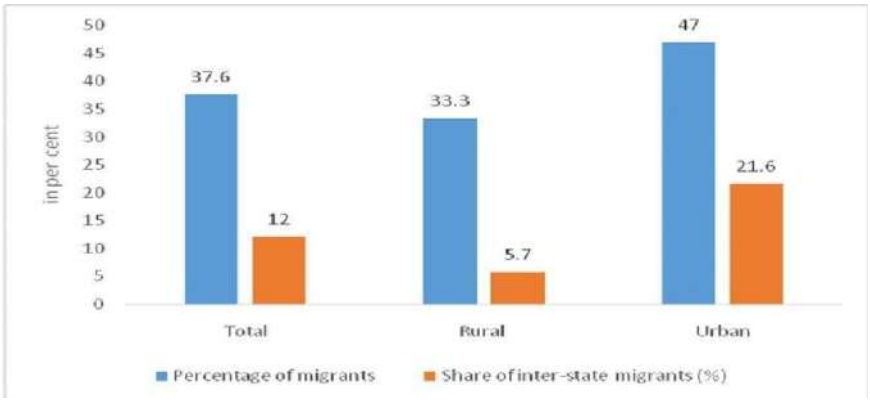


Fig 7: Unemployment rate of India and its major states-last 6 months(Jan-July 2020)



The above chart shows the percentage of migrants and the share of interstate migrants (%). The total percentage of migrants Is observed to be equal to 37.6% andthe share of inter-state migrants equals 12%. 47% from the urban areas migrate which is more than that of the rural areas (33.3%).

Table 2 : percentage of migrants to total population and percentage of inter-state migrants to total migrants in respective districts and their number of covid cases as on 13th April 2020

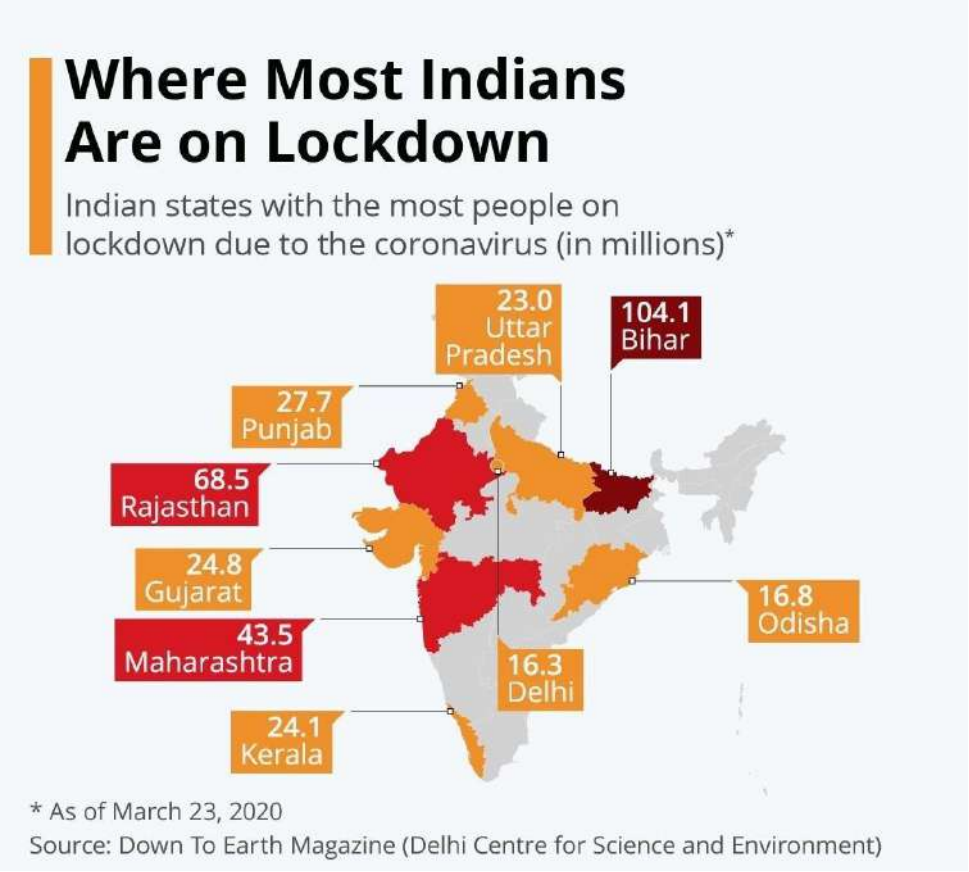
Urban Agglomeration (UA)	Percentage of migrants to total population	% Share of inter-state migrants to total migrants	Number of COVID cases in the respective districts as on 13th April 2020 (Total Cases by district 6761)
Delhi	43.1	87.8	898
Greater Mumbai	54.9	46.0	880
Kolkata	40.8	18.2	29
Chennai	51.0	11.8	149
BruhatBanglore	52.3	35.1	71
Hyderabad	64.3	7.1	236
Ahmedabad	48.7	24.1	134
Pune	64.8	22.3	190
Urban India	**47.0**	**21.6**	Share of Covid 19 cases in these metro cities to total cases is 38 %

Source: Census of India 2011, D3 (Appendix) Migration Table, https://www.mohfw.gov.in/pdf/DistrictWiseList354.pdf accessed on 13th April, 2020)

In the above chart, we consider 8 mega cities with a population of around 5 million and more among the 53 million plus cities. We observe the percentage of migrantsto the total population which is observed to be highest in Pune (64.8%) and the lowest in Kolkata (40.8%). We also see that the highest percentage share of inter-state migrants to total migrants is in Delhi (87.8%) whereas it is lowest in Hyderabad (7.1%) respectively. Delhi ranked the highest with respect to the number of COVID cases in the respective districts as on 13th April, with 898 reported cases, and Kolkata ranked the lowest with 29 reported cases.

- ***Conclusion & policy recommendations :***

In conclusion, the effect of COVID-19 on India is analyzed thoroughly. The most affected among all other sectors are the education sector and the employment in different sectors. Bihar mostly has faced lockdown among other states (104.1 million), while the state facing the lowest lockdown is Delhi (16.3 million.)



I would now wish to recommend some policies which the government should adopt to deal with this dreadful pandemic and mark an end to this phase. Government should keep a note on whether every season of India is vaccinated properly and should ensure the purity of the vaccines. Government should check that the people are inoculated with original vaccines and not with saline water. Doctors have pointed out that fake vaccines can cause side effects which are difficult to cite as it depends on the constituents of the fake jab. Experts pointed out that if the fake vaccine contains harmful ingredients, then it can lead to illness and can even be fatal. Several such instances of inoculating persons with fake vaccines have been pointed out in Kolkata and Mumbai. It should be carefully observed whether the passengers boarding their flights are vaccinated, sanitized and wearing their mask. Not too many passengers should be allowed to board in one flight, so the social distance can be maintained. In schools, colleges and universities, classes should be held in small shifts with few children so that the social distance can be maintained with ease and the physical classes can also be retained. The people in the informal sectors should be vaccinated properly and the people who lost their jobs during this COVID-19 pandemic phase should be helped financially as much as possible and also ensure jobs for them, so that they don't remain unemployed for a longtime.

- ***References :***

- COVID-19'S IMPACT ON PUBLIC EMPLOYMENT; https: protectpensions.org/2020/12/02/covid-19s-impact-public-employ ment/

- How the COVID-19 outbreak has affected the joblessness rate in India -- explained in 4 charts; https: www.timesnownews.com/business-economy/economy/article/ho w-the-covid-19-outbreak-has-affected-the-joblessness-rate-in-india-explained-in-4-charts/634284

- Mukesh Rawal ; An analysis of COVID-19 Impacts On Indian EducationSystem ; https: coed.dypvp.edu.in/educational-resurgence-journal/documents/jan-2021/35-

- 40.pdf

- Sandeep Kumar M., Maheshwari V., Prabhu J., Prasanna M., Jayalakshmi P., SuganyaP., Benjula Anbu Malar M.B., R. Jothikumar ; Social economic impact of COVID-19 outbreak in India;
  - https: www.emerald.com/insight/content/doi/10.1108/IJPCC-06-2020-0053/full/html

- Snehal N. Bhangale; IMPACT OF COVID-19 ON MULTIPLE SECTORS IN INDIA; https: www.vpmthane.org/BNB/JBNB/jbnbSpecialIssue2021/Perspective3. pdf

- 400 Million on Lockdown in India Due to Coronavirus; https: www.statista.com/chart/21208/people-affected-by-coronavirus-loc kdown-india/

- COVID-19 in India: State-Level Estimates of Hospitalization Needs; https: onehealthtrust.org/news-media/blog/covid-19-in-india-state-level
  - -estimates-of-hospitalization-needs/

- Impact of COVID-19 on IT Jobs in India | Market Insights; https: www.everestgrp.com/2020-07-impact-of-covid-19-on-it-jobs-in-in dia- market-insights-.html

- R.B. Bhagat, Reshmi R.S., Harihar Sahoo, Archana K. Roy, Dipti Govil;The COVID-19, Migration and Livelihood in India; https: / www.researchgate.net/figure/Migration-Intensity-and-Share-of-Int er-State-Migrants-in-Rural-and-Urban-Areas-India_fig1_340681023

- Did you get saline water or a vaccine? Here's what experts have to say about the recent fake jab busts; Did you get saline water or vaccine? Here's what experts have to say about the recent fake jab busts | India News | Zee News

Trends in Energy Consumption and Emission in India: A Roadmap for Sustainable Future

Bidisha Chatterjee
Research Scholar, Department of Economics
University of Burdwan, West Bengal, India

Rajarshi Majumder
Professor, Department of Economics
University of Burdwan, West Bengal, India

Abstract:

The issue on sustainable growth has gained importance across the globe since the middle of 20th century. As the threat of climate change has become a major concern, hence focus on various sustainability programmes has been widely spread. The problem of climate change is mainly caused by GHG emission which is mainly caused by high usage of non-renewable fossil energy. As per IPCC 6th Assessment Report, reduction of energy consumption and emission is an important matter of concern to prevent the risk and severe impacts of climate change (IPCC, 2022).

This paper seeks to explore the trends in energy consumption, carbon emission and economic growth over years from 1970-2020 in the Indian economy at an aggregate level. It is found out that both per capita energy consumption and per capita carbon emission follow an increasing trend along with per capita GDP initially during first two decades from 1970-1990. However, after the year 2000, it again follows an upward trend. We find that economic growth and development have a positive linkage with energy consumption, and any shortfall in the latter will hamper the former. Against that background, we analyze the country's current and future trends in energy consumption and emission to forecast India's future energy demand and predict a sustainable road map for the future.. On the other hand, it also forecasts the future trends in energy consumption and emission using Exponential Triple Smoothing (ETS or Holt-Winters) model. Using regression analysis, we find that there exists a positive and significant relation between per capita energy consumption and per capita GDP as well as that between per capita energy consumption and population. There also exists a positive and significant relation between per capita carbon emission and per capita GDP as well as that between per capita carbon emission and per capita energy consumption. From the univariate forecasting of India's per

capita primary energy and per capita carbon emission show a consistent exponential increase. This paper prescribes a holistic approach – combining the existing domestic resources and developing possible renewable strategies to make an appropriate mix to improve the energy supply and meet demand.

Keywords: *Sustainable growth, Energy consumption, Carbon emission, Economic growth, Climate change.*

1. Introduction

Fossil energy is a necessity in the modern era and all the basic sectors of an economy mainly depend upon the availability of fossil energy both for the purpose of production and consumption. Inother words, we can say that energy resources play an active role in economic output of a nation. With a goal of achieving higher economic growth, each sector aims at maximizing its output by using several necessary inputs which also includes the scarce fossil energy or non-renewable energy resources. Therefore, to maximize economic output or to increase economic growth, energy consumption also increases. On the other hand, human induced energy source also act asa major cause of pollution and global warming across nations and there exists a positive relationship between economic growth, energy consumption and GHG emission. This problem is a serious issue in this 21st century and our primary concern is to prevent the increasing GHG emission and thereby reduce global warming.

In order to reduce global warming and climate change issues, sustainable development is the thought to be one of the major ingredients which would help a country to continue its economic growth and development without harming the environment and thereby help in reducing the risk of climate change in the coming years.

India being the third largest consumer of fossil energy in the world plays a significant role in the climate change mitigation policies and achieving the confined sustainable development goals in order to prevent environmental impacts involved across the nation. Implementing various clean energy and energy efficient techniques and use of renewable energy helps to reduce energy

consumption and emission and thereby reduce energy intensity while keeping economic growth and output intact.

Researchers across the globe through several studies have found strong positive association between Energy consumption on one hand and economic growth and development on the other – both at the international level (Asafu-Adjaye, 2000; Ferguson et al., 2000; Tomal & Jemelkova, 2003; Martins, 2005; Narayan and Prasad, 2008; Guttormsen, 2010; Ouedraogo, 2013; Greenstone, 2014. Researchers at the national level (Behera, 2015; Kumari & Sharma, 2016; Srivastava, 2016; Ohlan, 2016, 2018; Aneja & Rampal, 2022) have proved that economic growth and development both have a positive linkage with energy consumption, and any shortfall in the latter will hamper the former. Against that background, let us analyse the country's current and future trends in energy consumption and emission to forecast India's future energy demand and predict a sustainable road map for the future.

2. Data and methodology

In order to analyze long run trend in Energy Consumption, Carbon Emission and Economic Growth, we have used secondary data from various sources like BP Statistical Review, International Energy Agency, World Bank. Energy consumption and carbon emission data were taken from the British Petroleum Company (BP) statistical review. The GDP per capita and population data were taken from the World Bank's World Development Indicators (WDI). Though annual data till 2020 was available, we dropped the 2020 data point as the COVID-19 pandemic unusually affected output and energy consumption due to the lockdown and closure of many production facilities in that year. Thus our study consists of data for 50 periods from 1970 to 2019. We then forecasted Energy Demand in India till 2040, which is a period of 20 years.

In this study, we have used regression analysis to prove the relation between per capita energy consumption, per capita carbon emission, per capita GDP and population. The functional form used was: i) ln PCEC = f(ln PCGDP, POP)

ii) ln $PCCO_2EM$ = f(ln PCGDP, POP, PCEC)

We have also used univariate time-series analysis using exponential smoothing, where forecasts are weighted averages of previous observations with exponentially decreasing weights on older terms. Specifically, we experimented with Exponential Triple Smoothing (ETS or Holt-Winters)

model. This method includes all three aspects of time series – level, trend, and seasonality components. Since annual data was only available, we dropped the seasonality component from the ETS method. We use the univariate method to forecast Per capita Primary Energy Consumption, Per capita Carbon Emission and Economic Growth (Per capita GDP).

Trends in energy consumption, emission and economic growth in India: An overview from 1970-2019

Energy has been universally recognised as one of the most important inputs for economic growth and human development. The energy sector holds the key in accelerating the economic growth of India. There is a strong linkage between economic growth and energy consumption and carbon emission. On one hand, growth of an economy, with its global competitiveness hinges on the availability of cost-effective and environmentally benign energy sources, and on the other hand, the level of economic development has been observed to be dependent on the energy demand (EIA, 2006). As the world's third largest energy consumer and carbon emitter (IEA, 2022), India has long been believed to mostly compromise with international environmental obligation. Using time series data for the period 1970-2019, the study investigates the impact of economic growth, energy consumption and emission in India.

Initially, from table 1.1 and 1.2 we find that in the year 1970, per capita energy consumption was 4.95 GJ with 0.03 MT of per capita carbon emission which resulted in 361.49 (constant 2015 US$ PPP) of per capita GDP. A positive trend was present in the growth of per capita energy consumption, per capita carbon emission and per capita GDP till the year 1990. Thereafter, we find a negative trend in per capita energy consumption and emission where the growth rates declined from 3.8 percent per annum during 1980-90 to 2.7 percent per annum of per capita energy consumption during 1990-2000 and from 4.1 percent per annum during 1980-1990 to 2.5 percent per annum of per capita carbon emission during 1990-2000. However, growth in per capita GDP followed an upward trend from 2.9 percent per annum during 1980-90 to 3.2 percent per annum during 1990-2000. Again, during 2000-2010 per capita energy consumption increased by 3.4 percent per annum with 3.5 percent per annum of per capita carbon emission resulting in

4.6 percent per annum growth in per capita GDP. However, with a consistent growth in per capita GDP, per capita energy consumption again declined by 3.2 percent per annum and per capita carbon emission declined by 3 percent per annum during 2010-19.

The reason behind the decline in per capita and emission was mainly due to the improvement in energy efficient tools and gadgets in manufacturing sector like bringing up energy efficiency in electricity (BEE Programme), fuel efficient cars and two-wheelers in automobile industries. Besides, various national and international environmental and energy policies such as Energy Conservation Act of 2001[1]; The Energy Policy Act (EPAct) of 2005[2], Energy Conservation Act of 2010[3] also helped in controlling energy consumption which thereby reduced the growth of carbon emission in the country.

Table – 1.1: Per capita Primary energy consumption (GJ), Per capita Carbon Emission and Per capita GDP of India – 1970-2019:

Year	Primary energy consumption (GJ) per capita	Carbon emission (MT) per capita	GDP (constant 2015 US$ PPP) per capita
1970	4.95	0.03	361.49
1980	6.28	0.04	388.82
1990	9.48	0.07	534.48
2000	12.68	0.09	755.48
2010	18.26	0.13	1238.01
2019	24.96	0.18	1941.82

[1] An Act to provide for efficient use of energy and its conservation and for matters connected therewith; by Ministry of Power, GoI.

[2] An Act which calls for the development of grant programs, demonstration and testing initiatives, and tax incentives that promote alternative fuels and advanced vehicles production and use; by U.S Department of Energy (U.S. Congress)

[3] The Act which empowers the government to specify energy consumption norms for equipment or appliances; by Ministry of Power, GoI.

Table – 1.2: Annual Average growth rate (%) of Per Capita Energy Consumption, Per capita Carbon Emission and Per capita GDP

Year	Growth (%) in PC Energy Consumption	Growth (%) in PC CO2 Emission	Growth (%) in PC GDP
1970-80	2.2	2.5	0.7
1980-90	3.8	4.1	2.9
1990-00	2.7	2.5	3.2
2000-10	3.4	3.5	4.6
2010-19	3.2	3.0	4.6

Source: Author's own calculation based on data from BP Energy Statistics, 2022 and World Bank

To portray the positive linkage between energy consumption, carbon emission and economic growth we investigate through a regression analysis where we find that there exists a positive and significant relation between per capita energy consumption and per capita GDP as well as that between per capita energy consumption and population (Table 2.1). There also exists a positive and significant relation between per capita carbon emission and per capita GDP as well as that between per capita carbon emission and per capita energy consumption (Table 2.2).

Table – 2.1: Relation between Per capita Energy Consumption and Per Capita GDP and Population– Regression Results: Dependent Variable: Per capita Energy Consumption

Explanatory variables	Values
PCGDP	0.145** (0.01)
Population	0.001** (0.00)
Adjusted R-square	0.995

Table – 2.2: Relation between Per capita Carbon Emission and Per capita Energy consumption, Per Capita GDP and Population– Regression Results: Dependent Variable: Per capita Carbon Emission

Explanatory variables	Values

PCGDP	-0.047* (0.04)
Population	0.00 (0.16)
PC EnCon	1.140** (0.00)
Adjusted R-square	0.999

Source: Author's calculation based on BP Energy Statistics. 2022; World Bank
Note: * and ** indicates significant at 5% and 1% respectively. Figures in parentheses are significant levels.

It is hard to get long-run macroeconomic data on unmet energy needs, so energy consumption is a proxy for energy demand. It is observed that energy consumption in India has undergone a rapid transformation during the study period, both in terms of Total Primary Energy Consumption (TPEC) and its composition.

India's Total Primary Energy Consumption (TPEC), which was merely 2.75 EJ in 1970, increased to 13.4 EJ by the turn of the century and then again rose sharply to about 34.2 EJ in 2020 (Table 3). If we leave out the transformation part, we find that Total Final Consumption increased from 9 EJ in 1990 to 26.4 EJ in 2020, rising by about 3.6 percent per annum. With its population growing much faster than China, India is predicted to become the world's most populous nation by 2027. This population growth, increased pace of urbanization, and an economy showing signs of recovery after the pandemic will ensure that India's energy consumption will significantly increase in the coming decades. Indeed, according to the International Energy Agency (IEA, 2021), the energy demand growth will be higher in India than in any other country over the next few decades. We have used forecasting method to project India's primary energy consumption in the next two decades. This will allow us to predict the likely shortfall in energy supply.

In addition to the increased energy consumption over the last five decades, India's energy mix has also changed. Fossil fuels like Coal, Oil, and Gas still account for more than 85 percent of TPEC in India, but this group has clearly declined since the turn of the century. This has been possible because of a rise in the share of Renewables. Another critical factor is that though coal-based thermal power still dominates the power generation sector – India's reliance on thermal

energy is significantly higher than its global peers, accounting for about 85 percent of energy generation versus a global average of closer to 60 percent – it's share is gradually decreasing. India's excessive reliance on imported fossil makes it imperative to have an optimal energy mix that will allow it to achieve its long-run goal of sustainable development.

Table - 3: Energy Consumption in India – 1970-2020

	Primary Energy					
Year	**TPEC**	**Coal**	**Crude Oil**	**Natural Gas**	**Hydro & Nuclear**	**Renewables**
1970	2.749	1.57	0.82	0.02	0.33	0.00
1980	4.387	2.37	1.36	0.04	0.62	0.00
1990	8.283	4.59	2.50	0.42	0.77	0.00
2000	13.423	6.88	4.61	0.91	0.98	0.04
2010	22.570	12.14	6.60	2.12	1.31	0.40
2020	34.190	17.90	9.58	2.18	2.25	1.58

Source: BP Energy Statistics
Note: TPEC- Total primary Energy Consumption; in Exajoules

Now, let us forecast the energy demand for the future ahead based on past and present performances and trends in per capita energy consumption, emission and economic growth. From table 4.1 and table 4.2, we find that the univariate forecasting of India's per capita primary energy and per capita carbon emission show a consistent exponential increase (Figure 1 and figure 2). Per capita energy consumption is expected to reach 32.27 EJ per capita and per capita carbon emission rising to 0.23 MT per capita in 2040 (Table 4.1 and 4.2). [Similar growth is predicted by IEA (2021)]. We find a positive and upward rising growth of per capita energy consumption and per capita carbon emission which shows an increasing trend for the future ahead (figure 1 and figure 2). It should be noted that the ETS approach is based only on past trends exhibited by the energy consumption and carbon emission variables.

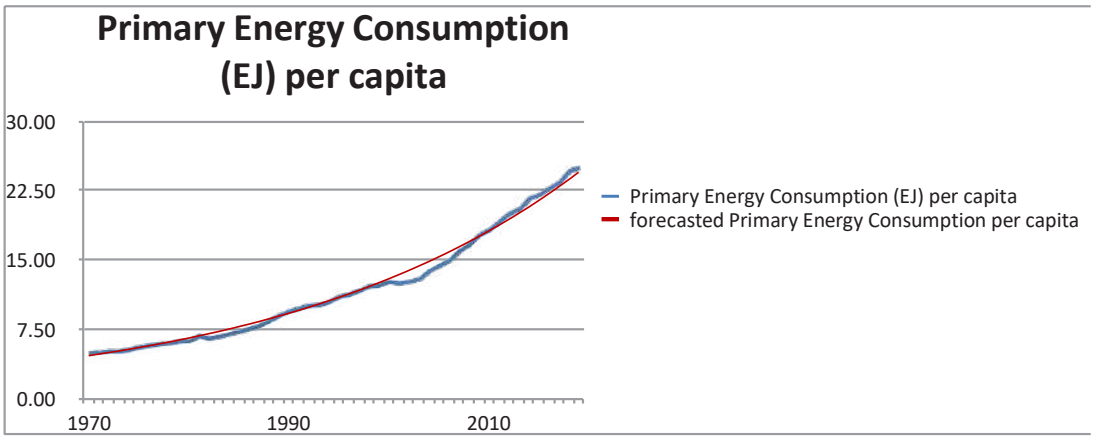
Table – 4.1: Energy Demand Forecast in India 2020-2040 (Univariate Forecast)

Year	Primary energy Consumption(EJ) per capita	Forecasted value (with ETS)

1970	4.95	-
1980	6.28	6.26
1990	9.48	9.36
2000	12.68	12.59
2010	18.26	18.10
2019	24.96	24.83
2030	-	27.17
2040	-	32.27

Source: Author's calculation based on secondary data from BP Energy Statistics, 2022; World Bank

Figure – 1 Actual and projected per capita energy consumption (1970-2040)



Source: BP Energy Statistics, 2022; World Bank

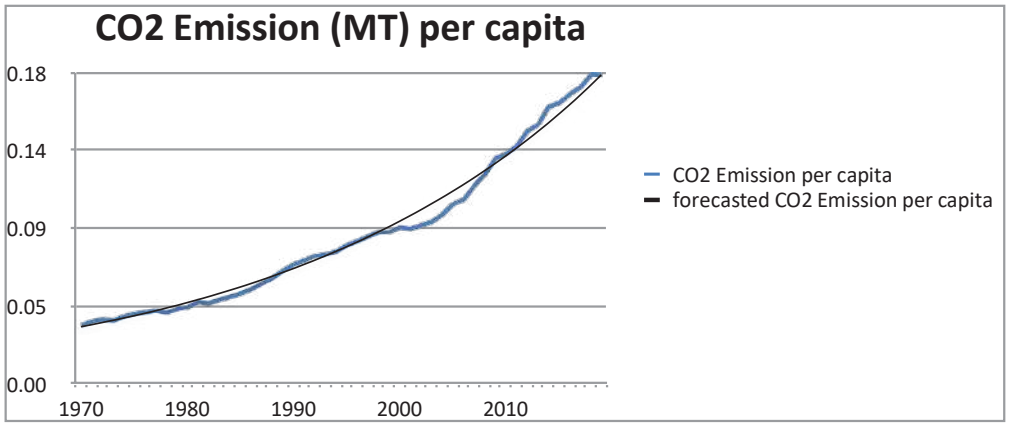
Table – 4.2: Carbon Emission Forecast in India 2020-2040 (Univariate Forecast)

Year	CO2 Emission (MT) per capita	Forecasted value (with ETS)
1970	0.03	-
1980	0.04	0.04
1990	0.07	0.06
2000	0.09	0.09
2010	0.13	0.13

2019	0.18	0.17
2030	-	0.19
2040	-	0.23

Source: Author's calculation based on secondary data from BP Energy Statistics, 2022; World Bank

Figure – 2 Actual and projected per capita carbon emission (1970-2040)



Source: BP Energy Statistics, 2022; World Bank

Policies and roadmap for a sustainable future

To keep up with the rapid increase in energy demand forecasted over the next two decades and to plan how to meet the increasing energy demand, a proper energy mix in the next 20 years in essential. India hopes to move towards a cleaner and environmentally sustainable energy sector in the near future. Indeed, our honorable Prime Minister Sri Narendra Modi had promised to accelerate the movement towards cleaner energy and raise the renewable energy capacity target for 2030 to 500GW during UNFCC (COP26). Achieving such ambitious goals while still substantially growing its energy production to fuel a rapidly developing country will require the concurrent scaling up of renewable sources like solar and wind to fill the gap left by the phasing down of coal and oil.

What are the implications of our analysis & findings for India's energy policy? During his Independence Day speech this year (2022), our honorable Prime Minister Sri Narendra Modi

stressed the need for India to be self-reliant in the energy sector. Several roadblocks must be overcome to achieve this goal, and significant policy changes must be made. Apart from this, India is heavily dependent on imported fossil fuel, which creates a continuous strain on the foreign exchange reserves and is environmentally unsuitable. Hence future investment must be specifically targeted to augment domestic production and increase the share of renewables.

The country should aim to meet 50 percent of energy requirements from renewable sources and thereby attain the goal of decarbonization in the country. Although Indian government has taken several steps to boost the renewable energy sector and it has achieved its commitment made at the COP 21- Paris Summit by already meeting 40% of its power capacity from non-fossil fuels. On the other hand, India is also one of the world's largest producers of modern biofuel which can help in reducing the use of crude oil and decrease vehicular emissions. India also has enormous potential to become a global leader in renewable batteries and green hydrogen. With that in mind, the National Hydrogen Mission was launched in 2021, which can help Indiaachieve its target of producing 450 GW of renewable energy by 2030. Nuclear energy could be another option to mitigate the energy demand in India. However, nuclear energy comes with high risks and limitations, especially in the context of a densely populated country in a region where terrorist activities are strife, and things have to be sorted out carefully before investing more in this area.

In other words, this paper prescribes a holistic approach – combining the existing domestic resources and developing possible renewable strategies to make an appropriate mix to improve the energy supply and meet demand. This requires a coordinated effort, from both public and private sectors, from renewable and non-renewable sources, domestic and imported sources. It should facilitate use of renewable energy and also incentivize green open access by building clean energy systems along with efficiency targets in order to build up sustainability in all the major sectors of the country. Unless India can implement significant changes to its energy mix and increase its investment in renewable and clean energy sources, it will not be able to meet its twin goals of achieving energy sufficiency and keeping up with its commendable target of significantly reducing its greenhouse gas emissions.

References

- Aneja, Ranjan and Megha Rampal (2022) Economic Growth and Electricity Consumption in India: An Econometric Analysis, Indian Economic Journal, Vol. 70, No 1, pp22-33, DOI: 10.1177/00194662211062428
- Asafu-Adjaye, J. (2000). "The Relationship between Energy Consumption, Energy Prices and Economic Growth:Time Series Evidence from Asian Developing Countries". Energy Economics 22: 615-625.
- Asif, M, T. Muneer (2007) Energy supply, its demand and security issues for developed and emerging economies, Renewable and Sustainable Energy Reviews, Vol. 11, Issue 7, pp1388-1413, [DOI:10.1016/j.rser.2005.12.004, accessed on 09-08-2022]
- Bhattacharyya, Subhes & Timilsina, Govinda. (2009). Energy Demand Models for Policy Formulation: A Comparative Study of Energy Demand Models. World Bank PolicyR e s e a r c h Wo r k i n g P a p e r 4 8 6 6 , T h e Wo r l d B a n k , M a r c h 2 0 0 9 [DOI:10.1596/1813-9450-4866, accessed on 12-07-2022].
- GOI, 2006, Integrated Energy Policy – Report of the Expert Committee, Planning Commission,G o v e r n m e n t o f I n d i a , N e w D e l h i , 2 0 0 6 (a v a i l a b l e f r o m h t t p : // planningcommission.nic.in/reports/genrep/rep_intengy.pdf, accessed on 16-05-2010).
- Greenstone, M (2014) Energy, Growth and Development, IGC Evidence Paper, IGC, March,2 0 1 4 [h t t p s : / / w w w . t h e i g c . o r g / w p - c o n t e n t / u p l o a d s / 2 0 1 4 / 0 9 /IGCEvidencePaperEnergy.pdf]
- IEA (2021) *India Energy Outlook 2021* (World Energy Outlook Special Report), International Energy Association, Paris
- Jorgenson, DW (1984). "The Role of Energy in Productivity Growth." Energy Journal 5(3): 11– 26
- Kurian, A. L. and Vinodan, C. (2013) Energy Security: A Multivariate Analysis of Emerging Trends and Implications for South Asia, *India Quarterly*, Vol. 69(4), pp383–400, [DOI: 10.1177/0974928413503749, accessed on 17-05-2022]
- Mathew, T. (1983). Energy, Environment and Development. India International Centre Quarterly,10(3), 359–370. http://www.jstor.org/stable/23001375
- Narayan, P. K. and A. Prasad (2008) "Electricity Consumption–Real GDP Causality Nexus: Evidence from a Bootstrapped Causality Test for 30 OECD Countries," Energy Policy,vol. 36, no. 2, pp. 910–18
- Ohlan, R., 2016. Renewable and non-renewable energy consumption and economic growth in India. Energy Sources Part B Economics Planning and Policy 11, 11, 1050–1054.
- Srivastava, S.K., 2016. Causal relationship between electricity consumption and GDP: plausible explanation on previously found inconsistent conclusions for India. Theoretical Economics Letters 6, 276–281.
- Suganthi, L. and A. Williams, 2000, Renewable energy in India – a modelling study for 2020-2021, *Energy Policy*, 28, pp1095-1109.
- An Assessment of the State of Knowledge, RFF Discussion Paper 03–13, Aril, 2003

Determinants of Crop Diversification: Analysis of two villages in West-Bengal

Simanta Ghosh
M.A. Economics
Department of Economics & Politics
Visva Bharati University

Saumya Chakrabarti
H.O.D
Professor of Economics
Department of Economics & Politics

Abstract

The patterns of crop diversification vary across the state and from district to district, so we attempted to determine the determinants of crop diversification in this paper. This study is based on a primary field survey, in which two villages were selected from two districts in West Bengal. The study looked at the structure of operational land holding, cropping patterns, patterns of diversification, and the income structure of farming households. We attempted to learn more about the input-output market structure, subsidies scheme, rural literacy, and how all of these determinants contributed to crop diversification. Some interesting facts show that diversification also depends on the commercialization of agriculture, and a lack of a well-developed market system forces people to choose monocrop patterns. On the other hand, a government-led procurement system encourages people to go for monocrop patterns. The study shows that the tendency toward diversification is more prevalent among small and marginal farmers. However, agricultural income alone is insufficient to sustain marginal farmers; income diversification is also required in addition to agricultural income)

Keywords: *Crop-diversification, Farmer category, farmer income, food procurement*

1. Introduction

West Bengal is predominantly an agrarian state, and it provides a large number of employment opportunities to the people. There are approximately 73.23 lakh farm families, the majority of whom are small and marginal farmers. For their survival, small and marginal farmers with limited cultivable land and no other means of income tend to adopt more and more multiple cropping and

diversify land toward the production of boro paddy rather than til, jute, or other competitive crops (De and Chattopadhyay, 2010). Crop diversification is the strategy of using same land by cultivating different types of crops. Crop diversification is required for increasing agrarian income, but it is hampered by a shortage of agricultural financing for cultivation and a lack of infrastructure for transportation, marketing, and storage of agricultural products (Kumar et al. 2020). According to world development report efficient markets necessitate good governance and public policy—infrastructure, organisations, and services that provide market information, set grades and standards, manage risks, and enforce contracts. The motivation of this study is to find the determinants of crop diversification and how and why they differ for each category of farmers.

2. Literature review:

A number of studies across India shows that how crop diversification depends on various factor. Two factors are involved here. a. demand side factors b. supply side factors.

A number of studies across India show that crop diversification depends on various factors. Two factors are involved here. a. demand-side factors; b. supply side factors

The supply-side factors of market infrastructure are very important. High value crops can boost agricultural diversification if markets and an efficient transportation network enable them to improve earnings and reduce the risk of output price declines. Farmers may not be able to take advantage of the potential benefits of growing high value crops due to inadequate markets. Stronger farm-firm ties would result from encouraging the right institutional structures for better markets through cooperatives or contract farming (Gulati et al., 2003). It has been shown that significant inter-district variances in diversification are caused by variations in market expansion and road density (De and Chattopadhyay, 2010).

The demand side factors that influence diversification include per-capita income and urbanization, which have a positive relationship with diversification (2003).. The per capita income and the percent of the total population residing in urban areas have been continuously on the rise during the last three decades in West Bengal (Dasgupta and Bhaumik, 2014; Mithiya et al., 2018). It has

also been seen that where the urban wage is higher, the diversification is greater. For example, the western and central regions of Bundelkhand, which had higher agricultural productivity, had higher urban earnings than the eastern and Bundelkhand regions (Pandey, 2012).

If a household head is more educated, his decision to sow a particular crop will be guided by good economic evaluations of the crop's costs and advantages. Furthermore, an educated farmer is more aware of existing demand and supply choices and is more sensitive to sophisticated techniques than an uninformed traditional farmer. As a result, the indicator of years of education should be favourable from the start (Kumar et al., 2012), and other personal characteristics of this farmer, such as age, gender, and caste, are also important factors in crop diversification. (Agarwal,2017) (Bansal et al., 2020) It has also been seen that the number of adult family members in agriculture has a positive relationship with crop diversification (Kundu and Chattopadhyay, 2018).

The Indian agricultural system is dominated by marginal farmers, who mostly work as agricultural labourer. On the other hand, it has been seen that the land owning (big size) class has less incentive to invest in agriculture, and they are diversifying agricultural land into residential land, and the cropping area is also reducing. Here, the agrarian labourer is converting themselves into cultivators by purchasing a tiny plot or by leasing in plot from big or medium farmer (Bhue and Vijay, 2016) On the contrary, crop diversification appears to be positively related to land holding size, with relatively large farmers having access to diversify toward high-value crops (Bansal et al. 2020, Kumar et al. 2020)

It has also been seen that the diversification has declined over time. Instead of diversification, specialisation in wheat and rice took place in the Punjab area. The probable cause behind this is better returns from rice and wheat and the availability of subsidies. The demand forces of MSP boosted supply-led growth (Singh and Sidhu, 2004).

3. Methodology

The objective of the project is an attempt to understand the situation of the farming sector and the pattern of crop diversification. To understand the whole thing, it is necessary to conduct a field survey to collect relevant and real primary data from the sample villages. Thus, field survey was done in the targeted villages, Panduk of Purba-Bardhaman district and Senkapur of Birbhum district.

I have focused specially on

- Cropping pattern and pattern of crop diversification
- Structure of operational landholding
- Income structure
- Determinants of crop diversification and their impact on diversification Database: Primary data

3.1 Selection of Villages

Though the project is based in West-Bengal, among 23 districts 2 districts were selected– Birbhum and Purba-Bardhaman. Both the districts are still not well developed in terms of agricultural productivity and the other source of income. So, to understand the diversification in cropping pattern and income diversification two villages from these two districts were selected depending upon their differences in distance from the city, market availability, geographical structure, irrigation sources etc.

according to Census 2011 data. Panduk village is in the Purba-Bardhaman district of West Bengal, India, and is part of the Ausgram II subdivision. It is 18.2 kilometres from the subdistrict headquarters at Amragar. Panduk village's district headquarters is Barddhaman. Ramnagar is the gram panchayat of Panduk village. The village covers a total area of 482.1 hectares. Panduk has a total population of 2,894 individuals, with males 1,467 and females 1,427. Panduk village has a literacy rate of 59.12 percent, with 66.64 percent of males and 51.13 percent of females being literate. In Panduk village, there are around 728 households. The nearer city of Pnduk is Gsukara which is 20km away from this village. On the other hand, Senkapur is situated on the riverbank

of Ajay. According to Census 2011 data. Senkapur (PURUSHOTTAMPUR) village is in the Birbhum district of West Bengal, India, and is part of the Bolpur-Sriniketan subdivision. It is 7.2 kilometres from the subdivision headquarters at Sriniketan and Bolpur – Sriniketan is also nearer city of Senkapur village. Senkapur village's district headquarters is Suri. Raipur-Supur is the gram panchayat of Senkapur village. The village covers a total area of 275.19 hectares. Senkapur has a total population of 1267 individuals, with males 671 and females 596. Senkapur village has a literacy rate of 72.70 percent, with 84.87 percent of males and 58.59 percent of females being literate. In Senkapur village, there are around 304 households.

3.2 Sampling :

For this project, stratified random sampling without replacement method was used to complete the sample survey. Two specific thorp was chosen, and a complete enumeration of 204 households from Panduk village and 175 households from Senkapur village was done. In a village, both categories of people—general caste (i.e., upper caste in the context of the Indian caste system) and schedule caste (i.e., the most disadvantaged socio-economic group in India)— live, so we have also tried to include them in the population and sample in a proportional ratio. .

As population data, I prepared a list of the amount of agricultural land owned by each household.

The population was then subdivided based on the size of their landholdings. Farmers with 0.1– 0.4 hectares of land are considered sub-marginal farmers, those with 0.41–0.1 hectares are considered marginal farmers, those with 1.00–2.00 hectares are considered small farmers, those with 2.00–4.00 hectares are considered small farmers, and those with more than 4.00 hectares are considered medium farmers. We have tried to maintain the ratio between the population and the sample. The following table shows the detailed classification.

Table 1: Landholding and sample

		PANDUK		SENKAPUR	
	Category	Population	Sample size(Total)	Population	Sample size(Total)
LAND SIZE (Hectare)					
0.1ha-0.4ha	Sub. Marginal	99	27	99	34
0.4ha-1ha	Marginal	48	16	48	15
1 ha - 2ha	Small	37	11	24	10
2ha -4ha	Semi-Medium	14	4	4	1
4ha>	Medium	6	2	0	0
	Total	204	60	175	60

4.Results and Discussion Diversification

index

There are many types of indices to measure diversification, and they all have their own limitations. So here we have decided to use Gibbs & Martin's crop diversification index. The range of the number is between 0 and 1. If the index moves towards 1, that means the area is moving towards highly crop diversification and if the index moves towards 0, that there exists complete specialization.

$$\text{Crop Diversification Index} = 1 - \sum x^2 - (\sum x)^2$$

Here, x is the percentage of total cropped area under an individual crop of the particular region.

Table No: 2

SENKAPUR Farmer Type	Sub marginal	Marginal	Small	Semi medium	PANDUK	Sub marginal	Marginal	Small	Semi medium	Medium
Obs.	34	15	10	1		27	16	11	4	2
INDEX	0.47	0.49	0.35	0.34		0.27	0.36	0.23	0.08	00

Here, Gibb-Martin's Index shows the result of crop diversification. The two villages of Senkapur and Panduk have different trends in diversification and also have different trends among the farmer categories. It is clear that Senkapur village is more diversified. In Senkapur, the sub-marginal and marginal farmers are more diversified than the small and medium farmers; this is also true for the Panduk village's farmers. Here, the marginal farmers are diversifying more than the other farmers. Despite the fact that the index difference between the sub-marginal farmer and the small farmer is very small. Here in Panduk village, for semi- medium and medium farmers, the index value is 0.08 and 0, so they are depending only on monocrop, i.e., Aman Paddy. Senkapur village, where small and semi-medium farmers are also attempting to diversify their crops. Though it is clear that Senkapur villagers are trying to live on crop diversification, but the index value is less than 0.5 for all categories of farmers. So, it cannot be said that Senkapur village is highly diversified.

Crop profile:

The cropping patterns of two villages in the study area, each with a different category of farmer based on land holding size, were examined. It is presented in Table no. 3. Cropping patterns have been observed to vary in these two areas. Here it is clear that Aman Paddy is the major crop, and all categories of farmers cultivate it. Potato is another highly cultivatable crop; in Panduk village,

it is cultivated primarily by small and marginal farmers (63.6 percent and 62.5 percent, respectively), while in Senkapur, it is cultivated primarily by sub-marginal, marginal, and small farmers (64.7%, 66.6%, and 50%, respectively). In Panduk village, the sub-marginal and the marginal (51.8% and 62.5%) farmers are trying to diversify by growing Boro paddy, but only a few farmers are cultivating it. In Senkapur village, this trend is less prevalent among the farmers. But in Senkapur, the sub-marginal, marginal and small farmers are diversifying by growing Rabi crop. For example, mustard is grown by 44.1% of sub-marginal farmers and 73.3% of marginal farmers. A relatively high-value crop like tomatoes and cucumbers is grown by the sub-marginal and marginal farmers. This trend of cultivating various types of crops is also true for Vegetable 1 and Vegetable 2, which include bitter, ladies' finger, brinjal, cauliflower, cabbage, and onion.

Table No: 3

Panduk	Sub Marginal		Marginal		Small		Semi medium		Medium		Senkapur	Sub Marginal		Marginal		Small		Semi medium	
Sample	27		16		11		4		2			34		15		10		1	
		%		%		%		%		%			%		%		%		%
Aman paddy	27	100	16	100	11	100	4	100	2	100		30	88.2	15	100	10	100	1	100
Boro paddy	14	51.8	10	62.5	3	27.2	0	0	0	0		7	20.5	5	33.3	5	50	1	100
Potato	5	18.5	10	62.5	7	63.6	1	25	0	0		22	64.7	10	66.6	5	50	0	0
Mustard	0	0	0	0	3	27.7	1	25	0	0		15	44.1	11	73.3	3	30	0	0
Tomato												11	32.3	10	66.6	2	20	0	0
Cucumber												9	26.4	6	40	0	0	0	0
Vegetable 1												10	29.4	4	26.6	1	10	0	0
Vegetable 2												2	5.8	2	13.3	0	0	0	0

Table No :4

SENKAPUR							PANDUK				
SL	Particular	Sub Marginal	Marginal	Small	Semimedium		Sub Marginal	Marginal	Small	Semimedium	Medium
1	Obs.	30	15	10	1		27	16	11	4	2
2	Leased in cost						4692.48	2515.62	0	0	0
3	Irrigation Cost		0	0	0		0	0	0	0	0
4	Fertiliser Cost	4401.122	4857.95	3524	4015		2811.91	2160.31	2648.08	2237.58	2495.53
5	No of Hired labour	22.93	30.21	40	42		14.07	27.53	39.9	43.75	48.75
6	Hired labour cost	5316.49	7626.26	10000	10606.06		3394.1	7029.68	9996.21	10937.5	12187.5
7	Seed Cost	1480.96	1348.58	1381.81	1575.75		938.93	1044.01	973.63	1237.5	1150
8	Pesticides cost	3762.29	3103.52	3169.36	3484.84		2809.85	2656.25	2610.4	2531.75	2500
9	Machine Cost	3311.448	3004.49	2589.53	1818.8		2559.88	2605.46	2811.36	2543.75	1875
10	Tot. Cost	19914.19	21033.47	21176.44	21836		16315.64	16821.25	19040.44	19487.58	21208.04
11	OUTPUT (quintal)	21.46	21.73	21.11	18.18		18.58	16.9	18.68	19.87	17.25
12	Revenue	30433.23	32138.05	30896.97	29797.98		27788.93	27692.7	3172.09	32428.65	27945.54
13	Net Income	10519.04	11104.58	9720.52	7961.27		11473.29	10871.46	12671.66	12941.07	6737.5

Productivity and input utilization per acre of Aman Paddy production in two villages We can see here that the use of input (input cost) such as fertilizer, pesticides, machines, and seed vary less among the various categories of farmers but varies greatly when hired labour is used. The submarginal and marginal farmer uses family labour and receives subsistence income from it.

5. Market structure

In these two sample villages, there are different market structures. The distance of the city market from these two villages and other infrastructure has created this difference. Senkapur village is only 7.5 km away from Bolpur – Sriniketan, and Panduk village nearest city is 20 km away from it. The vegetables grown in Senkapur village are sold in the Bolpur Sriniketan market, but there is no such market in Panduk village. Those in Senkapur village who diversify by growing vegetables and sell them in the city market get a higher price. There is one similarity between these two villages: both village farmers grow Aman paddy, but the marketing channels are different. In Senkapur, farmers depend upon the local traders, but in Pandak village, nearly 43% of farmers can sell at government procurement centre and receive the minimum support price (MSP).

Table No. 5

PANDUK	No of obs.	%	Sample
Sub-marginal farmer	1	3.7	27
Marginal farmer	9	56.2	16
Small farmer	10	90.9	11
Semi-medium farmer	4	100	4
Medium farmer	2	100	2
Total	26	43.3	60

The table shows us the access of the procurement centre (for Aman Paddy) to the farmer of Panduk village. There is clear discrimination among farmers; only small, medium, and semi-medium farmers have better access to the procurement centre, while the majority of sub-marginal and marginal farmers must rely on local traders, who obviously get a lower price in the open market.

In Senkapur village, where there is no access to the procurement centre, most of the farmers sell paddy to the local trader.

6. Agricultural Scheme Provided by Government:

State governments and the central government of India have started schemes to provide minimum income support to farmers. The state government of West-Bengal started the "Krishak Bondhu" (KB) scheme for the farmer, and it provides Rs 5,000 per acre in two instalments to the farmer. On the other hand, the central government of India has started the scheme in the name of "Pradhan Mantri Kisan Samman Nidhi" (PM-KISAN), which gives Rs 6,000 a year to the farmer. Though in reality, it has been seen that only well-off farmers are the beneficiaries of those schemes.

Table No: 6

SENKAPUR	Sub-marginal		Marginal		Small		Semimedium		TOTAL	
SAMPLE	34	%	15	%	10	%	1	%	1	%
K.B & PMKISAN	4	11.7	4	26.6	6	60	0	0	14	23.3
Only KB	8	23.5	4	26.6	3	30	0	0	15	25
Only PM-KISAN	0	0	0	0	0	0	0	0	0	0
NOTHING	22	64.7	6	40	1	10	0	0	29	48.3

Table No: 7

PANDUK	Sub-marginal		Marginal		Small		Semimedium		Medium		TOTAL	
SAMPLE	27	%	16	%	11	%	4	%	2	%	60	%
K.B & PMKISAN	2	7.4	9	56.2	10	90.9	2	50	1	50	24	40
Only KB	10	37	7	43.7	0	0	1	25	0	0	18	30
Only PM-KISAN	0	0	0	0	0	0	0	0	0	0	0	0
NOTHING	15	55.5	0	0	1	9	1	25	1	50	18	30

The above table (6& 7) shows the beneficiary status of both schemes, Krishak-bandhu and PMKISAN. In both villages, the sub-marginal and marginal farmers are less benefited by these two schemes. 64.7% and 55.5% of the sub marginal farmers from Senkapur village and Panduk village are not getting any benefit from a central or state scheme. The state scheme, Krishok Bandhu, benefits marginal farmers more than the central scheme, PM-KISAN. However, those who own more than one parcel of land benefit the most from this two-scheme arrangement.

7. Income Structure

Table No: 8

PANDUK	FRIQUENCY	Avg. Other Inc.	Avg. P/C Other Inc.	Avg. Ag. Inc.	Avg. Ag. P/C Inc.	Tot. Inc.	P/C Inc.
Sub-Marginal	27	36153.7	11456.39	13258.67	4438.69	49412.37	15895.08
Marginal	16	56884.38	13463.54	31976.56	8191.24	88860.94	21654.79
Small	11	107454.5	29200	70549.73	22560.8	178004.3	51760.8
Semi medium	4	230000	91250	103451.3	46164.38	333451.3	137414.4
Medium	2	360000	135000	128402.5	26302.81	488402.5	161302.8

Table No: 9

SENKAPUR	FRIQUENCY	Avg. Other Inc.	Avg. P/C Other Inc.	Avg. Ag. Inc.	Avg. Ag. P/C Inc.	Avg. tot. Inc.	P/C Inc.
Sub-Marginal	34	66438.82	15495.39	36251.74	9865.58	102690.6	25360.98
Marginal	15	22253.33	4184.16	90441.47	22294.53	112694.8	26478.7
Small	10	51600	12120	77444.6	20799.18	129044.6	32919.18
Semi medium	1	96000	32000	76490	25496.67	172490	57496.67

The income structure of the various categories of farmers is shown in table no. 8 and 9. The submarginal farmer's yearly income is the lowest among all types of farmers. Their income from agriculture and income from other sources is very low, as is their yearly per-capita income, which is too low to survive. The marginal farmer's income is relatively higher, but their agrarian income or income from other sources is only at the survival stage. Though the marginal and sub-marginal farmers of Senkapur village are better off than those of Panduk village, the probable cause behind this and the other sources of income for Panduk villages' marginal farmers is agrarian labor, but in Senkapur there is opportunity to generate income from nearer urban areas; they don't rely only on agricultural labourers. However, there is a significant income disparity between the relatively large farmer and the marginal farmer. In Panduk village, the inequality is greater than in Senkapur village.

Regression Result:

DIVERSIFICATION INDEX	Coef	St. Err
Location dummy	-0.025	0.086
Own Ag. land	-.03***	0.01
Education	.015**	0.006
Govt. Scheme : bas~0	0	.
1	0.05	0.059
2	0.059	0.057
Govt. Procurement	-.186*	0.095
No of fym. Member in Ag.	.09**	0.04
Constant	.256**	0.118
R- squared	0.384	0.239
Adjusted R squared	0.33	
Number of obs.	89	

Multiple regression was used to assess the responsiveness of the crop diversification index to various socioeconomic parameters. Here the six explanatories are:

- Location dummy: 1 represents the village of Senkapur, which has good market access, and 0 represents the village of Panduk , where the city's market access is less.

- The farmer's own agricultural land holding size has a negative relationship with crop diversification, and this is a significant result.
- Education (years of schooling) has a positive relationship with crop diversification. If a farmer is more educated, he will be able to easily learn to use new technologies and make the necessary decisions to cultivate high-value crops.

- Government schemes like Krishok Bondhu and PM-KISAN beneficiaries may cause a decline in crop diversification, though it is not significant. 0 represents the beneficiary of both schemes, 1 represents the only state-provided scheme, and 2 represents those who receive no scheme.
- Access to government procurement centre has negative relationship with crop diversification because here farmers get higher price and they have less incentive to diversifying.
- The total number of family member associated with agriculture has positive relationship with diversification because it assured labour availability and the production of vegetables and their post-harvest handling is a labour-intensive activity, and the importance of labour cannot be overstated. The availability of more family labour encourages farmers to diversify their crops in favour of high-value crops.

8. Political Economy of Crop Diversification:

As per World Development Report 2008 published by World Bank, crop diversification should be more in case of large or better off farmers who have better access to market, transport, infrastructures or government support and Farmers profit indirectly from technical help because they apply improved farm techniques for contract crops to other crops, improving their production. Even if they are talking about Contracting with processors and farmers, as well as employing preferred-supplier lists, are examples of modern procurement processes. This is frequently done where farmers or processors are grouped or have a high individual size (World development report 2008) but we found the contrary to happen. According to our survey, crop diversification is more in case of small farmers than that of large farmers. The primary reason behind this is large farmers often come under the roof of various direct government benefit schemes (central as well as state) such as PM Kisan (up to ₹6000 per year as minimum income support) or Krishok Bandhu which provides some immunity in regard to their subsistence , thereby reducing their incentive to diversify crops and more invest in agrarian sector where as poor registration of small or marginalised farmers in the aforesaid schemes due to lack of knowledge, inability to provide legit documents, red-tapism in bureaucracy compels them to cultivate various crops and seasonal vegetables apart from the usual staples.

These yields are mainly for their self-consumption, and some may be sold in local markets to ensure their subsistence.

Thus, we obtain a contradictory result in contrast to the World Development Reports,2008.

9.Conclusion:

From the empirical evidence, it is revealed that marginal farmers—those who have less than one hectare of land—are prone to crop diversification. Market demand, the size of one's own agricultural land, education, and the number of family members involved in agriculture all influence diversification. Government subsidies, such as paddy procurement and the minimum income support scheme, reduce crop diversification, and farmers tend to cultivate mono crop.Here,

among the two villages, Senkapur village's farmers are more associated with crop diversification because they have more access to these determinants.

Crop diversification generates income, but only agrarian income is not sufficient; other sources of income are also important factors for the survival of this agrarian family.

Bibliography

- "AGRICULTURE DIVERSIFICATION IN SOUTH ASIA: PATTERNS, DETERMINANTS, AND POLICY IMPLICATIONS" P.K. Joshi , Ashok Gulati , Pratap S Birthal and Laxmi Tewar ,2003, EPW
- "Crop diversification by poor peasants and role of infrastructure: Evidence from West Bengal", Utpal Kumar De and Manabendu Chattopadhyay, Journal of Development and Agricultural Economics Vol. 2(10), pp. 340-350, October 2010
- "Crop Diversification and Agricultural Growth in West Bengal" Suranjana Dasgupta and Sankar Kumar Bhaumik , Ind. Jn. of Agri. Econ. Vol.69, No.1, Jan.-March 2014
- "CROP DIVERSIFICATION AND ITS DETERMINANTS: State-Wise Analysis" , Amrit Pal Kaur, Jaspal Singh & S.S. Raju, The Indian Economic Journal: the quarterly journal of the Indian Economic association Volume 62(4), January-March 2015
- " FACTORS IN DECLINING Crop Diversification: a case study of Punjab" Jogendar Singh, R S Sidhu, December 25, 2004 Economic & Political Weekly
- "IMPORTANCE OF LANDOWNING NON-CULTIVATING HOUSEHOLDS Some more evidence" Chitrasen Bhue R Vijay, June 18,2016 Vol LI NO 25- Economic & Political Weekly
- "The Factors Influencing and Various Technological and SocioEconomic Constraints for Crop Diversification in Haryana" Harshit Bansal, Shirish Sharma , Raj Kumar and Ajay Singh, Economic Affairs, Vol. 65, No. 3, pp. 409- 413, September 2020
- World development report, 2008

Assessing the Own Tax Revenue generation potential of the most backward district of western Odisha, with special reference to Nuapada

Jyotirmaya Pattnaik
Ph.D. research scholar,
Sambalpur University,
Jyoti Vihar, Burla, Odisha
jyotirmayapattnaik1111@gmail.com

Prof. Sudhansu Sekhar Rath
Sambalpur University,
Jyoti Vihar, Burla, Odisha
rathsudhansusekhar@gmail.com

Abstract:

The socio-economic condition of a federation can be known from the poorest of its member states as in the case of Nuapada district in Odisha. The present piece of work tries to assess the own tax revenue generation potential of Nuapada, one of the most backward and underprivileged districts of western part Odisha. Additionally, the estimation of own tax revenue generation of Nuapada district would be helpful in visualizing the own tax revenue generation potential of western part of Odisha for which there is an ongoing demand of formulation of a new state by bifurcating it from the state of Odisha. Different taxes of local nature like State Goods and Services Tax (SGST), sales tax, entry tax, entertainment tax, luxury tax, property tax, excise duty, land revenue, road and motor vehicle tax, registration fees and stamp duties are taken into consideration while estimating the Own tax revenue generation of Nuapada. While the health of Odisha's economy is consistently improving, this paper would also inquire into the reasons behind the penury of the district's economy and would justify whether the own tax revenue generation potential of the district is deliberately being sabotaged.

Keywords: *tax revenue, Central Sales Tax, Goods and Service Tax, Entry Tax, Entertainment Tax, Luxury Tax, Value Added Tax, Professional Tax, Excise Duty, Land Revenue, Motor Vehicle Tax, Registration Fees and Stamp Duty*

1. Introduction

The word 'tax' is derived from the Latin word "taxare" which means to estimate. A tax is an enforced contribution, exacted pursuant to legislative authority. Indian taxation system comprises of Direct and Indirect Tax (Khurana A. & Sharma A). Taxes are monetary obligations payable to the government or authority, the encumbrance of which is borne by the society for the services rendered to them. Additionally, taxes are mandatory charges or duties levied on the goods, services and income of individuals or organizations. Taxes levied on income are widely regarded as direct taxes, and taxes levied on goods are known as indirect taxes. One of the reasons for introducing and collecting taxes is to generate government income to fund specific projects that guarantee reliable and functioning economic growth and development. By collecting taxes, basic services are provided to local residents by redistributing income and improving living standards. There is a link between the tax system and the level of economic growth in a country (Ihenyen & Ogbise, 2022). Burden Of the government also increases with the increase in the socio-economic responsibilities. The onus of financial liabilities to feed the ever-increasing population in a developing and quickly evolving nation like India is a backbreaking task to deal with.

The measure of the amount of tax revenue countries are expected to raise is widely measured by the tax to GDP ratio. It is adopted globally as a standard benchmark for assessing how well governments are raising tax revenues to finance their activities (Mohammed at el.). The International Monetary Fund (IMF) recommends 15 percent of GDP as the minimum benchmark on which countries should raise tax revenues in order to avoid fiscal risk. UNDP (2005) asserts that developing countries should raise twenty percent of their GDP in tax revenue as a requirement for achieving the Millennium Development Goals (MDGs). The tax revenue to GDP (also called tax ratio) globally is such that the more advanced countries raise an average of 35 percent of their GDPs as tax revenue while developing countries/ sub-Saharan African countries raise an average of 17 percent (OECD, 2013). This large gap between developed and developing countries is of utmost concern to global policy makers and tax compliance researchers (Besley and Persson, 2014). As the economy progresses in the path of development, the number of utility services increases for a welfare state. The government is also in obligation to provide numerous

services of necessary nature to its citizens at a minimal cost which is impossible for citizens to afford on their own.

Tax revenue in a country serves as life blood for the government whereas, the ratio between average revenue and gross domestic product (GDP) in developed countries was almost 35%in 2005. In developing countries, this ratio was almost 15%, while in third world countries tax revenue ratio was 12% of gross domestic product (Mughal &Akram, 2012).

The greatest challenge in the present era of international conflict and other imminent challenges is to maintain stability and lead the economy sustainably for which the importance of clearly defined taxation system is imminent.

Sustainable growth is fundamentally dependent on taxation. It promotes an effective state's fundamental purpose. Additionally, it serves as a catalyst for more receptive and responsible governments and for increasing the state's budgetary capabilities (T.K. Das, 2014). Hence in order to drive the economy sustainably and quite smoothly on the track, an unambiguous taxation system is indispensable.

According to Besley and Presson (2014), the funds the government utilizes to prosecute its numerous programs are acquired through tax and non-tax revenues. While it is agreed that governments could raise finance for their activities through tax and non-tax revenues like public enterprises, foreign aids and others; taxation has been projected as the major source of revenue (Brautigham, 2002). Taxes levied on income are widely regarded as direct taxes, and taxes levied on goods are known as indirect taxes. Adeleke Salami (2011) visualizes taxation as the most important and easy source of revenue to any government, as the government possesses inherent power to impose taxes and levies.

For the sustenance of an economy and for the development work to be carried on i.e.in order to provide basic public services to the residents of a nation, sponsoring welfare schemes, to improve the socio-economic conditions of the people, giving salaries and pensions to its employees a country requires a source of income of permanent nature and tax/revenue collection serve the intended purpose. The economic performance of a district may be affected by the fiscal capacity of the district concerned. Fiscal capacity is defined as the extractive capacity of a

government to raise tax revenues 'given the structure of the tax system and its available powers of enforcement' Besley and Presson (2013). The local governments in low income countries tend to suffer from the lack of fiscal capacity. Consequently, they are much more dependent on central governments grants to finance their budgets than sub-national governments in high income countries (Bahl 2002). Most of the broad based and productive tax handles have been assigned to the center perhaps, for reasons of stabilization and redistribution. These include taxes on income and wealth from non-agricultural sources, corporation tax, taxes on production (excluding those on alcoholic liquors, opium, hemp and other narcotics) and customs duty. A number of tax handles are assigned to the states as well. These include taxes on agricultural income and wealth, taxes on the transfer of property (stamp duties and registration fees), taxes on motor vehicles, taxes on the transportation of goods and passengers, sales tax on goods, exercises on alcoholic beverages, entertainment tax, taxes on professions, trades, callings and employment, property tax and taxes on the entry of goods into a local area for construction, use or sale (octroi). However, from the viewpoint of revenue productivity, only the tax on the sale and purchase of goods is important (Rao & Singh, 1998).

2. Background of the study Area:

The socio-economic condition of a federation can be known from the poorest of its members as in the case of Nuapada district in Odisha. Nuapada is one amongst the most underdeveloped and poor districts of Odisha, having 38 percent of its population below the poverty line as revealed by the Multi-Dimensional Poverty Index 2021. Though Nuapada's tax performance is better than Kalahandi, it is ranked below the eight districts of Western Odisha. Nuapada district is endowed with bounty of natural resources like dense Sal forest, Sesame, Teak and other dry deciduous tree species, abundance of non-timber forest products like Kendu/Tendu Leaf, Bamboo, Mahua flower and seeds, Sal seeds, dates, Ice Palm fruits trees, Bahada, Harda etc. to sustain the livelihood of the village dwellers during off agricultural season. Mineral deposits such as laterite, graphite, bauxite, granite, limestone and other precious & semi-precious stones are in abundance. In spite of all these resources the district of Nuapada is still poverty stricken and placed at the bottom rank amongst the districts of Western Odisha. At this juncture the analysis of Nuapada's own tax revenue generation becomes crucial. I posit that not only the own tax revenue generation of a local

government helps the state exchequer to grow, it also helps in financing the local developmental activities and to facilitate the provision of local goods. Previous literature has shown a well-established link between poverty and local tax revenue generation. The economic performance of a district may be affected by the size of the revenue it generates.

3. Objective of the study

The scope of the study is confined to Nuapada district in respect of its own tax revenue generation. The main objectives of the study are:

(1) To explore the potential of Nuapada's own tax revenue generation.

(2) To explore the sources and composition of revenue of local governments in Odisha.

(3) To evaluate the trend of tax revenue generation of Nuapada district.

(4) To investigate the revenue generation of Nuapada to Odisha's OTR ratio.

Nuapada is an ideal choice to study the case of western Odisha as a whole for innumerable reasons. First, the topography and climatic condition of Nuapada is quite similar to the rest of the districts of western Odisha i.e. having a dry deciduous forest zone, low irrigation potential and soil type having identical characteristics. Also, certain Socio-economic features of Nuapada like forced labor migration, poverty, prevalence of illiteracy, composition of scheduled caste and scheduled tribe population is quite identical to most of the districts of western Odisha. Thus, Nuapada is a representative case of districts in western Odisha to analyze the fiscal capacity of western Odisha.

The nature of Nuapada's economy is primarily agrarian though the district lacks a well-developed irrigation potential. Large and medium scale industrial units do not exist in Nuapada.

4. Local Government Collectible Taxes in Nuapada

For the consistent and continuous progress of a state there is the requirement of heavy investment in infrastructure, energy and power which can only be made by the government. Also, for the creation of human capital, significant investment is required in Health and Education which may not be

provided by any private entity. Hence the state comes forward to serve the intended purpose for which taxation becomes the prime source.

For many developing countries, total tax revenues were mainly derived from three sources: domestic taxes on goods and services (general Sales tax, excises) foreign trade taxes (mostly import duties), and direct taxes (mostly from corporations, rather than individuals). Wealth/property taxes and social security contributions continue to make modest contributions (Jomo, Kwame &Sundaram).

There are various sources of own tax revenue of a local entity of which a few significant are viz. Central Sales Tax, Entry Tax, Entertainment Tax, Luxury Tax, Odisha Value Added Tax (OVAT), Professional Tax, State Excise Duty, Land Revenue, Motor Vehicle Tax, Registration Fees and Stamp Duty, Electricity Duty, revenue from Forestry and wildlife, and revenues and royalty from Mines.

4.1. Central Sales Tax:

The Central Sales Tax is an indirect and origin-based tax levied on sales generated during inter-state trade and commerce only, within a country. Though it is a subject of the union list in the constitution of India and hence the prerogative of the central government is to levy the same. It is administered by the state of origin of the sales. Sales tax was collected as a percentage of the sale price of the commodity. The Goods and Service Tax has replaced the Sales Tax making the latter obsolete.

4.2. Goods and Service Tax Regime:

Goods and Services Tax (GST) is one of the most discussed Indirect Taxation reforms. It is a comprehensive tax regime levied on manufacture, sales and consumption of goods and services (Khuranaand Sharma). The GST implementation in India is “Dual” in nature, i.e., it would consistof two components: one levied by Centre (CGST) and another levied by states and Union Territories (SGST). However, base of tax levy would be identical(Khuranaand Sharma). Under the GST scheme, no distinction is made between goods and services for levying of tax. This means that goods and services attract the same rate of tax. GST is a multi-tier tax where ultimate burden of tax falls on the consumer of goods/services. It is called as value added tax because at

every stage, tax is being paid on the value addition (Khuranaand Sharma). GST is a comprehensive multistage value added tax (VAT) on goods and services where both central and state governments share the same tax base (Rao,MukherjeeBagchi, 2019). The primary objective behind development of GST is to subsume all sorts of indirect taxes in India like, Central Excise Tax, VAT/Sales tax, service tax, etc. and implement one taxation system in India (Nayyarand Singh, 2018). The GST based taxation system brings more transparency in taxation system and increases GDP rate from 1% to 2% and reduces tax theft and corruption in country (Nayyarand Singh, 2018).

In order to avoid the cascading effect of taxation, a designation-based tax system was introduced with the input credit mechanism. The system works on a real-time basis with continual uploading of invoices and credit details. Even mismatch reconciliation is done on a real time basis making the Tax compliance simplified. Even though GST subsumed Central Sales Tax, the Act of 1956 still governs the purchase or sale of goods in the course of inter-state trade and commerce, to the extent of the goods prescribed under the definition of "Goods" under section 8(3) (b). The GST Act currently excludes from its ambit six goods, namely, High Speed Diesel, Aviation Turbine Fuel, Liquor for Human consumption, Natural Gas, Petroleum Crude, and petrol which will fall under the CST and State Sales Tax.

4.3. Entry Tax:

In India, entry tax is charged on the movement of goods from one state to another. It is imposed by the recipient state to protect its tax base.

Entry Tax is a tax imposed by the state government on the movement of goods from one state to another within the territorial waters of a nation. In order to protect its tax base, the recipient state levies this tax. Dealers, industrial/commercial/trading undertakings, central and state government companies, firms, societies, and clubs which carry on business come within the ambit of this tax. This tax has also been subsumed by the GST.

4.4. Entertainment Tax:

Entertainment tax is a tax of indirect nature levied by the state government on any form of entertainment like movie tickets, large scale commercial shows, exhibitions, arcades, celebrity

stage shows, theater shows, video games, activities related to sports, amusement parks. As the state government is the authority responsible for the collection of entertainment tax, hence the rate differs from one state to another. Prior to the implementation of GST the tax was charged at 25 percent in Odisha. It has become obsolete during the post GST regime.

4.5. Luxury Tax:

Luxury Tax is an indirect statutory tax or surcharge levied only on products or services that are deemed non-essential or accessible only to the super wealthy. It is primarily imposed on the services offered at hotels, spas, and resorts.

4.6. Value Added Tax:

VAT is a form of tax that is levied on the actual transaction value of a product or service at each stage of production, distribution, or sale to the end consumer and it is assessed incrementally. The Goods and Service Tax has replaced the Value Added Tax.

4.7. Professional Tax:

Professional tax is a tax levied on all individuals who earn a living through any medium and it is being charged by the State government. Though the Professional tax rate differs from one state to another, there is a limit of Rs 2500 per year for this tax. In Odisha PT is not charged for persons earning below Rs.13,304 per month and People whose monthly income varies between Rs.13,305 to Rs.25,000 are charged Rs.125 per month. Income earners whose income exceeds Rs.25,000 per month are charged Rs.200 for 11 months and Rs.300 for the last month of the year. Hence the annual Professional Tax due is divided into 12 monthly installments that are paid every month.

4.8. Excise Duty:

Excise taxes are another important source of revenue in developing countries. They are particularly levied on a few products such as alcohol, tobacco, petroleum, vehicles and spare parts. From a revenue perspective, they are convenient, involving few producers, large sales volumes, relatively inelastic demand and easy observability. Excise may be levied on quantities leaving the factory or arriving at ports, thus simplifying measurement and collection, ensuring

coverage, limiting evasion and improving monitoring. Excise taxes currently amount to less than 2% of GDP in low-income countries. They have a buoyant base and can be administered at low cost (Jomo, Kwame &Sundaram).

Excise duty is a form of indirect tax levied by the Central Government for the production, sale or license of certain goods. Excise duty charges are also collected by state governments for alcohol and narcotics. Though Excise duty has been replaced by the GST since 1st of July 2017, certain products like alcohol and narcotics, petroleum do not come within the ambit of the GST.

4.9. Land Revenue:

Land revenue is also called land/property tax paid to the municipal bodies of the states by the land owner for holding the same. Land revenue is also paid for on the purchase of a built property, or in case of any improvement made to the land. The tax base is the market value of the land. The market value, once determined, is applicable for a minimum period of 5 years and a maximum of 10 years. The rate of tax varies from 0.5 percent to 1 percent depending on the value of land. Also water tax, Rent, sairat, and cess are also collected by the same authority. The land revenue collected by the municipal bodies is used in the maintenance and amenities such aswater and power supply, sewage systems, lighting and cleanliness, etc.

4.10. Motor Vehicle Tax:

Road tax, which is also known as Motor Vehicle Tax, is imposed for using motor vehicles on roads. The state government, where the vehicle is registered, is the competent authority to impose the said tax. Hence the Motor vehicle Tax differs from one state to another even for the same kind of vehicle. Various factors are taken into consideration for calculating the tax like engine and seating capacity, weight of the vehicle, cost of the vehicle, etc. Basically, For the purpose of the construction and maintenance of the roads, and for providing various safety and emergency related services along the roads, the state government of every state levies the tax.

4.11. Registration Fees and Stamp Duty:

One of the important contributors to state revenues is stamp duty ("transfer tax" or "mansion tax" in other countries), and ad valorem tax that the government collects whenever an immovable property transaction takes place (Mukherje& Mukherjee, 2018). Registration Fees and Stamp Duty are a form of tax levied by the state governments during the purchases of property. The property buyer pays these taxes at the time of registration of the property to make the property document legally enforceable and valid. After the registration, the new buyer becomes the property owner in government records. The Indian federal system of government assigns to state governments the jurisdiction of collecting stamp duty and deciding the rate (Mukherjee and Mukherjee, 2018). Hence, rate of Registration Fees and Stamp Duty charges differ from state to state. For example the stamp duty charges of Madhya Pradesh is 9.5 percent of the consideration money, the highest in India, while states like Telangana, Uttarakhand, Odisha impose the rate of 5 percent for the same. Also, the Government of Odisha imposes 2 percent of the consideration money as the Registration Fees.

5. Results and Analysis:

5.1. Own tax revenue generation from Nuapada District over the Years

In addition to the above mentioned major own tax revenue sources, in a federal form of government structure like that of India, the state level governments receive supplementary budgetary resources from the central government as support for the former's public expenditure activities. The devolution of funds from the center to the states takes the form of share of the revenue raised by central taxes and grants-in aid. An individual state's tax revenue collection, relative to its taxable capacity, is a major determinant of the amount of funds to be allocated for the state. (Coondoo at el.).

A state government has twelve key diverse sources for generating its own revenues which are imposed and collected by the state government itself. A more urbanized district generates more tax revenue.

Table 1: Own tax revenue generation from Nuapada district over the years has been presented below

Own Tax Revenue Generation Of Nuapada District (in Lakh)

Sr.No	**Year**	**SGST**	**CST**	**Entry Tax**	**OET**	**OLT**	**OST/VAT**	**PT**	**Excise**	**Land Revenue**	**MV**	**Reg Fees**	**Stamp Duty**	**Total own Tax revenue**	**% Change**
1	2006		2.42	33.07	0	0	477.78	37.51	173.07	425.33	155.48	16.99	60.6	1382.25	
2	2007		3.06	41.44	0	0	631.46	46.15	176.7	530.82	186.69	21.35	79.72	1717.39	24.25
3	2008		4.36	67.46	0	0	804.8	54.88	200.76	610.25	203.78	34.1	97.88	2078.27	21.01
4	2009		2.42	100.91	0	0	1333.33	74.74	220.92	556.44	319.99	33.17	75.45	2717.37	30.75
5	2010		3	96.89	0	0	1228.34	76.66	244.45	679.78	302.13	38.44	90.57	2760.26	1.58
6	2011		3.97	78.76	0	0	899.6	63.7	298.2	760.26	289.87	45.54	110.75	2550.65	-7.59

7	2012		4.54	87.29	0	0	916.4	73.04	342.33	824.6	340.05	39.74	94.81	2722.8	6.75
8	2013		7.02	58.9	0	0	991.7	102.29	383.57	932.97	383.2	50.27	119.53	3029.45	11.27
9	2014		9.19	126.74	0	0	1274.13	117.24	430.91	1073.28	332.68	59.01	141.36	3564.54	17.63
10	2015		9.3	152.14	0	0	1703.53	130.89	528.11	894.59	414.69	72.09	170.88	4076.22	14.36
11	2016		14.83	144.72	0	0	1661.71	96.52	635.85	625.03	494.58	85.54	200.56	3959.34	-1.65
12	2017	172.41	9.35	62.42	0	0	698.18	118.97	724.27	223.53	786.11	110.25	230.06	3135.55	-22.8
13	2018	1158.45	0.43	13.75	0	0	129.46	152.24	852.89	777.48	886.36	129.86	275.57	4376.49	8.66
14	2019	1201.66	0	0.16	0	0	437.12	183.75	658.14	754.3	981.39	133.07	263.95	4613.54	1.56
15	2020	934	0	0.72	0	0	407.98	186.26	463.77	216.76	781.85	148.85	325.59	3465.78	-23.29

16	2021	973	0	0	1.11	0	591.3	236.22	821.43	849.65	757.45	179.67	384.48	4794.31	64.48

Source: Data collected from the respective offices in Nuapada district.

The CT GST office of Nuapada was functioning under Kalahandi circle prior to the year 2006. In order to avoid ambiguity in calculation, the panel data has been taken from the year 2006-2021.

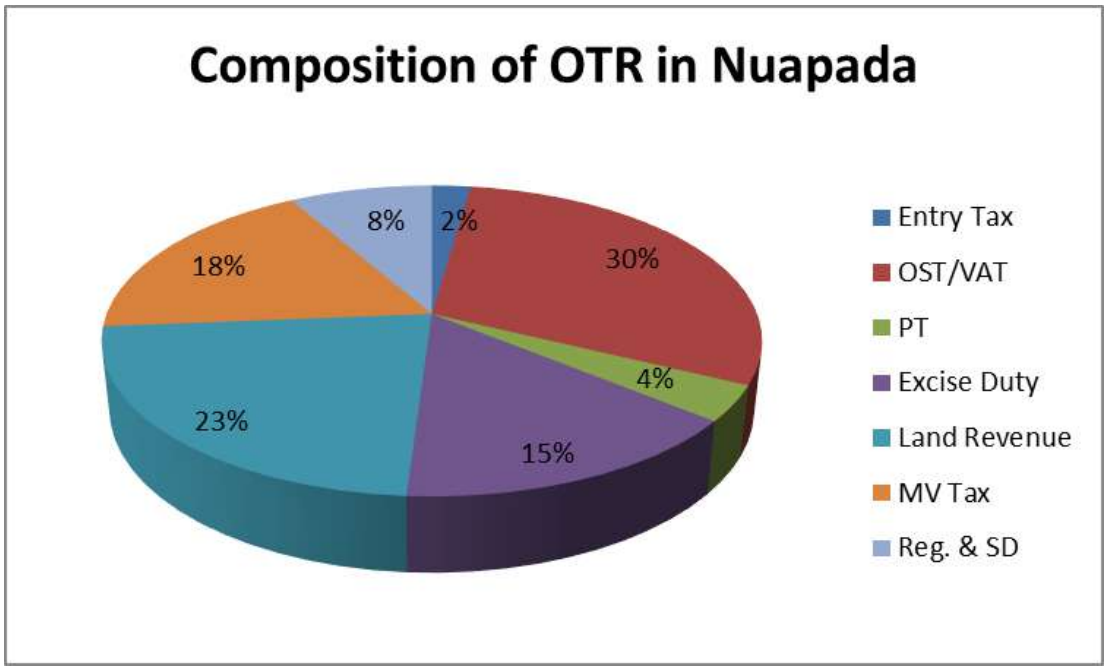
The data 2006-2021 shows, the Own Tax Revenue collection from Nuapada district was 138.23 million in the year 2006, which surged to 171.74 million within a year showing 24.25 percent increase. In the year 2009 OTR collection from Nuapada district was 271.73 million, the highest in the decade. After the year 2010 the OTR of Nuapada increased at a diminishing rate up to the year 2012. The year 2011 showed degrowth of the tax revenue generation of Nuapada. In the year 2011 the own tax revenue of the district dipped to 255.06 million though, it showed a sharp rise in the year 2015 viz. 407.62 million. The own tax revenue of Nuapada has been increasing continuously except the year 2020, possibly because of the post pandemic effect. After the pandemic ends the own tax revenue growth resumes and becomes ₹479.43million in the year 2021.

Among all the Tax sources of revenue, the commercial tax contributes the most to the total OTR collection realized from Nuapada. Commercial Tax involves the tax levied on sales, purchase and exchange of goods and services and currently referred to as Goods and Service Tax. Taxes like CST, Entry tax, Entertainment tax, Luxury tax, and OST/VAT etc. have subsumed by the Goods and Service Tax (GST) after 1st of July 2017. The share of OST/VAT was highest among all the taxes realized from Nuapada amounting to ₹48 million rupees in the year 2006 and further surged to a high 134 million rupees within three years showing a 179 percentage increase. In the year 2015, the share of OST/VAT to total OTR of Nuapada was 42 percent. Likewise, the Entry tax collection from the district increased from 3.3 million in 2006 to 14.47 million in a decade but the years post 2016, it showed a sharp decline amounting to a mere 0.08 million in the year 2020.

The collection of Entertainment tax and Luxury tax collection made from Nuapada district during the whole period of study, except the year 2021, was zero. All the taxes like CST, Entry tax, Entertainment tax, Luxury tax, OST/VAT etc. showed a sharp fall after the year 2016 as these were merged in to a unified tax system called the Goods and Services Tax. The Professional tax collection has been increasing continuously i.e. from 3.8 million rupees in the year 2006 to 23.7 million rupees in the year 2021. The collection of Excise duty showed a many fold increase within a decade viz. from 17.31 million in 2006 to 63.6 million in 2016. In the year 2015 the share of Excise duty to the total Own Tax Revenue of Nuapada was 12.95 percent. In the same year the share of Land Revenue to the OTR of Nuapada was 21.93 percent. The Land Revenue includes cess, N.cess, water charges, sairat, land revenue etc. collected from different Tehsils of Nuapada district. Motor Vehicle Tax collection was only 15.6 million in the year 2006 and it jumped to 78.6 million in the year 2017, which indicates the economic well-being and improvement in the standard of living of the residents of Nuapada district. Registration Fees and Stamp Duty collection indicates the transaction in relation to land of a particular area. Registration fees collection was 1.7 million in 2006 and it was increased to 17.96 million in the year 2021. The trend is the same with the Stamp Duty collection as it has also increased from 6.1 million to 38.5 million in the year 2021.

5.2.Composition of Own Tax Revenue of Nuapada:

If we look into the panel data, the sixteen year average time period shows that the share of Commercial Tax (like CST, OST/VAT, Entry Tax, Entertainment Tax, Luxury Tax) was the highest in the pre-GST era. And Out of these commercial taxes, the share of OST/VAT is quite significant as has been depicted in the following Pie chart below.



Average collection of Land Revenue is 67.09 million per annum, making it the second largest source of revenue. Likewise, other significant sources of OTR of Nuapada are, Motor Vehicle Tax & Excise Duty being the third and forth significant contributor to the OTR respectively. If we consider the revenue generation of Nuapada in per capita terms, in the year 2006, it was 260.47 Rupees (According to the 2000 Population Census). In the year 2015 the per capita revenue generation was 667.81 Rupees and 700 Rupees in the year 2021(as per the 2021 estimated population).

The Decadal growth rate of per capita revenue from the year 2006 to 2015 is 194 percent which was quite impressive for a district ill famous for poverty and forced labor migration.

5.3. Share of OTR of Nuapada to the Total Own Tax Revenue of Odisha:

Comparison of OTR of Nuapada with that of Odisha (figures are in Lakh)

Sr. No	Year	OTR of Odisha	OTR of Nuapada	OTR of Nuapada as % of OTR of Odisha	Nuapada's OTR grow rate
1	2006	606506	1382.25	0.23	
2	2007	685609	1717.39	0.25	24.25
3	2008	799520	2078.27	0.26	21.01
4	2009	898234	2717.37	0.3	30.75
5	2010	1119266	2760.26	0.25	1.58
6	2011	1344274	2550.65	0.19	-7.59
7	2012	1503413	2722.8	0.19	6.75

8	2013	16891.59	3029.45	0.18	11.27
9	2014	1982829	3564.54	0.18	17.63
10	2015	2252696	4076.22	0.18	14.36
11	2016	2285239	3959.34	0.17	-1.65
12	2017	2791381	3135.55	0.11	-22.8
13	2018	3031833	4376.49	0.14	8.66
14	2019	3231518	4613.54	0.14	1.56
15	2020	3425817	3465.78	0.10	-23.29
16	2021	4146700	4794.31	0.11	64.48

Source: (1)Odisha Budget at a glance. (2013-2014*). Finance Department, Government of Odisha.* (2)Odisha Budget at a glance. (2018-2019*). Finance Department, Government of Odisha.* (3)Odisha Budget at a glance. (2022-2023*). Finance Department, Government of Odisha*

As we can see from the Table above, the own tax revenue of Odisha has been growing consistently i.e. from 606506 lakh in the year 2006 to 1344274 lakh in 2011 and further to 3231518 lakh in 2019 and finally reached at 4146700 lakh in the year 2021. Though the OTR of Nuapada district has also grown many times over the years, it shows a falling (negative trend) trend i.e. OTR from 1328.25 lakh in the year 2006 to 2550.65 in the year 2011 and further to 4613.54 lakh in 2019, finally reaching 4794.31 lakh in the year 2021.

6.Conclusion:

The provision of public infrastructure and government services is a key factor for economic development. In many developing countries, a lack of public service provision slows down economic growth and undermines efforts to improve the living standard of the population. There are a number of reasons for the failure of many governments in developing countries to provide sufficient public services. A lack of tax revenue is one of them (Fuest and Riedel,).

Though Own Tax revenues of a local government are relatively small to the district's total budget, still it plays a role of prominence. As has been well established by the previous literature, the poorer districts generate less tax revenues compared to the richer ones as the income base for taxation is greater in the developed, urbanized districts.

Natural, socio-economic and demographic factors of the jurisdiction of the local government are important determinants of locally generated revenues, especially those that determine the tax revenue base and the capacity of the local government to collect taxes. Although tax rates and revenue-generation assignments are likely to be the same across different jurisdictions, differences in the above factors will have different implications on the amount of revenue generated by local governments. For example, jurisdictions with larger deposits of natural resources are more likely to generate greater local revenues through royalties from mining or extraction of the natural resources. Similarly, jurisdictions with greater non-farm economic activity and private residences are more likely to generate greater local revenues through more business license fees, which are mostly levied on firms, and property taxes, which are levied on private residences. As citizens often have a say in the variety of taxes or level taxes instituted, the social composition of the jurisdiction, be it along ethnic, religion or other social line, is

another potential factor, although the direction of impact on local revenue generation is ambiguous (Mogues, Benin,Cudjoe:2009,P.5/28. The OTR of a district indicates its overall economic health, as there are certain factors responsible for the generation of OTR like population composition, rainfall, soil type, irrigation, climate, literacy, poverty etc.

For example, an area with more Scheduled Castes and Scheduled Tribes population will generate less OTR as there would be the prevalence of illiteracy, poverty and hence more dependence on agriculture and allied activities. If the climatic condition of that area is harsh with low rainfall and less irrigation potential as has been evident in Nuapada, then there would be the possibility of forced labor migration.The district has a dominant Scheduled Castes and Scheduled Tribes population i.e. the SC & ST population together constitute 47% of the total population of Nuapada. The population density of Nuapada is only 158 per sq.km as compared to 800 per sq. km in case of Khordha district. The more urbanized and populated a district is, the more will be the revenue generation from that district. Out of the total population of Nuapada, ninety four percent are rural dwellers. Nuapada's geomorphic variations include moderately high heels, isolated hillocks, undulating plains, intermontane valleys etc. The role of the local administration in actualization of local tax revenue also cannot be denied. The more efficient the administration is, the more collection of tax revenue would be. Though major tributaries of river Tel like Indra, Udanti, Hatti and Sagada are there, due to the adverse terrain the irrigation facility is underutilized. The generation of local revenues requires robust monitoring and enforcement systems and qualified staff, who are costly to employ and maintain (Besley and Persson, 2013). Moreover, external transfers discourage rather than encourage local government's own revenue generation (Mogues,Benin,Cudjoe; 2009). There has been an increase in the size of external transfers to the state exchequer over the years and might it be one of the reasons for the low level of own tax revenue generation by the local governments. Another reason why the tax rate is low in poor countries is that many countries receive significant aid flow, which is a significant fraction of GDP and often larger than domestically generated tax revenues. Moreover, aid flows to the poorest countries of the world are large (Besley and Persson, 2014). All the above adverse conditions are responsible for the low tax revenue actualization from Nuapada district.

Developing countries are facing challenges in their developmental efforts because of the collection of low tax revenue generation. Local government budgets are commonly dominated by intergovernmental and external transfers, which are often tied to specific investments, and these at times may not match local government priorities. Thus local government's fiscal autonomy ultimately depends on their ability to generate sufficient revenue internally (Mogues,Benin,Cudjoe, 2009). Additionally, the tax base of the local government should be widened, tax avoidance and evasion are required to be reduced in order to raise the tax revenue to GSDP ratio of the local governments.

References:

- Bahl, R. (2000). *Intergovernmental transfers in developing and transition countries: principles and practice*.
- Besley, T., &Persson, T. (2014). Why do developing countries tax so little? *Journal of EconomicPerspectives*, *28*(4), 99–120.
- Bräutigam, D. (2002). *Building Leviathan: Revenue, state capacity, and governance*.
- Coondoo, D., Majumber, A., Mukherjee, R., &Neogi, C. (2001). Relative tax performances: Analysis for selected states in India. *Economic and Political Weekly*, 3869–3871.
- Das, T. K. (2014). Government revenues of Orissa: an analysis. *Das, TK (2014)'Government Revenues of Orissa: An Analysis', Int. J. Indian Culture and Business Management*, *8*(1), 124–137.
- Fuest, C., & Riedel, N. (2009). Tax evasion, tax avoidance and tax expenditures in developing countries: A review of the literature. *Report Prepared for the UK Department for InternationalDevelopment (DFID)*, *44*.
- Ihenyen, C. J., Fbise, T. A. S. (2022). Effect of Tax Revenue Generation on Economic Growth in Nigeria. *International Journal of Business and Management Review*, *10*(2), 44–53.
- Khurana, A., & Sharma, A. (2016). Goods and Services Tax in India-A positive reform for indirect tax system. *International Journal of Advanced Research*, *4*(3), 500–505.
- Masaki, T. (2016). *The impact of intergovernmental transfers on local revenue*

generation in Africa: Evidence from Tanzania. WIDER working paper.

- Mukherjee, V., & Mukherjee, P. (2018). Determinants and Efficiency of Stamp Duty Revenue Collection. *Economic & Political Weekly*, *53*(23), 115.
- Nayyar, A., & Singh, I. (2018). A comprehensive analysis of Goods and Services Tax (GST) in India. *Indian Journal of Finance*, *12*(2), 57–71.
- Rao, R. K., & Chakraborty, P. (2010). Goods and services tax in India: An assessment of the base. *Economic and Political Weekly*, 49–54.
- SUNDARAM, J. K. (2013). Enhancing Tax Revenues: A Global Priority. *Economic and Political Weekly*, 18–20.
- Umar, M. A., Derashid, C., & Ibrahim, I. (2017). Challenges of tax revenue generation in developing countries: Adopting the carrot and stick approach. *Journal of Humanities and Social Sciences*, *22*(1), 30–34.

Shadow Pandemic: The Story of The Other Half

Priyanka Pandey
St. Xavier's College
(Autonomous)
Kolkata

Ananya Mukherjee
St. Xavier's College
(Autonomous)
Kolkata

1. Abstract

The COVID 19 pandemic and the economic loss pandemic were the two most talked topics in the past two years. However, what laid below the iceberg was the Shadow Pandemic of Violence and Abuse against Women. While home was considered to bethe best place to save ourselves from coronavirus, it wasn't the safe place for many women. COVID-19 has uncovered the existing inequalities in families and society and exacerbated the structural factors that contribute to domestic and intimatepartner violence within the confined walls of "HOME".

The aim of the paper is to investigate whether under-reporting of domestic violence cases was higher during the lockdown period in 2020. If that is the case, then what might have been the reasons behind the inconsistency between the published data and the real situation. It also talks about the various governmental and non- governmental and the judicial and non-judicial remedies available and how effective they are. The paper further tries to question why under-reporting of domestic violence cases is still prevalent despite existing remedies and policies. Secondary data from different sources have been studied and analyzed. An attempt has been made to suggest policies and measures to strengthen the national efforts to combat the pandemic related surge of violence against women and girls.

Keywords: *Domestic Violence, COVID 19, Protection of Women, Bargaining Power,Policies, Economic Development*

2. Introduction

"STAY HOME, STAY SAFE!" was a slogan that was trending everywhere in the worldand was probably the only way to save ourselves for the pandemic. But not everyonewas safe at home. UNITED NATIONS defines violence against women as, "any actof gender-based violence that results in, or is likely to result in, physical, sexual, or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life." (Organization, n.d.) COVID-19 has uncovered the existing inequalities in families andsociety and aggravated the structural factors that contribute to domestic and intimatepartner violence. The mandatory lockdowns were undoubtedly an appropriate measure to fight the public health emergency of COVID 19 Pandemic, but there was another major pandemic which we address as The Shadow Pandemic that laid beneath the iceberg.

While the roots of violence against women go back in history, those re-emerged during the lockdown period, included women were being forced into sexual relations and experience severe violence, including forced chopping of hair, starvation, demands for dowry by the marital family, and so on (WOMEN, 2020). Domestic Violence as social issue have haunted humanities since ages, but what has been leftundiscovered that the violence within the confined walls do affect the overall development of the nation. In the estimates on violence published by WHO, it was observed that globally about 1 in 3 (30%) of women across all nations have experienced either physical and/or sexual violence or non-partner sexual violence during their lifetime (WHO, 2021). Women protection becomes a concern of utmost importance in India due to the lack of positive deviance at community level, equity issues, socio-economic factors, illiteracy, migration from rural to urban areas, inaccessibility to legal help and of course many more factors. Going through the various reports and statistical data, it was observed that there was a substantial void between reality and the existing literature. The paper aims to address the void and thereby suggest measures, which when combined with the existing the policies, can help in the eradication of violence against women and help in the overalldevelopment of the nation.

3. Literature Review

In Thiruvananthapuram, Kerala a man strangled his 19-year-old wife to death as sheinsisted on visiting her parents during the lockdown. He forcefully made her consumean alcoholic drink by holding her neck and cheeks. After getting her into an inebriated condition, he strangulated her and hung her body from the ceiling fan in the house to pass it off as suicide (Digital, 2020)

A junior doctor in AIIMS - Bhubaneswar, Odisha was threatened with rape by a man in her housing society, if she did not immediately vacate her rented apartment, fearing that she might spread the virus in the housing society (Mahapatra, 2020).

These two above cited incidents aren't something new - somewhat we hear these incidents every day. In India's case the roots of violence against women can be traced since the existence of mankind. Whether it be Draupadi's *Vashtraharana* or the age-old practice of *sati,* women have been exploited since the start of history. India's profound patriarchal society and the patrilineal system are probably the main cause for the prolong violence that existed against women. And this situation worsened during COVID-19. Anecdotal data also points at a surge in domestic abuse of women's labour -as gendered roles place a higher load of domestic workon women, the perception that she has not performed "her duty" invites a high risk of violence from the family/spouse. As reported by (Shaurya, 2020) the majority of cases under crime against women under IPC were registered under 'Cruelty by Husband or His Relatives' (30.9%) followed by 'Assault on Women with Intent to Outrage her Modesty' (21.8%). The analogous circumstances during the lockdown period such as loss of jobs, alienation from social support and economic strain, harbored the chances of violence in families which was borne mostly by women. Research showed that the clustering of all the family members at home during the lockdown increased the burden of household chores on the women which was shouldered solely the female members. Furthermore, the male members either didn'tgo to work because of the lockdown or they had lost the jobs or worked from homeat a pay-cut. The loss of jobs and the associated financial uncertainty increased the level of anxiety and stress among men, who in turn vented out their tensions on women in the form of emotional and physical abuse (G, 2020). The insecurities and embarrassment coming from the inability to meet both the ends, damaged themasculinities of men in the Indian Households, which turn made the men unleash the

frustration on the females of the house. The alcoholic husbands who didn't get the supply of alcohol during the lockdown, in addition to the existing financial and social stress, abused their partners in an intimate relationship. The abusive intimate relationship shared by the women with her husband caused serious physical, sexual and reproductive health problems including sexually transmitted infections, HIV,unintended pregnancies etc. Loss of jobs, stress, reduced income, lockdown, domestic conflicts and several other factors related to daily livelihood creates a vicious cycle and the women got entangled in this cycle particularly in pandemic and lockdown situations.

In country like India where the diversity of religions and cultures form a very integral part of the society, the already pre-defined image of women, undoubtedly form oneof the core reasons of why violence against women has been existing all through these years (Anand). There are some religious texts have pre-defined women as the weaker gender, whose role is to manage the household and accept whatever the husband commands, even the pernicious masculinity. Even after the modernisation of the society this hasn't changed, many women still continue to be the submissive gender and some men continue to shower their chivalrous masculinity. Despite of theabolition of the Sati system, the male privilege continues to be seen in smaller aspects like "Wife beating is a corrective measure for Women". The practice of Dowry, even though officially forbidden, still continues to be practiced in India and Dowry abuses and deaths still continue to happen in several parts of the country. These cultural and religious norms continue have been a driving factor of the increasing domestic violence cases during the lockdown. Further, with the economic pressure increasing due to the COVID-19 lockdown, many are now forcefully marrying their daughters off, and the cultural practice of dowry in this time of economic crunch has acted as a facilitator of an increase in the amount of abusethey are subject to (Anand).

Aggression, dominance and strength that are associated with the patriarchal set up leading to unequal gender dynamics were seen to be surfaced with the pandemic. Violence at Home, Inter-generational - transference of violence, Women's right to space and safety, especially in the times of isolation and lockdown, remain a growingconcern.

The lockdown confined people within the four walls of the home, and some of themin formal work had to adapt to work from home. While numerous social media platforms challenge our judgement of personal-professional space and freedom of expression, the presence of gendered prejudices, objectification of women wassomething that received very minimal attention.
There exist several laws in India, for example, SECTION 498A of the INDIAN PENALCODE, PROTECTION OF WOMEN FROM DOMESTIC VIOLENCE ACT OF 2005
etc. There are several Women Self-Help Groups and NGOs that worked relentlessly hard to provide justice against abuse that women faced during the pandemic. There were an increased number of shelter homes that were available to the women. Therewere several women helpline numbers, WhatsApp support groups and additional measures taken by the respective state Governments to provide aid to women against the abuse. But some reason the justice & protection delivery system was notenough to ensure the safety of those vulnerable women.

4. Methodology

In the attempt to measure the extent of violence against women, we have collected secondary data from The National Crime Records Bureau (NCRB). The reference period of our study is 2012-2021. We have mainly focused on two areas namely,

1. **Total Crime against Women (TCW)**
2. **Domestic Violence against women (DV)**

1. Total Crime against Women (TCW)

We took the year wise all India level data of TCW (IPC+SLL) to study its trend over the period. We also calculated the annual growth rates of TCW and its share in Total(IPC+SLL) crimes.

1. Domestic Violence against Women (DV)

We have considered the following seven crime heads to estimate a figure for domestic violence cases in India. We have added the year wise number of reported cases of these seven crime heads to get an estimated value of DV:

1) Dowry Deaths (Sec. 304B IPC)

2) Cruelty by Husband and Relatives (Sec. 498 A IPC)

3) Sati Prevention Act, 1987

4) Dowry Prohibition Act, 1961

5) Protection of Women From Domestic Violence Act, 2005

6) Selling of Minor Girls (Sec. 372 IPC)

7) Incest Rape Cases

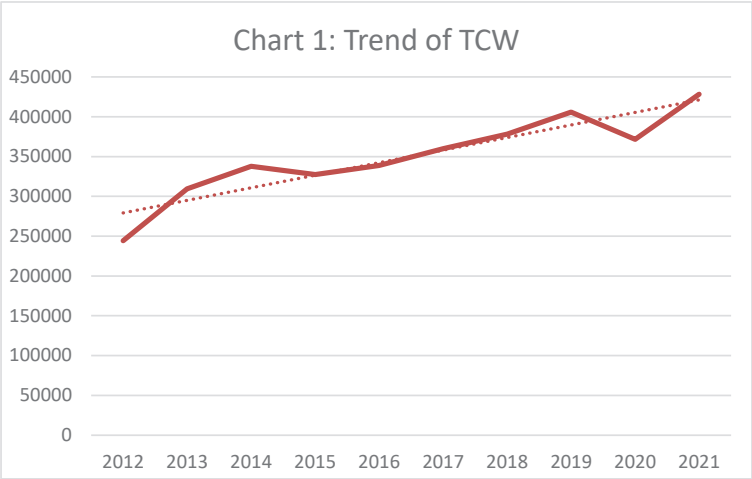
Here, we have calculated the year wise all India level data of DV to determine its trend over the period, its annual growth rates and its share in TCW.

5. **Tables and Charts**

Table 1: Trend and growth of TCW and its share in total crimes (All India)

YEAR	Total IPC+SLL Crimes	TCW	TCW as % to total crimes (IPC+SLL)	AGR of TCW
2012	6041559	244270	4.04	
2013	6640378	309546	4.66	26.72
2014	7229193	337922	4.67	9.17
2015	7326099	327394	4.47	-3.12
2016	4831515	338954	7.02	3.53
2017	5007044	359849	7.19	6.16
2018	5074634	378277	7.45	5.12
2019	5156172	405861	7.87	7.29
2020	6601285	371503	5.63	-8.47
2021	6096310	428278	7.03	15.28

Fig1: Trend of TCW (2012-2021)



From table 1 & chart 1 it is evident that apart from the slight fall in 2015, TCW increased gradually over the period 2012-2019. It had a sudden fall in 2020 but jerked up again in 2021 where it recorded its highest (in our reference period) i.e. 428278 no. of reported cases.

Fig 2: Trend of AGR of TCW (2012-2021)

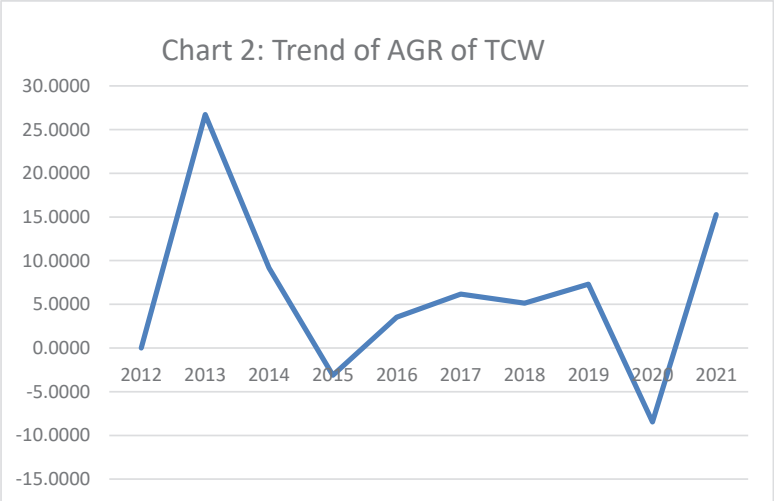


Fig 3:TCW as a % of Total Crimes (IPC+SLL)

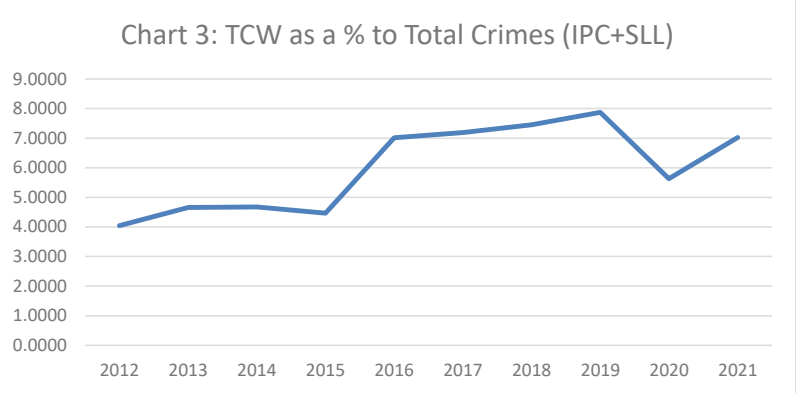


Chart 2&3: 2020 records the highest percentage fall in TCW where it fell by 8.47 percent (approx.). However, in 2021, TCW jumped up by 15.28 percent (approx.), which is the second highest percentage growth after 2013 (26.72 percent). Similarly, the share of TCW in total crimes increased more or less from 2012 to 2019 but it significantly fell in 2020 (from 7.87 to 5.63 percent) only to rise again in 2021.

Table 2: Crimes taken under domestic violence against women (2012-2021)

Year	Dowry Deaths (1)	Cruelty By Husband And Relatives (2)	Sati-Prevention Act * (3)	Dowry Prohibition Act (4)	Protection Of Women From Domestic Violence Act, 2005 (5)	Selling of Minor Girls (Sec. 372 IPC) (6)	Incest Rape Cases (7)	DV (8=1+2+3+4+5+6+7)
2012	8233	106527		9038			392	124190
2013	8083	118866		10709			536	138194
2014	8455	122877		10050	426		674	142482
2015	7634	113403		9894	461		557	131949
2016	7621	110378		9683	437		1187	129306
2017	7466	104551		10189	616	80	3155	125441
2018	7166	103272		12826	579	40	2780	126663
2019	7115	125298		13297	553	22	2916	149201
2020	6966	111549		10366	446	12	2502	131841
2021	6753	136234		13568	507	12	2424	159498
* no cases has been reported under Sati Prevention Act during the period 2012-2021								

Table 3: Trend and Growth in DV and its share in TCW

YEAR	TCW	DV	AGR of DV	DV as % to TCW
2012	244270	124190		50.84
2013	309546	138194	11.28	44.64
2014	337922	142482	3.10	42.16
2015	327394	131949	-7.39	40.30
2016	338954	129306	-2.00	38.15
2017	359849	125441	-2.99	34.86
2018	378277	126663	0.97	33.48
2019	405861	149201	17.79	36.76
2020	371503	131841	-11.64	35.49
2021	428278	159498	20.98	37.24

Fig 4: Trend of DV

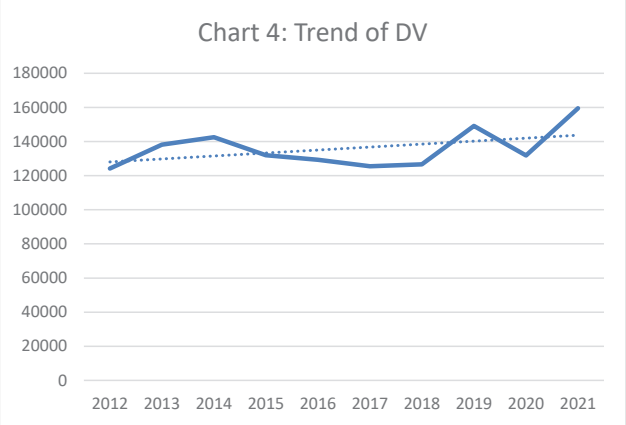


Fig 5: AGR of DV

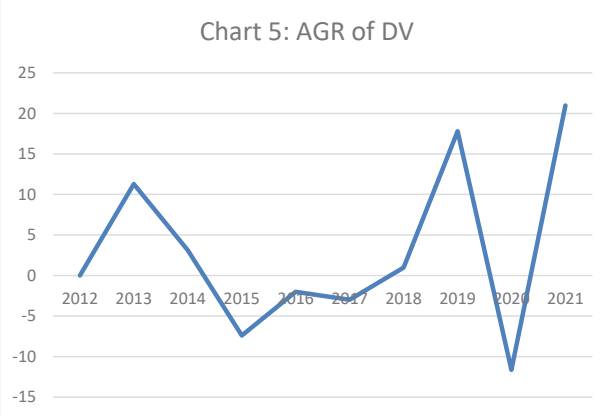


Table 2, Chart 4, Chart 5: The Annual Growth Rate (AGR) of DV in 2020 records thehighest percentage fall in DV by 11.64 percent. But in the very next year 2021, DV showed the highest percentage growth of 20.98 percent in our reference period.

Fig 6: percentage of DV in TCW

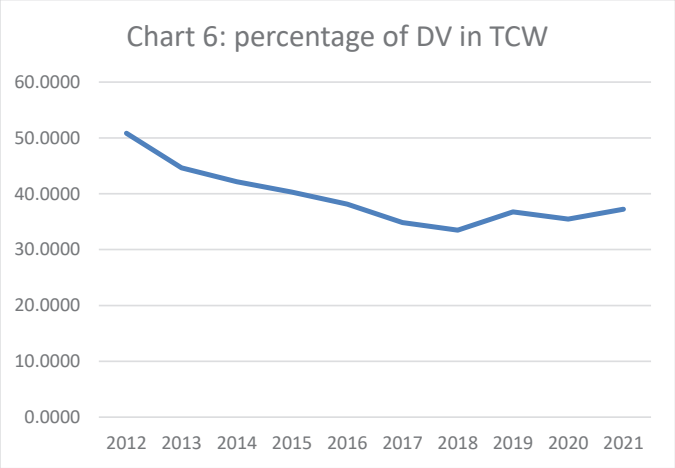


Chart 6: Here also we see that the share of DV in TCW declined in 2020 but rose again in 2021.

6.Interpretation

- It can be concluded from the rising trend of TCW & DV that crimes against women have increased over the years.
- The results showed a fall in TCW & DV for the year 2020 but according to many reports, domestic abuse against women actually worsened during the lockdown phases as the victims were stuck with their abusers. One of the possible reasons of this unanticipated fall might be under reporting of cases.
- The estimated share of DV in TCW is on an average 39.39% during the referenceperiod. This significant share might serve as an evidence that women are not safe in their own homes.

7.Limitations of the Study

This study is done using secondary data and thus might suffer from lack of relevance. The objectives and methodology used to collect secondary data may not be appropriate for the problem at hand.

It is very difficult to calculate specific figures to estimate the true extent domestic violence against women in reality. These cases are generally under reported due to various reasons. Firstly, due to social stigma and 'to withhold the 'family honour'; secondly, victims are often threatened by their family members not to report; thirdly, in most cases the victims are solely dependent on their oppressors financially andare afraid of retaliation. Last but not the least, due to the existence of a patriarchal society and oppression of women throughout history, domestic violence against women, to some extent, is normalized by the society where sometimes the victims themselves are unaware that what is happening to them is morally wrong.

8.Fundamental Barriers to Seeking Remedy

The Central Government along with the State Governments, National Commission for Women, various NGOs and Women Activist groups undertook several new measures, along with the existing ones, to help provide justice to women against violence and abuse during COVID 19. The National Commission for Women in April launched a special WhatsApp helpline number (0721-7735372) for women to accesshelp, other than the already existing mail and online complaint mechanism. Uttar

Pradesh, first of all the states, initiated messaging on the 112 emergency helpline numbers with the slogan " Suppress Corona, not your voice" along with provision ofa female officer to handle gender-based violence cases. The Kerala Government launched a 24-hour WhatsApp number (9400080292) to report cases of domestic violence during the lockdown in the state. Similarly, many such redressal systems were available. But the main question that arose was whether all the available redressal and support systems accessible? The answer was a no! In India only 59% women have access to mobile phones, of which only 16% women have internet access (Report flags gap in India mobile usage: 80% men, 59% women, 2023). In addition to low numbers, the lockdown aggravated the scenario, where people who were fighting for the mere survival, lacked money to get their mobile phones recharged. Women's inability to reach out to essential services because of the genderdigital divide, lack of privacy and safe spaces remained a major challenge ,so even ifwe want to rely on the statistics, which show a fall in domestic violence cases duringthe pandemic, we CANNOT.

In addition to the above problem, another major issue is the cast of minds that women possess in India. According to National Family Health Survey-4 (NATIONAL FAMILY HEALTH SURVEY 4, 2015-16), 52% of Indian women feel it is okay for theirhusbands to beat them and husbands have complete right over the wives. The acceptance of abuse by women implies that they will never stand against that. The situation deteriorated during the lockdown where women suffered from financial insecurity along with the existing fear of being stigmatized. Woman with not much resources and means to support herself economically could experience severe financial stress while deciding to leave her abusive partner (Mohanty, 2021). Financial ambiguities coupled with lack of empowerment and self-worth act as barriers for women to leave their abusive partners.

In addition to these two major problems, several other problems existed. State-run shelter homes are operational but largely overcrowded and incapacitated to respond to the surge in crisis. Coordination with local police to reach out to women in need of support has been challenging (Konikkara, 2020). Reproductive health services were severely impacted by the COVID 19 lockdown, resulting in unwanted pregnancies, unsafe abortions and maternal deaths. In the state of Uttar Pradesh, media documented the incident of death of a COVID positive pregnant woman who was refused treatment by eight hospitals before she died in an ambulance(Salaria,2020). Therefore, limited or no resources for service delivery system, and gaps in coordinated multi-sectoral response, with most importantly lack of empowerment and education of women were some of the root causes why under reporting existed and justice was inaccessible to the victims of violence.

9.Conclusion

While the world feared the virus, the women feared her family and loved ones!

The advent of COVID 19, sparked the Government's attention towards narrowing thegraph of the health pandemic, what laid unaddressed was the pandemic that was occurring in every household : The Shadow Pandemic! The lockdown proved that in case of an emergency or disaster, violence against women shoots up phenomenally.With facts and figures brought into light the need of empowerment, which provides women with greater security and choices for living a life free of violence and realizing their full potential - as they have 'bargaining power'. Only if women are made aware of their worth and their rights can a woman learn to fight. Steps

such as vigorous Nationwide and State-wide awareness programme must be undertaken educate women across the country about domestic violence and the inform them about the various support and justice delivery system available, keeping in mind the gender digital divide that exists in the country. Free and immediate counselling should also be provided to victims in public places like supermarkets and pharmacies. More number of NGOs, feminist organisations and domestic abuse shelters should be added in the list of essential services and be allowed to operate even during strict lockdown.

The corona virus is new to the world but the patriarchal virus has been continuing to infect us for ages. Just as we now have vaccines to protect us from the corona outbreak, we also need vaccines of education and empowerment to protect women and to remove the age-old patriarchal virus. Each and every one of us, in addition to the Government should equally be responsible to safeguard women around us from abuse, only then can we alleviate the brunt of the violence that women have been facing for centuries now.

Bibliography

- Anand, A. (n.d.). “Lockdown and Intimate Terrorism”: The role of Covid 19 asa faciltator of domestic violence in India. *International Journal of Policy Sciences and Law*, 45.
- Digital, M. N. (2020, March 29). Kerala: Man kills wife after she insists to visit parents, hangs her body to pass it off as suicide. Kerala, India.
- Konikkara, A. (2020, April 15). Lockdown and Domestic Violence: As NGOs struggleto support at risk, Government plays catch up.
- Mahapatra, D. (2020, March 29). Doctor in Odisha asked to vacate flat, threatenedwith rape over Covid-19 fear. Bhubaneshwar, Odisha, India.
- Mohanty, S. M. (2021). COVID-19 LOCKDOWN: A REFUGE FROM THE PANDEMIC OR THE HARBINGER OF WOMEN'S AGONY. *INTERNATIONAL JOURNAL OF LAW AND SOCIAL SCIENCES (IJLS)*, 21.
- (2015-16). *NATIONAL FAMILY HEALTH SURVEY 4.* DELHI: MINISTRY OF HEALTH AND FAMILY WELFARE, GOVERNMENT OF INDIA.
- Organization, W. H. (n.d.). Retrieved from https://www.who.int/health-topics/violence-against-women#tab=tab_1.

- eport flags gap in India mobile usage: 80% men, 59% women. (2023,January 23). Delhi,India.
- Salaria, S. (2020, June 7). Pregnant Women with COVID 19 symptoms not admittedby 8 hospitals, dies in ambulance. Uttar Pradesh, India: Times Of India.
- Shaurya, S. (2020, October 2). One Rape Every 16 Minutes In India, NCRB Data Highlights Country's Deteriorated Law & Order. India.
    - WHO. (2021). *Violence against Women.* WHO.
- WOMEN, U. (2020). *VIOLENCE AGAINST WOMEN AND GIRLS DATACOLLECTION DURING COVID 19.* UN WOMEN INDIA.
- https://www.onmanorama.com/news/kerala/2019/12/14/kochi-women-domestic-abuse-cases- on-rise.html
- https://ncrb.gov.in/

Digital Economy

Ishika Banerjee
St. Xavier's College, Kolkata
ishikabanerjee491@gmail.com

Moupia Dutta
St. Xavier's College, Kolkata

Abstract

The emerging importance of computers and information technology in various sectors raises a concern to measure the impact of digital technology specially in manufacturing, industrial, banking and services sector. The increasing number of ***databases*** *in each department can be easily handled with the help of computers.*

Objective

There are **business-to-business** and **business-to- customer e-transactions**. There are digital products and some non-digital products. Non-digital products must be transferred physically, involving some transportation and transaction costs. Whereas digital products like movies or other online based or computer-based products have high initializing costs but lower marginal costs thereafter giving a non-linear relationship.

One can measure the amount of **investment** in computers and the increase in output. Statistics are generated from Current Industrial Reports, export and import statistics and annual surveys of businesses. The Annual Survey of Manufactures (ASM) asked about computer investments in census years. Quality adjusted deflators are used for computers.

In Solow growth model, productivity increase via technological change has 2 impacts, one increase in output with same labor and capital, by increased efficiency and due to increased output, with fixed savings ratio, savings would increase and capital per person would increase .

In the years 1995 to 2000 there was a rise in branding of **internet-based** companies leading to more dot com companies in the stock market. Due to lower interest rates investors invested hugely in these companies without checking their share prices and price to earnings ratio. As a result, the downfall of these companies started in 1990 when the speculative activities did not match actual productivity of the startup companies. In 2000 the pets.com declared bankruptcy. Till 2002, the internet bubble or dot com bubble bursted taking trillions of dollars down with it causing a recessionary phase.

What is relevant today might be obsolete tomorrow as businesses and consumers adopt new technologies and methods to perform tasks and communicate

Digital enabling infrastructure include:

Computer hardware- this includes elements constitute a computer system including monitors, hard drives audio and visual equipments , semiconductors and wireless communications.

Software- programs and other operating information used by devices such as personal computers and commercial servers, commercial software and software developed in- house by firms.

Telecommunications equipment and services- equipment required for digital transmission of information using cable, telegraph, telephone, broadcasting, or satellite.

Structures- thus includes buildings and constructions digital economy producers create digital products and services. Buildings that provide support services to digital products like semiconductor fabrication plants, installation of fiber optic cables, switches.

Internet of Things- internet enabled devices like appliances, machinery, filter enable with Wi-Fi allow to communicate with each other as connected with internet.

Support services- services necessary for digital consulting services and computer repair services.

E-commerce refers to all purchases and sales of goods and services that occur over computer networks. E-commerce reflects the nature of transactions including digitally- ordered, digitally delivered, and platform-enabled transactions for goods and services.

Business to business(B2B)e-commerce: E-commerce that utilizes the internet or other electronic means to conduct transactions of goods and services by businesses to businesses. Interfirm and intrafirm ecommerce is popular among manufacturers, wholesalers.

Business to consumer(B2C) e-commerce: E-commerce that uses internet and other electronic goods to conduct sale of goods and services by businesses to consumers.

Peer to peer(P2P) e-commerce: the sharing economy, also known as platform enabled economy involves exchange of goods and services between consumers facilitated through digital application like dispatching, accommodation, rentals, delivery and courier services, landscaping, food preparation, consumer goods rentals, laundry services, etc.

Digital Media

Consumers forego physical purchase or rental of products like books, newspapers, music and videos, opting instead to access these products online in digital format. And digital media is thus the content that people create, access, store and view through electronic devices.

Direct sale digital media: businesses sell digital media directly to consumers in exchange of fee, either on item-by-item basis or through subscription.

Free digital media: some companies offer digital media to consumers at no cost like you tube, google and facebook. These companies earn revenue by selling advertising space on margins of digital products, like print media or broadcast television outlets. Some consumers create original online content for peer consumption known as P2P digital media.

Big Data: some companies generate large data sets as part of their normal operations. It is a mechanism for gathering information about consumer behavior or preferences. These companies earn revenue by selling this information, known as Big Data.

E commerce output is generally measured as wholesale or retail trade margin on digitally ordered goods and services sold over the internet or through some digital media. The margin is equal to total revenue earned from online sales less the producer cost of the goods and services.

E business processes are significantly changing ways business operates and these change the traditional view of the firm, changing supply chains and structure of many industries and pose many challenges to existing and future statistical programs.

In US, The census bureau now exploit e- business processes and adopt more effective methods of operation. Manufacturing led all industry sectors with 1999 e-commerce shipments of $485 billion or 12.0 percent of the total value of manufacturing shipments. Merchant Wholesalers were second with e-commerce sales that represented 5.3 percent or $134 billion of total sales. Manufacturing and Merchant Wholesale Trade, sectors where goods are primarily sold to other businesses, had substantially higher e-commerce percentages than Retail Trade and Selected Service Industries, sectors where goods and services are sold to individual consumers as well as to businesses. Manufacturing plants that reported offering online ordering to their customers, 52 percent used the Internet most frequently for accepting online orders.

DIGITAL ECONOMY IN INDIA

India continues to be driven by the use of cash; less than 5% of all payments happen electronically. Reduced instances of tax avoidance because it is a financial institutions-based economy where transaction trails are left.

- It will curb the generation of black money.

- Will reduce real estate prices as most of black money is invested in Real estate prices which inflates the prices of Real estate markets.

- In the Financial year 2015, RBI spent Rs 27 billion on just the activity of currency issuance and management. This could be avoided if we become a digital society.

- It will pave way for rural availability of banking services to all as no physical infrastructure is needed other than digital.

- There will be greater efficiency in welfare programmes as money is wired directly into the accounts of recipients. Thus once money is transferred directly into a beneficiary's bank account,

the entire process becomes transparent. Payments can be easily traced and collected, and corruption will automatically drop, so people will no longer have to pay to collect what is rightfully theirs.

- There will be efficiency gains as transaction costs across the economy should also come down.

- Hygiene – Soiled, tobacco-stained notes full of germs are a norm in India [9]. There are many such incidents in our life where we knowingly or unknowingly give and take germs in the form of rupee notes. This could be avoided if we move towards Digital economy.

- In a digital economy there will be no problem of soiled notes or counterfeit currency

- Reduced costs of operating ATMs. Reduced shoe leather costs.

- Speed and satisfaction of operations for customers, no delays and queues, no interactions with bank staff required.

- A Moody's report pegged the impact of electronic transactions to 0.8% increase in GDP for emerging markets and 0.3% increase for developed markets because of increased velocity of money.

- An increased use of credit cards instead of cash would primarily enable a more detailed record of all the transactions which take place in the society, allowing more transparency in business operations and money transfers.

Purchasing stock certificates have got easier with internet. Wages are revised easily, details about examinations are obtained through digital media.

DIGITALIZATION IN THE PANDEMIC PERIOD

Digitalization has allowed for some mitigation of the effects of the pandemic, helping to combat the virus and ensuring continuity of many economic activities. Digital technologies have been critical in both health- and non-health-related responses to the crisis. Digital and data science tools have been essential for epidemiological monitoring and contact tracing, the maintenance of physical distancing and telehealth. Epidemiological modelling for pandemic preparedness,

response and prevention requires innovative data collection, sharing and analysis to create predictive models that forecast the spread of the virus.

Many people have been able to continue, to the extent possible, with their activities through online channels – for example, for work, schooling, communicating, buying or entertainment. In many places, people are relying on teleworking and teleconferencing tools. More consumers are shopping online, and more people rely on use of the Internet for news, information, and entertainment.

Lockdown measures have triggered an exponential increase in online transactions. People have turned to digital platforms to shop online, with the global share of online retail sales of total retail sales rising from 16 to 19 per cent in 2020. 4 Strong uptake of e-commerce was generalized across regions, with consumers in emerging economies making the greatest shift to online shopping.

Examples of digital tools used by Governments include the UNCTAD Automated System for Customs Data programme for customs management and the UNCTAD digital government platform, e-Registrations, to continue providing essential services to small and medium-sized enterprises through online single windows.

Digital infrastructure is in many parts of the world still insufficient, leading to limited or unaffordable connectivity to undertake effective e-commerce and other online activities. According to the most recent data from the International Telecommunication Union, 96 per cent of the 2.9 billion people still offline live in the developing world.

The most vulnerable populations are usually the ones left offline. As a result, countries differ strongly in levels of e-commerce and digitalization uptake, affecting opportunities to benefit from the increasing demand for e-commerce and other digital services.

IN THE SOLOW MODEL WITH TECHNOLOGY, from the CRS property we can write that

$Y = F(K, LE)$

$Y = LE\, F(K/LE, 1)$

- ⇨ Y/LE = F (k)
- ⇨ y = F (k)

where k= K/L = capital/labor ratio

y= Y/L = output / labor ratio

K/L = s. Y/L – d.K/L

K/L = s.y – d.k

K/L = sF(k)-d.k

WITH TECHNOLOGY,

K/LE = s.Y/LE – d. K/LE

K/LE = s.y-d.k

K/LE = s.F(k) -d.k

The Digital Economy and Productivity

Introduction

Since the mid-20th century, advances in information technology (IT) have relentlessly driven down the cost of creating, storing, transforming, and transmitting information, fostering in turn the widespread use of IT and exponential growth in digitally stored information. In short, the economy has become more digitalized. Like electrification in the early 20th century, digitalization has been so pervasive that it is in the background of essentially all economic activity. Yet, the idea of a distinct digital economy is prevalent in policy discussions and media coverage.1 Articles referencing the digital economy in the business press most frequently focus on the companies that mediate access to the sprawling information landscape, which we'll refer to as "digital platforms," that are central to the latest wave of the IT revolution

We consider three closely related but distinct questions:

(1) How digitalized is the economy?

(2) What are the boundaries of the digital economy (and how big is it)?

(3) And how much does the digital economy contribute to economic growth?

We first describe the state of digitalization and its distinctive features in recent years, namely radical mobility, cloud computing, and digital platforms. Then, after describing emerging efforts

to measure the digital economy in national accounts, we anchor the digital economy in a growth accounting framework and discuss obstacles to assessing the role of the digital economy in productivity. We argue that accounting for three distinct phenomena—the production of IT capital, its use throughout the economy, and the economic activity of digital platforms—is necessary to measure the contribution of the digital economy to productivity. Many thorny measurement problems stand in the way of that effort. We focus on the use of IT capital as a barometer of the phenomenon.2 Because digitalized activity ultimately relies on electronic equipment and software, we expect the share of IT capital in total fixed capital investment to rise with digitalization. In the United States, this was indeed the case from the dawn of electronic computing in the 1950sthrough roughly 2010, with the share of information technology in business investment more than doubling to over 40 percent and its share in consumer durables spending climbing from minimal in 1980 to over 10 percent in 2010. More recently, the share of IT capital in business and household investment has roughly moved sideways, seeming to suggest that digitalization in the economy has stabilized.

However, beneath the surface of a fairly steady overall IT investment share in recent years, the industry composition of IT investment has changed markedly, suggesting a still-evolving digitalization process. Across nearly all sectors, IT capital investment rose significantly from the 1950s through the 1990s, with an acceleration in many sectors in the 1980s and 1990s. Since that time, digitalization by this measure has levelled off in distribution—retail and wholesale trade, transportation, and warehousing—and declined outright in primary industries—manufacturing, mining, utilities, and agriculture. Meanwhile, digitalization has continued to climb in other sectors, with particularly sharp increases in financial, technical, and administrative services. 5 The financial sector remains the most IT intensive sector outside of IT services and corporate management—the two sectors not shown in the figure—for which IT capital accounts for 53 percent and 79 percent of fixed investment in recent years, respectively. Thus, the flat path of the aggregate digitalization indicator obscures an ongoing shift toward IT investment outside of distribution and primary industries. Several other noteworthy changes in digitalization have accompanied the shift in industrial composition of IT capital investment:

• Increasing reliance on purchased IT services IT capital services comprise the provision of telecommunications, computing, and the design of electronic and software systems. Each of these

services has accounted for a rising share of purchased intermediate inputs in the private sector since the 1960s.The share for computing services, including cloud computing, has surged in recent years. The share for design of IT systems, including custom software, has moved up sharply as well. Communications services, which accounted for the greatest share of IT intermediates the late 1990s, has retreated since then.

• Radical increase in mobility Mobile broadband subscription rates show smartphone use rose from minor at the time of the introduction of the first iPhone (2007) to pervasive in the United States by 2019.

• Shift toward intangible investment Digital economy investment has shifted toward intangible capital, which accounted for roughly 1/2 of IT investment in 2000 and now accounts for 2/3 of the total.

• Ongoing explosion of data Indicators of the volume of digital activity continue to rise. The stock of digital data, as indicated by sales of the hard disk and solid-state drives which account for the bulk of digital storage, rose by a factor of more than 1,000 between 2000 and 2019.

How big is the digital economy?

Discussions of the digital economy often leave its boundaries vague, and statistical agencies have wrestled with the task of making the concept precise enough to support quantification. In the United States, the Bureau of Economic Analysis (BEA) has constructed a satellite account to supplement the core national income and product accounts (NIPAs) that provides a serviceable measure of the digital economy (?). It encompasses infrastructure (production of IT capital), e-commerce, and priced digital services (services related to computing and communications). In practice, approximately 200 products and services judged to be primarily digital are identified from the list of thousands of types of output in the input-output accounts produced.

How much does the digital economy contribute to economic growth?

IT capital production and its use throughout the economy has played a major role in the contour of aggregate U.S. labor productivity growth in recent decades. This effect can be seen through the

lens of conventional growth accounting: In the presence of competitive markets and constant returns to scale, economic growth at an aggregate level can be decomposed into contributions from inputs weighted by their income shares plus a contribution from total factor productivity (TFP), the efficiency with which inputs are combined to produce outputs.

Can we measure the digital economy with the statistics available?

The schematic provides a framework for discussion of measurement issues, dividing the economy into six sectors: IT production, digital platform, household, and residual "other industries" sectors are connected by a telecommunication services sector, and all five of these use the services of cloud providers.16 (Recall that industries and sectors are collections of establishments—plants, offices, data centres, and so forth— with a common production process, and firms may span multiple sectors). Each sector has a distinctive mix of tangible and intangible IT capital. Our task is to locate and measure in these sectors the three contributions to productivity from the digital economy: TFP in IT capital production, TFP in digital platforms, and the use of IT capital services throughout the economy. Production of IT equipment takes place primarily in the IT production sector and its measurement centres around the construction of constant quality production price indexes for the output of these products, a difficult but well understood area of measurement.17 The state of play in measurement of IT equipment is discussed briefly in the box, "Measuring Data Processing Equipment," and in an appendix.

Measurement of intangible capital, broadly speaking, is discussed in Corrado (this volume). Our focus below is on its character in the digital platform industry. Digital platforms produce, purchase, or accumulate from users' intangible capital (content), such as media files (Netflix), reference information (Wikipedia), social media posts (Twitter), and reviews (Yelp).

And, during business, platforms accumulate information about users, such as who is in their social network, the history of their behaviour on the platform, and other characteristics. The industry focuses on the creation of "recommendation engine" software—a kind of intangible capital—which takes take user queries, combines them with content characteristics, information on the user, and information about their user base to predict the content likely to match the user's needs using machine learning.

Business clients enquire the platforms as well, seeking in many cases the users most suited to their products, initiating a similar recommendation process. The interface with the recommendation engine, which may take the form of a mobile phone app, a website, or an API (application program interface), is a critical component of the platform's intangible capital as well. Each of these—information on content and users, recommendation engines, and the interface used to access it—is a stock of intangible capital which provides a stream of capital services used as an input to the production of platform services.

The total factor productivity contribution from the digital platform industry is their ability to efficiently combine these intangibles with general-purpose IT capital—computing, communications, and software—and other inputs. At times, the distinction between the capital services of the custom software created by the business and the TFP of the enterprise is not entirely clear. Business practices for a firm, for example, which raise the efficiency with which inputs are combined (i.e. TFP), can be treated as intangible capital as well and may be encoded in the software. The productivity measurement challenges posed by digital platforms are discussed below. We focus on output, investment, consumption, and trade, all of which are needed to calculate the contribution of the digital economy to growth and productivity. Accurate measurement of the output of the digital platform industry is needed to calculate its TFP. Accurate investment is needed to estimate the capital stock and associated service flows, thereby the contribution of the use of IT capital to productivity. And capturing consumption and trade accurately are needed to get the measurement of overall GDP right. Among the problems faced in measuring these flows are the value of consumption and intermediate use of services without market prices, the valuation of investment in databases and highly customized software, and locating these platform firms and their establishments within the current industry classification framework to accurately capture their output.

Conclusion

Digitalization of the economy has continued in recent years, though the nature of digitalization has evolved. The latest wave of the IT revolution is characterized by radical mobility, greater emphasis on intangible capital, an ongoing explosion of data, and the machine-learning-based digital platforms that help users—both households and firms—navigate this landscape. An up to- date notion of the digital economy must encompass all these elements.

With that definition in hand, we can unpack the impact of IT using growth accounting and ask if that impact has faded, but only after daunting measurement challenges are overcome. Among these are valuation of intangible assets and their services, accounting for technical change in IT equipment, and grappling with whether the boundaries of GDP in national accounts serve us well in the pursuit of the answer to this question.

An array of techniques, reviewed in this chapter, provide leverage for measuring the digital economy. Each requires maintained assumptions to make progress—starkly illustrated when we assign a value to free services and unpriced intangible assets. Importantly, assumptions are in the nature of measurement for all economic statistics; we should not be shy about adopting them—if they are reasonable—when they help us make progress on the question at hand. of successful construction of constant-quality price indexes. However, other products have received less attention, often due to data limitations, unobserved key quality characteristics, or market structures that make quality adjustment difficult. An impressionistic assessment of the state of play for quality adjustment is provided here followed by a discussion of avenues for further progress.32 Here, our primary focus is on what remains undone, rather than an exhaustive review of the literature.33

• Computing equipment: Computer prices, especially PCs, have been the subject of a great number of research studies, making them an exemplar for the practice of quality-adjustment. Many statistical agencies devote particular attention to them; for example, NIPA prices for computer consumption, investment, production, and trade employ the price indexes constructed by the Bureau of Labour Statistics (BLS), which use detailed hedonic analysis to adjust for quality. The concerted effort exerted to get these prices right notwithstanding, corroboration of the results from outside research are needed on several fronts. Relative to 2005-2009, BLS computer price indexes for 2015-2019 fell on average, 9 percentage points, 22 percentage points, and 4 percentage points slower for consumption, production, and imports, respectively. A private consultancy, IDC, Inc., reports storage equipment prices (per megabyte) plunged in 2015-2019 an average of 24 percent and 37 percent per year for hard disk drives and solid-state drives, respectively, while the PPI for storage equipment only edged down 1 percent per year on average during that period. – The PPI used to deflate computer peripheral investment moved down at a 3 percent annual rate, on average,

for 2015-2019, yet the consumer price index (CPI) for televisions, which are quite like terminals, fell 18 percent per head.

• Communications equipment: Communications equipment prices have been studied extensively as well, with particular attention to the data networking and transmission equipment which supported the IT boom of the 1990s, and to the mobile networking equipment which has been central to more recent IT advances. The Federal Reserve publishes indexes for these products. Recently, in a major step forward, the BLS has adopted a hedonic approach to constructing its price index for smartphone consumption. However, major gaps in our understanding remain. Price-performance trends for satellite equipment and a variety of radio-wave base station equipment are not well understood, due in part to the obscurity of relevant prices within complicated contracts. And there has been no research on prices for broadcast and studio equipment for radio and television, a major component of communication equipment spending, and an important area of the ongoing transition to solid state electronics from legacy technologies.

• Special purpose equipment: In addition to computing and communications
equipment, which are designed for general purpose use, the electronics industry produces a host of equipment for more narrow applications. This portion of the electronics industry is almost entirely uncharted measurement territory and accounts for the bulk of the U.S. final electronics manufacturing. Interestingly, the share of the intermediate inputs used in their manufacture
accounted for by electronic components roughly matches the share for the communications equipment industry, suggesting similar underlying downward pressure on their price trends. Yet investment prices for special purpose equipment is largely flat, edging down an average of 0.5 percent per year for 2015-2019 while investment prices for communications equipment fell 7.5 percent. Although these industries differ in noteworthy ways that may affect their output prices, such as market structure and scale economies, the contrast in price declines does suggest more research is merited. Processing equipment has focused on physical characteristics, such as the "clock speed" of MPUs. However, performance on tasks of interest to the user is the ultimate barometer of quality. If a higher clock speed MPU delivers, say, a higher speed of file compression, users will prefer the chip, but the chip is not preferable to the user because of

its clock speed per se. If benchmark scores on relevant tasks are available, they are more direct approach to controlling for quality. That said, provided physical features have a strong, stable relationship with performance, they serve as a reasonable proxy measure for quality.48

Famously, clock speed for high performance MPUs is a counterexample in recent years; formerly a good predictor of performance, advances in clock speed stalled in the early 2000s, yet performance continued to climb. Moreover, using benchmarks allows the price analyst to be agnostic about how the equipment delivers performance—that is, which physical features are relevant—while leveraging the expertise of the engineers designing the benchmark tests to represent common uses for the equipment. Examples of electronic products with benchmarks available but no plausible price indexes are graphics processor units (GPUs), now used in a host of computing applications, and industrial robots, a class of special purpose equipment.

In short, more attention to leveraging the benchmarking efforts of the engineering community in this area is in order.

• Input costs: Under sufficiently competitive conditions, we expect the price of goods to track the weighted prices of the inputs used less any growth in total factor productivity (TFP)—the amount of output yielded by a fixed set of inputs. Prices for software and for research and development in the NIPAs exploit this relationship. In cases where input prices are measured well but output prices are not, this approach is particularly appropriate, though it requires one to assume a growth rate for TFP. For some types of data processing equipment, such an assumption may be well supported. In the electronics industry, a wide array of products is designed and produced—that is, assembled from components—under similar conditions by a small set of contract manufacturing firms. In that context, estimates of TFP growth from products where both inputs and outputs are well measured, such as personal computers, may serve as a plausible indicator for TFP growth in the production of the host of electronic devices without plausible output indexes. That is, a reasonable indicator of constant-quality prices for a gaming console or a printer may be the appropriate input cost index for the industry adjusted by the proxy TFP measure from PC production. From the outset, NAICS was intended to provide useful detail on the digital economy. To that end, an information sector was identified, defined as “establishments engaged in the following processes:

(a) producing and distributing information and cultural products,

(b) providing the means to transmit or distribute these products as well as data or communications, and

(c) processing data." (Its predecessor, SIC (the Standard Industry Classification System) made no mention of the internet or the worldwide web, for obvious reasons.)

At the time, web pages were static, ruling out the possibility of digital platforms with customized recommendations. As database management systems and machine learning advanced, and as the web moved toward accommodating user-generated content, digital platforms emerged and NAICS treatment of their establishments evolved. The definitions of relevant industries for digital platforms from each vintage of NAICS provided below illustrate this evolution. In addition, NAICS provides cross-references to provide guidance on classifying establishments with a mix of activity. Selected relevant cross-references are included as well. Datasets employing NAICS, such as the Economic Census, classify establishments according to their "principal product or group of products produced or distributed, or services rendered." The 2022 NAICS manual provides this guidance: "Ideally, the principal good or service should be determined by its relative share of current production costs and capital investment at the establishment. In practice, however, it is often necessary to use other variables such as revenue, shipments, or employment as proxies for measuring significance." Importantly, revenue is frequently used as the practical measure of significance. In light of the fact that many digital platform services are provided for free, it is likely that many digital economy establishments are classified elsewhere.

NAICS

- Other Information Services This industry comprises establishments primarily engaged in providing information services (except news syndicates, libraries, and archives). Included in this industry are Internet service providers, on-line information access services, and telephone-based (i.e., toll call) information services. On-line information services establishments are engaged in the provision of direct access to computer-held information published by others via telecommunications networks. These establishments often provide electronic mail services, bulletin boards, browsers, and search routines.
- Internet Publishing and Broadcasting This industry comprises establishments engaged in publishing and/or broadcasting content on the Internet exclusively. These establishments do not provide traditional (non-Internet) versions of the content that they publish or broadcast.

Establishments in this industry provide textual, audio, and/or video content of general or specific interest on the Internet. Cross-References. Establishments primarily engaged in– Providing both Internet publishing and other print or electronic (e.g., CD-ROM, diskette) editions in the same establishment or using proprietary networks to distribute content–are classified in Subsector 511, Publishing Industries (except Internet) based on the materials produced.

– Operating web search portals–are classified in U.S. Industry, Web Search Portals;

– Providing streaming services on content owned by others–are classified in Industry Data Processing, Hosting, and Related Services;

– Wholesaling goods on the Internet–are classified in Sector 42, Wholesale Trade;

– Retailing goods on the Internet–are classified in Sector 44-45, Retail Trade; and

– Operating stock brokerages, travel reservation systems, purchasing services, and similar activities using the Internet rather than traditional methods–are classified with the more traditional establishments providing these services.

– Providing Internet access, known as Internet Service Providers– are classified in U.S. Industry, Internet Service Providers.

REFERENCES:

- Byrne, D.M. ,2022. The Digital Economy and Productivity.
- John Haltiwanger and Ron S. Jarmin: Measuring the Digital Economy.
- Erik Brynjolfsson and Brian Kahin: Understanding the Digital Economy.
- Shankar,K.U., 2017. Digital Economy in India: Challenges and Prospects. International Journal of Research in Management Studies (a peer review open access international journal – www.ijrms.com),2(11),pp.6-11.

Impact of MGNREGA on Rural Credit System in India: A Standard Logit Difference in Difference Approach

Dr. Maya. K
Assistant Professor
Department of Economics
CHRIST (Deemed to be University)
Bangalore, Karnataka
Email: mayaknair89@gmail.com

Dr. Aruna Bhagavatula
Assistant Professor
Department of Economics
CHRIST (Deemed to be University)
Bangalore, Karnataka
Email: bhagavatula.aruna@christuniversity.in

Abstract

The Mahatma Gandhi National Rural Employment Guarantee Schemes (MGNREGS) of India is one of the largest Social Safety Nets (SSN) programmes in the developing world, with an annual budget of USD 8 billion. The initiative attempts to enhance rural livelihoods in India by lowering rural poor vulnerability and misery. The program's nature and extent of execution vary from state to state. Using panel data sets out of IHDS covering all over India for two waves, 2004-05 and 2011-12. We used a quasi-experimental approach, such as the difference-in-difference technique of effect evaluation, to quantify the program's influence on rural families' credit and debt structures. The empirical analysis shows that there is evidence of changing behaviour of taking loans from formal sources among non-poor households who are actively participating in the MGNREGA programme. But the DID results show that among poor households who are participating in the MGNREGA scheme, the tendency of depending on formal sources to take loans is still insignificant. That means informal lending sources are still more popular among poor people. This tendency has not changed even after the initiation of this programme. The article finishes with policy recommendations for successful targeting of the programme, notably the social safety net benefits to disadvantaged households in India.

Keywords: *MGNREGA, SSN,DID, rural credit, credit market structure*

1. Introduction

Improving Equality access of rural credit to the general public is a significant policy tool for alleviating poverty and protecting rural populations from risk and vulnerability in developing countries. However, increasing formal credit access, particularly among the enormous number of landless and small-scale farmers in developing nations, including middle-income countries, is a challenging issue. For example, despite a substantial investment of over Rs. 700,000 crores (Rs. 7000,000 million) in loan flow via official institutions each year in India, a large part of the rural population—roughly 40% of the rural population—relies on informal sources for their credit requirements, especially moneylenders (Bhattarai, et.al, 2014).

Money lenders dominate the credit system in India's rural areas. For immediate money requirements, rural families rely heavily on informal lending, particularly money lenders. Moneylenders are always smart enough to take advantage of rural residents by demanding exorbitant interest rates. When households fail to pay such a high-interest rate, they put themselves under constant stress and tension. When the borrower is unable to bear the pressure and when it exceeds their limit, they take their own lives. According to credit market research, there has been a change in the lending process in India from informal to formal sources after implementing MGNREGS. As a result, households choose to borrow money from more official sources (Bhattarai et al., 2014, Prakash, 2015). In this context, we analyze the rural credit structure in India and the impact of national employment guarantee schemes (MGNREGS) in the process of transition from informal to formal credit resources.

The Mahatma Gandhi National Rural Employment Guarantee Schemes (MGNREGS or MGNREGA) is the Government of India's flagship initiative, with an annual financial allocation of US $8 billion in 2012/12 (Bhattarai, et.al, 2014). This bill guarantees every rural household up to 100 days of paid employment per year within 15 days of the demand for such employment. As a result, it provides direct work chances to unemployed rural residents in the area during the lean agricultural season, when farm employment options are sparse in many parts of rural India. By offering a minimum of 100 days of guaranteed employment per year for those households who

require physical labour and are unable to find jobs in the local markets (even seasonal and informal markets).

The MGNREGS initiative attempts to alleviate rural India's food insecurity and vulnerability. Because of the seasonality of agriculture production and agricultural employment structures in rural India, as well as the rural population's high reliance on agricultural activities for employment and livelihood security, the MGNREGS programme has provided Social Safety Nets to many millions of households in dryland regions with frequent droughts and high seasonality in agricultural employment. This programme has been seen as more useful and with a greater dent in addressing the vulnerability problems of rural India, particularly in dry regions with uncertain agricultural practices and production activities, in these regions where local farm activities cannot generate the number of jobs demanded by all households in a community. According to recent research, the MGNREGS has aided in the fight against drought by lowering seasonal migration from rural to urban, notably during the lean agricultural seasons.

This study analyze the impact of MGNREGA on the credit market structure in India using India Human Development Survey (IHDS). It's a two-year panel data set that spans the years 2004-05 and 2011-12. Only those homes that were re-interviewed in 2011-12 are used in this study, with 83 percent of them being re-interviewed. As a result, this provides a solid foundation for understanding the impact of the MGNREGA on consumer spending and credit availability, as well as assisting in improved policy recommendations. Many previous studies were conducted at the district, village, and household levels. NSSO data (cross-section and Panel Data) and primary data were used in those studies (cross-section data). But It's difficult to undertake household-level analysis with NSSO data. Because households differ in each round of NSSO data, a household-level study using panel data with the same sample units throughout the panel year will yield better results and a more effective outcome for policy analysis.

The purpose of this study is to evaluate the impacts of the MGNREGS program on the debt structure of rural households in India. For this purpose, we have evaluated the impact of MGNREGS on changes in the debt level of rural households, and factors determinants of the farm credit level of these households in rural India.

The paper is organized as follows. Section 2 reviews the available studies on the selected topic. Section 3 explains the data and methodology part in more detail and econometric models used to assess the nature of credit structure. Section 4 analyze and interpret the econometrics results. Finally, section 5 concludes and discusses policy implications.

2. Literature review.

An enormous number of studies are available dealing with various aspects of MGNREGA (Nair et al.,2009; Dutta et al., 2012; Goswamy and Dutta. 2014; Mishra et al., 2014; Carswell and Neve 2014; Kharkwal and Kumar 2015; Pamecha and Sharma (2015); Rao and Kumar. 2015). The summary of all those studies is not necessary considering the objective of the current work. Here we summarize only those selected studies that closely connect to the impact of MGNREGA on credit market structure in India. Identifying the significant determinants of the impact of MGNREGA on rural credit is largely discussed in those studies.

According to the study by Tang et.al., (2010) household size, land size, and household head's education are the main factors that determine the probability of a household to borrow money. But the impact of these factors considerably varies in between different forms of credit markets. The probability of borrowing from formal credit sources is largely reduced by transaction costs. In 2011, Saraswat empirically tested the significant determinants of probability of participation in MGNREGA scheme and acquiring formal loans. He conducted this study in Andhra Pradesh and the study concluded that the participation of lower castes like SC, ST and OBC is higher in MGNREGA program. The formal loans are mainly (59 percent) used for buying agricultural machinery or input while 27% and 25% of credit from informal loans is used by the household for consumption and expenditure on health purposes. The probit analysis showed that the probability of getting a formal loan is high for those households who are having formal bank accounts for receiving benefits of government transfer. The chances of getting formal loans are low for those households who belong to lower castes and households which are headed by female members of households.

Reddy (2012) has examined the factor influencing the formal and informal borrowing by households. He also discusses the reasons behind taking loans and which section of society gets cheaper loans. This study used secondary data (by international Crops Research Institutes for semi-

Arid Tropics (ICRISAT), year 2009) and logit model to examine the factors influencing the borrowing. This study comprises households from the semi- arid Tropics (SAT) of India. SAT refers to that part of India which has minimum to medium rainfall and poor soil quality. This study showed that more than half of the people borrowed from the informal sources of loan (56%) and only 36% from the formal loan and the large landlord, upper caste and higher educated households borrowed large amount from formal sources and they easily get loan from the formal sources because they are having lands to show as collateral and as compared to informal the formal loan having a less interest. The borrowing from the banks, most of the time, was used for agriculture purposes and it is for the longer duration, mostly 144 months. The loan from the informal sector had been taken for consumption purposes or a social purpose but these are short term duration loans (12-14 month). The results showed that education of the household- head positively affects the probability of taking loan from formal sector and negatively to the informal sector. The value of total assets showed a positive impact on the probability of taking a loan from the formal sources but it doesn't have any influence on informal sources. The probability of getting a formal loan for rabi crops is higher similarly to the farmer who grows commercial and pulses mostly borrowed from the informal sector.

Likewise, Bhattarai et al. (2014) have analyzed the impact of MGNREGA on the borrowing behavior of the households and they also evaluate the marginal impacts of factors which determine the farm borrowing of households in Andhra Pradesh. This study used 5 years of primary data from the four villages of Andhra Pradesh. For analysis they used Difference in difference approach and Tobit model. By using the Difference in difference method, they analyzed that the debt to assets ratio has decreased because the participant uses their wage income to repay their old debt with informal sources (money lenders, relatives, employers). The result also pointed out that the household heads who have a lower education are under more debt as compared to those who are having a higher education (-7.64% unit). As compared to MGNREGA the sociocultural and the other economics variables play a more important role for household credit behavior. The results showed that as compared to tenant cultivators the owner cultivated farmers having more loans. The study also showed there is a 50% reduction in the debt to assets ratio for those who participate in MGNREGA and take credit from informal sources.

Using IHDS panel data (2004-2005 and 2011-12) and Difference in difference method for analysis, Desai, et. al. (2015) has examined the change in debt and borrowing among MGNREGA participation. The results show that overall financial inclusion has been increased but the borrowing from the money lender has decreased from 39% to 22%, even in the low intensity village also the relying on money lenders has fallen from 39% to 18%. Even those who are not participating in MGNREGA getting the benefit of being neighbors of participants, their borrowing from money lenders also fell from 38% to 22%. For MGNREGA participants borrowing from money lenders has decreased from 48% to 21%. As compared to non-participants from the same village, borrowing from informal sources decreased from 4 percent . The results also showed that there is an increase of formal loans by all households but the loan by MGNREGA participants has increased from 24 to 34 percentage points. The average interest rate paid by the households has decreased from 36% to 26% in the low intensity village and it decreased more in MGNREGA villages for both participants and non-participants. This study found that there is a positive relationship between MGNREGA participation and households' propensity to borrow.

Prakash (2015) has studied the impact of MGNREGA on the rural credit market. This study assessed primary and secondary data but largely focused on primary data. For assessment, the study used descriptive statistical tools and inferential statistical tools (t- test). This study has shown that MGNREGA had a positive impact on the annual income of households. Before implementation of MGNREGA 51.67% respondent's annual family income was less than Rs. 5000. After the implementation of MGNREGA the family annual income fell in the range of 5000-10000. Result shows that in 2005 there were only 2.50 % people who had an annual income of more than 25000 but in 2013 this percentage increased to 26.67%. People, having an annual income in the range 20000-25000 also increased from 3.33% to 18.33%. After the implementation of MGNREGA the percentage of taking loans rose from 40.83% to 43.33%. The study shows that loans from money lenders have decreased from 29.17% to 14.17%. But results are different in the case of loans from banks, it increased from 3.33% to 10%. There is a sharp increase in the percentage of people who are not taking loans (from 36.67 to 60.83). The study also found that the amount of loans also increased because of the stability provided by MGNREGA income. The study showed that the rural credit markets enhanced after the implementation of MGNREGA and demand for credit has increased for productive purposes.

In 2017, Anjani and his co-authors investigated the impact of institutional farm credit on farm income and farm household consumption expenditure. For this they applied an instrumental variable two stage least square estimation method on NSSO data. They have found that social safety net programmes such as MGNREGS have unintended consequences on formal credit sources. According to their findings, MGNREGA reduced farm income and per capita monthly household consumption expenditure.

As mentioned earlier IHDS is the appropriate data source to understand the real impact of MGNREGA on the standard of living of the people, in turn to decide whether MGNREGA is a popular scheme or not. Because in India, the only data source that uses the same households over different survey periods is IHDS only. To finalize a programme as a successful one or to conclude that a particular program really reached out to the hands of needy or targeted people, we need an honest analysis satisfying all conditions with valid and truthful data. If the available data involves many technical as well as empirical errors, the resulting analysis may mislead the authority with wrong conclusions. IHDS data can solve this problem to some extent. Therefore, this study uses IHDS panel data. Panel data give more informative data, more variability, less collinearity among the variables, more degree of freedom and more efficiency.

The present study is the first attempt in India in terms of strong empirical support using panel data and advanced econometric tools. Though the existing literature use DID method to know the effectiveness of the concerned scheme, all these studies applied DID in the context of either ordinary least estimation (OLS) or linear probability model (LPM) (Anjani et al., 2017; Desai and Koti (2015)). The present work used DID in the situation of non-linear regression models (standard probit DID method). This is because the dependent variable used in this work is binary choice one, 'loan availed; if loan availed from formal source, takes value 1 and if it is from informal sources, takes value 0'. If the dependent variable is a qualitative one, then the suitable model is qualitative regression models. Therefore, this study fills that gap by applying DID using simple probit regression technique, which in turn will provide more reliable data.

3. Data and Methodology

A thorough understanding of the data set used for the study and a comparison with alternative data sets available is essential to carry out a reliable research output. This section discusses the nature of the IHDS data set (used in the study) and compares it with NSSO and census datasets. The study completely depends on the secondary data source viz Indian Human Development Survey (IHDS).

IHDS is conducted by the collaborative efforts of researchers from the University of Maryland and the National Council of Applied Economics Research (NCAER). IHDS is said to be a nationally representative, multi-topic panel survey. The survey was first conducted in the year 2004-05 and then in the year 2011-12. In the year 2004-05, 41554 households were interviewed (Rural Households are 26734 and urban households are 14820) from 1503 villages and 971 urban neighborhoods across India, located in 33 states and union territories. Only Andaman Nicobar and Lakshadweep were excluded. In 2011-12 again IHDS interviewed 42152 households (Rural households are 27579 and urban households are 14573) from 384 districts, 1420 villages and 1042 urban neighborhoods across India. This survey also excludes Andaman Nicobar and Lakshadweep. In the second survey during 2011-12, it is said that 83% of households have been re-interviewed. This means the 2011-12 survey contains 83% of households that were interviewed earlier in 2004-05. The main purpose of IHDS is to provide a wide range of topics in a single survey. This survey is enriching with great depth and range. As far as India is concerned IHDS is the first multi-topic panel survey that re-interviewed 83% of households.

Panel data provides a better understanding and is more appropriate for the studies involving the assumption of the development of the social programme. It also develops the opportunity to investigate the cause of inequality widespread in the various areas like unemployment, health, and education. It helps to analyze the impact of government policy on households, and how the policies allow some individuals/households to gain upward mobility and others to stay behind.

The NSSO data set is like the IHDS data set. However, for our study, we regarded IHDS to be more appropriate. IHDS survey can be compared with other surveys like census and NSSO but only in the context of a few key variables like age, poverty, education, religion, caste, etc. Questions for example income of the individual/household included in the IHDS are not administered by NSSO and Census.

The information by the IHDS data is more like other surveys such as census and NSSO. For example, the percentage currently in school (Age 5-14) in IHDS II is 89.2 and in NSSO (68th round employment) it is 89.6 similarly in IHDS I it is 76.4 and in NSSO (61st round employment) 80.7. The percentage of poor in IHDS II is 24.4 and on the other hand in NSSO (68th round consumption exp.) It is 25.7. In IHDS I round percentage of poor is 42.4 and it is 41.8 in NSSO (61st round consumption exp.). Work participation rate of male and female in IHDS II is 51 and

28.4, in census 2011 it was 53 and 30 and in NSSO (68th round employment) it is 54.3 and 24.8. The same in IHDS I work participation rate of male and female is 49.4 and 26.7, in census 2001 it is 52.3 and 30.9 and in NSSO (61st round employment) it is 54.6 and 32.7. There is some difference in the values of different parameters of different surveys and it is obvious to have this difference because the sample size and the method of data collection are different.

Hence the present study confirms that IHDS data set to be more appropriate than other dataset as IHDS has more relevant numbers and close in values of the key parameter. The study uses both surveys of IHDS to make it panel data. It is specifically focused on the households of the rural sector of India. The unit of study is Household. The total numbers of sample size are 47534 households out of which 20858 households belong to 2004-05 survey and 26676 households belong to 2011-12 survey. The study includes only those households which have been interviewed in 2004-05 survey of IHDS and further who are re-interviewed in 2011-12 survey.

This section discusses dependent and independent variables which have been used to analyze the impact of MGNREGA on lending. The dependent variable which has been used for this objective is the source of the loan. This is a categorical variable having a value of zero for informal sources and 1 for formal sources. Formal sources of lending include money lent by banks, credit group, government programme, self-help group, Kisan credit card and PF/LIC and informal sources of lending include money lender, relatives, friends, employers. Independent variables include MGNREGA participation, time, interaction between MGNREGA and time and MPC. Except this, some socio-economic variables are also included like age, caste, household size and education. The descriptions of the variables are given below in the tabulated form:

Table 1. Description of Variables used for accessing the impact of MGNREGA on credit availed.

Variable Name	Description	Measurement	AH/ PH/ NPH	Mean	Standard Deviation	Min.	Max.	Obs.
Dependent Variable								
Loan Availed	Money availed by the households from formal or informal sources. The formal source includes banks, NGOs, community credit groups, a government programme, Kisan credit card, and PF/LIC. The informal source includes Employer, money lender, friends, relative, middlemen, and others.	Value 1 holds for formal sources and 0 for informal sources.	AH	0.376	0.484	0	1	24601
			PH	0.261	0.439	0	1	4674
			NPH	0.403	0.490	0	1	19919
Independent Variables								
MGNREGA Participation	People who have an MGNREGA job card consider participants in MGNREGA and those who don't have a job card are considered non-participants.	Value 1 holds for participants and 0 for non-participants.	AH	0.464	0.498	0	1	24583
			PH	0.611	0.487	0	1	4673
			NPH	0.429	0.495	0	1	19902
Time	Time refers to the two different years 2004-05 and 2011-12.	Value 1 holds for the year 2011-12 and 0 for 2004-05	AH	0.609	0.487	0	1	24601
			PH	0.571	0.494	0	1	4674
			NPH	0.618	0.486	0	1	19919
Interaction	It is an interaction variable between MGNREGA*time.	It is a binary variable having values 1 and 0	AH	0.282	0.449	0	1	24583
			PH	0.343	0.475	0	1	4673
			NPH	0.267	0.442	0	1	19902
Age_HHH	It is the age of HHH	In Years	AH	47.77	12.917	15	99	24601
			PH	46.26	13.048	18	97	4674
			NPH	48.13	12.858	15	99	19919
Caste_HH	It represents the hereditary classes of households	Value 1 holds for OBC, 2 for SC/ST, and 0 for another caste.	AH	0.230	0.421	0	1	14985
			PH	0.123	0.328	0	1	2669
			NPH	0.254	0.435	0	1	12310
			AH	0.445	0.497	0	1	14985
			PH	0.394	0.488	0	1	2669
			NPH	0.456	0.498	0	1	12310
			AH	0.323	0.467	0	1	14985
			PH	0.482	0.499	0	1	2669
			NPH	0.289	0.453	0	1	12310
Education_HHH	It shows whether the HHH is educated or not	Value 1 holds for literate and 0 for illiterate	AH	0.599	0.490	0	1	24595
			PH	0.474	0.499	0	1	4673
			NPH	0.628	0.483	0	1	19914
Monthly Per capita Consumption (MPC)	Monthly per capita consumption is the monthly consumption made by each individual of the household.	In Rupees	AH	1522	1964.372	4	83934	24593
			PH	498.8	240.014	4	1302.7	4674
			NPH	1762	2108.914	295	83934	19919
Household Size	It is the total number of the family member of each household.	In Number	AH	5.272	2.503	1	33	24599
			PH	6.250	2.550	1	31	4674
			NPH	5.042	2.436	1	33	19919

Note: AH refers to All Household, PH refers to Poor Household and NPH refers to Non-poor Household.

For addressing this objective to understand the impact of MGNREGA on credit, the simple statistics, and econometrics technique such as the Difference in difference model is used.

Table 2. Variables Used in the analysis of Credit availed classified by IHDS survey rounds (2004-05/2011-12)

Year	Observation	Mean	Standard Deviation	Min.	Max.
Source of Loan					
2004-05	9605	0.296	0.457	0	1
2011-12	14994	0.427	0.494	0	1
Monthly Per Capita Expenditure					
2004-05	9605	778.676	880.239	4	39273
2011-12	14988	1998.046	2292.274	125	83934.09
Household Size					
2004-05	9605	5.612	2.657	1	33
2011-12	14994	5.055	2.374	1	33
Caste (Other caste)					
2004-05	9605	0.230	0.421	0	1
2011-12	14985	0.230	0.421	0	1
Caste (OBC)					
2004-05	9605	0.456	0.498	0	1
2011-12	14985	0.445	0.497	0	1
Caste (SC/ST)					
2004-05	9605	0.314	0.464	0	1
2011-12	14985	0.324	0.467	0	1
Age_HHH					
2004-05	9605	45.917	12.287	18	97
2011-12	14994	48.967	13.166	15	99
Education_HHH (Illiterate)					
2004-05	9605	0.413	0.492	0	1
2011-12	14988	0.392	0.488	0	1
Education_HHH(Literate)					
2004-05	9605	0.586	0.492	0	1
2011-12	14988	0.607	0.488	0	1

According to table 2 the average monthly per capita expenditure of a household in 2004-05 was RS 778.676 and in 2011-12 it is 1998.046. It shows that the average monthly per capita expenditure of a household has increased. Average household's size and deviation from mean is almost the same in both years. But the average of Age is increased from 45.917 (2004-05) to 48.967(2011-12). The mean of other castes, OBC and SC/ST are also almost same throughout the time period.

3.1 Difference in Difference (DID) Model - A Generic Version

The difference in difference (DID) method is one of the most effective tools for applied research in economics to evaluate the impact of any programme. The use of difference in difference method has become more widespread after the influential work by Ashenfelter and Card (1985). In difference in difference (2 year panel data), the outcome is observed for two groups and two time periods. One of the groups is exposed to treatment in the second time period but not in the first period. The second group is not exposed to treatment in either period. The group which is exposed to treatment is known as a "treatment group" and those who are not exposed to treatment in either period known as "control group". The following points must be held for the correct estimation of difference in difference.

i) The model in equation (outcome) is correctly specified.

ii) The error term is uncorrelated with the other variables in the equation:

a) Cov (ε_{it} T_{i1}) = 0

b) Cov (ε_{it} t) = 0

c) Cov (ε_{it} T_{i1} t) = 0

This is known as the parallel trend assumption. It means that unobserved characteristics affecting the program participation do not vary over time with treatment status. Treatment Effect in the Treated at the time of treatment is explained by following equation (Patrick A. Puhani, 2011):

$$\tau\ (T=1, G=1) = E[Y^1 |\ T=1, G=1, X] - E[Y^0 |\ T=1, G=1, X] \quad (3.1)$$

Where;

Y^1= Potential Outcome with treatment

Y^0= Potential Outcome without treatment

T= binary time period (1 = Post treatment period, 0= pre-treatment period)

G= group indicator (1= exposed to treatment, 0= not exposed to treatment)

X= Vector of Control variable.

E[.]= Expectation operator

Treatment is assumed to be constant over X. Participation in treatment is indicated by

$$\mathbf{I= 1\ [T=1,\ G=1] = T*G} \qquad \mathbf{(3.2)}$$

Where 1[.] is the indicator function. Equation (3.2) shows that group G=1 is treated in time period T=1. It also implies that group G=0 is not treated in either period T=0 and T=1. There is no treatment for both groups in T=0 because at that time treatment isn't implemented. So, the observational rule for the outcome variable Y is:

$$\mathbf{Y= I*\ Y^1 + (1- I)\ *\ Y^0} \qquad \mathbf{(3.3)}$$

In the case of linear model, the expected potential outcome Y^0conditional on T, G and X is expressed as:

$$\mathbf{E[Y^0|T,G,X] = \alpha T+\beta G+X\Theta} \qquad \mathbf{(3.4)}$$

This restriction implies that the time effect α is constant for both groups and the group difference β is constant over a time. If Y^0 is not bounded, this restriction which is the identifying the assumption of the standard difference in difference may hold.

As mentioned, treatment occurs for the group G=1 in time period T=1. Hence for the treated group the potential outcome under treatment: $E[Y^1|\ T=1,\ G=1,\ X]$ is observed during the treatment period. By equation (3.1) and (3.4):

$$\mathbf{E[y^1|T=1,\ G=1,X] = \alpha+\beta+\ \tau(T=1,G=1)+\ X\Theta} \qquad \mathbf{(3.5)}$$

Note that counterfactual outcome $E[Y^0|\ T=1,\ G=1,\ X]$ is unobserved but modeled by equation (3.4).

$$\mathbf{E[y^0|T=1,\ G=1,X] = \alpha+\beta+\ X\Theta} \qquad \mathbf{(3.6)}$$

Because equation (3.1) implies that,

$$\mathbf{E[Y^1|\ T=1,\ G=1,\ X]= \tau\ (T=1,\ G=1) + E[Y^0|\ T=1,\ G=1,X]} \qquad \mathbf{(3.7)}$$

Because of the observational rule (3.3) and treatment allocation rule (3.2), and the functional form restriction (3.4), the treatment effect in the treated at the time of treatment τ (T=1, G=1) is identified by an interaction effect in a linear model:

$$E[Y|\ T,G,X] = TG*[\tau+ \alpha T+\beta G+ X\Theta] + (1-TG)*[\ \alpha T+\beta G+ X\Theta] \quad (3.8)$$
$$= \alpha T+\beta G+ \tau TG+ X\Theta$$

3.2 Difference in Difference- A case of binary dependent Variable

In the case of simple nonlinear model such as probit model, the conditional expectation of the binary potential outcome Y^0 becomes:

$$E[Y^0 |T,G,X] = \phi(\alpha T+\beta G+ X\Theta) \quad (3.9)$$

$\phi(.)$ is the conditional distribution function of the standard normal distribution. Let the question (3.2) and (3.3) hold. Equation (3.1) does not hold, because the treatment effect cannot be constant across the treated population if the expectation of the outcome variable is bounded, as it is on probit, logit or tobit models (Athey and imbens, 2006,). The treatment effect on the treated at the time of treatment by specifying.

$$E[Y^1|\ T=1, G=1, X]= \phi(\alpha+\beta+\gamma+X\Theta) \quad (3.10)$$

Combining (3.2), (3.3), (3.10), (3.11), we obtain the standard probit "difference-in-difference model."

$$E[Y|T,G,X]= \phi(\alpha T+\beta G+\gamma TG+X\Theta) \quad (3.11)$$

The treatment effect on the treated at the time of treatment conditional on X in this "difference-in-difference" probit model is

$$\tau\ (T=1, G=1, X) = E[Y^1|\ T=1, G=1, X] - E[Y^0|\ T=1, G=1,X] \quad (3.12)$$
$$= \phi(\alpha+\beta+\gamma+X\Theta) - \phi(\alpha+\beta+X\Theta).$$

The treatment effect is zero if and only if the coefficient γ of the interaction term TG is zero. The treatment effect is the coefficient of the interaction term. Treatment effect is the difference between the two-cross difference. It is the cross difference of the conditional expectation of the observed outcome Y minus the cross difference of the conditional expectation

of the counterfactual outcome Y^0. In the case of the Logit model, the treatment and derivation of interaction and other variables is going to be the same (Puhani, 2011).

4. DID estimation for examining the Impact of MGNREGA on Credit availed

This section examines the impact of MGNREGA on credit. Difference in difference method has been used to analyze the impact of MGNREGA on credit. The present section is divided into three subsections. The first section is about the impact of MGNREGA on credit for overall observation, the second section analyzes the impact for poor households and the third section is about non-poor households.

The empirical model for the impact of MGNREGA on credit availed can be express as follow:

$$\boldsymbol{Y_{it} = \beta_0 + \beta_1\ MGNREGA + \beta_2\ Time + \beta_3\ Interaction + \beta_4 X_{it} + s_{it}} \quad \textbf{(3.13)}$$

Where, Y_{it}= Interest of outcome is Loan. Loan is a binary variable having value 1 if the loan has been taken from formal sources otherwise 0.

MGNREGA= zero for those who are not participating in MGNREGA and one for those who are participating.

Time = Zero for year 2004-05 and one for year 2011-12

Interaction = MGNREGA*Time

X_{it}= it is a vector of individual household characteristics at time t such as age, dummy for caste, dummy for education, monthly per capita expenditure, and household size.

Table 3. Result of DID method for examining the impact of MGNREGA Participation on Credit Availed

	All Household	Poor Household	Non-Poor Household
Independent variable	Coefficients		
Loan availed (Formal loans=1, 0 otherwise)			
MGNREGA Participation	-0.396*** (0.048)	-0.082 (0.118)	-0.411*** (0.053)
Time	0.349*** (0.040)	-0.019 (0.159)	0.366*** (0.043)
Interaction	0.166*** (0.058)	0.011 (0.147)	0.174*** (0.065)
Pseudo R2	0.0751	0.0571	0.0719
Total Observations	24562	4672	19888

Note: (1) Standard error is in parenthesis.
(2) The model also includes household level characteristics such as Age, household size, monthly per capita expenditure, dummies for education and caste
(3) ***Significance at 1%, **Significance at 5% and*Significance at 10%

Table 4. Contrasts of Predictive Margin

	All Household	Poor Household	Non- Poor Household
MGNREGA Participants vs non-participants	0.035 (0.012)	0.002 (0.026)	0.038 (0.014)
chi2	8.20	0.01	7.27
p value	0.0042	0.9409	0.0070

Note:(1) MGNREGA Participation (At post time period and interaction=1)
(2) Non-participant (at post time period and interaction= 0)

Table 3 shows that in the case of all households, poor household, and non- poor household the probability of expected mean difference of having formal loan in comparison to informal loan between treatment group and control group are -0.396, -0.082 and -0.411 percent unit. This has been shown by the coefficient of MGNREGA participation. The time coefficient is 0.349 (All household), 0.366 (non-poor household). This shows that for those who are not participating in the program, the probability of getting formal loan in comparison to informal loan is more by 0.349 percent for all households and 0.366 for non-poor households respectively. But in the case of a poor household, it is -0. 019.This shows that for those who are not participating in programs from poor households, the probability of taking formal loans in comparison to informal sources is less. The treatment effect can't be measured by interaction coefficient. The treatment effect can only be measured by difference between cross differences: it is the cross difference of the conditional

expectation of the observed outcome minus the cross difference of the conditional expectation of the potential outcome without treatment (Puhani,2008). This is shown in table 4. The difference between the two cross differences is 0.035 percent unit in the case of all households. This shows that the probability of taking formal loan in comparison to informal loan for MGNREGA participants is 0.035 percent unit more. In the case of non-poor households, it is 0.038 percent more. Chi square value for all households and non-poor households is significant.

To summarize, households are taking more loans from the formal sources in comparison to informal sources after the implementation of the programme. The same is tabulated in table 4 also.

5. Summary and Major Findings

MGNREGA is one of the world's largest public work program. The main objective of the program is to enhance the livelihood of the households in the rural area by providing 100 days of unskilled labor work through creation of sustainable assets. It is a demand driven program with a self-selection mechanism. It makes employment a right of every household and provides an opportunity to work and uplift their living standard in the good working conditions. This program eliminates middlemen from the chain between any program and beneficiaries. It provides more strength to the Gram Panchayat, the local body of any village. This program provides equal opportunity to every section of society through its self-selection mechanism and also reduces the gender inequality by giving an equal wage to men and women for performing the similar kind of work. The structuring of the program is built in this way so that it can reach every vulnerable group of society who want to work as an unskilled labor.

This study mainly focuses on the impact of MGNREGA on credit structure in India. The study mainly focused on reliable secondary data and the source of the data was IHDS. Difference in difference method is one of the effective models to measure the impact of any policy between two time periods. The empirical results are shown in the table and discussed rigorously. The major conclusions derived from the analysis are discussed as follows. The treatment group is much more interested in taking loans from the formal sources of loans in the case of all households and non-poor households. According to DID results it has been found that the movement of poor households towards formal loan is not statistically significant. Which means the impact of MGNREGA participation on credit is not favorable to poor households.

MGNREGA program is one more step toward eradicating poverty. It is not only providing employment but also helping to improve the basic infrastructure of the rural area. It is strengthening the involvement of the village level authority so that policy makers are aware of actual grassroots scenario, and it can reach to every section of the society. If the implementation of the program is more effective, then it will enhance the living standard of the people of rural areas. Still there is a large section of the people living in rural areas living their life in poverty. This program is a ray of hope for those people who are having a dream of living a better life. This study suggests some policy guideline like, the channels for provision of formal loans should be increased in rural India to meet the goal of financial inclusion. Although the participation in MGNREGA is having a significant impact on the credit availed in the case of all households, in the case of poor households the impact is insignificant. It shows that poor households are still depending upon the informal sources for availing credit. So, the government should take appropriate measures so that they can connect the poor household with formal sources of lending.

References

- Anjani, K. et al. (2017). *"Institutional versus Noninstitutional Credit to Agricultural Households in India Evidence on Impact from a National Farmers' Survey",* International Food Policy Research Institute Discussion Paper, 01614.
- Ashenfelter, O and C. David. (1985). "*Using the Longitudinal Structure of Earnings to Estimate the Effect of Training Programs",* The Review of Economics and Statistics, 67(4), 648-660.
- Bhattarai, M. et al. (2014). *"Impact of MGNREGA on Rural Credit Structurein Andhra Pradesh state of India: Household Level Panel Data Analysis from 2006-2012",* Socioeconomics Discussion Paper Series 28.
- Carswell, G. M., and Neve, G. D. (2014). "*MGNREGA in Tamil Nadu: A Story of Success and Transformation?",* Journal of Agrarian Change, 14(4), 564-585.
- Dutta, P., Murgai, R., Ravallion, M., and Walle, D. V. D. (2012). *"Does India's Employment Guarantee Scheme Guarantee Employment?",* Economic and Political Weekly, 47(16), 55-64.

- Goswami, B., and Dutta, A. R. (2014). *"Status of Implementation of the MGNREGA in Assam: All is not Well"*, Journal of Rural Development, 33(2), 173-182.
- Kharkwal, S., and Kumar, A. (2015). *"Socio-Economic Impact of MGNREGA: Evidence from District of Udham Singh Nagar in Uttarakhand, India",* Indian Journal of Economics and Development, 3(12), 1-10.
- Mishra, R. N., Viswanathan, P. K., and Bhattarai, M. (2014). *"Impact of MGNREGA Program on Income, Assets Creation and Food Security: Evidence from Selected 10 Semi-Arid Tropic (SAT) Villages in India",* National Seminar Paper Submitted for Presentation at National Institute of Rural Development (NIDR) in Rajendranagar, Hyderabad, India.
- Nair, K. N., Sreedharan, T. P., and Anup Kumar, M. (2009). *"A Study of National Rural Employment Guarantee Programme in Three Gram Panchayats of Kasaragod District",* Working Paper-41.
- Pamecha, S., and Sharma, I. (2015). *"Socio-Economic Impact of MGNREGA: A study undertaken among beneficiaries of 20 villages of Dungarpur District of Rajasthan",* International Journal of Scientific and Research Publications, 5(1), 1-4.
- Reddy, A. A. (2012). *"Structure of Indebtedness of Households in Semi-AridTropics of India"*, Agriculture Economics Research Review, 25, 473-483.
- Tang, S . Guan, Z. and Jin, S. (2010). Formal and Informal Credit Markets and Rural Credit Demand in China. Selected paper prepared for presentation at the agricultural and applied economics association 2010 (AAES,CAES,WAEA) joint annual meeting. Denver, Colorado.

Books

Green, W. H. (2006). "Econometrics Analysis", Fifth Edition Pearson.

Khandker, S. R. et al. (2010). *"Handbook on Impact Evaluation QuantitativeMethods and Practices"*, The World Bank.

Report

Mahatma Gandhi National Rural Employment Guarantee Act:A Catalyst for Rural Transformation (2015), National Council of Applied Economic Research (NCAER).

World Bank, (2010). Designing and implementing a Rural Safety Net in a Low Income Setting: Lesson Learned from Ethiopia's PSNP: 2005-2009. Washington: World Bank.

The Recent Surge in the Subscriptions of Disney + Hotstar over Netflix in India: A Comparative Study

Yashoda L

Research Scholar
Department of Economics
JAIN (Deemed to-be University)
Bengaluru

Bhavana Gulabi Nathani Srinivas

Student, Center for Management studies
Department of Economics,
JAIN (Deemed to-be University)
Bengaluru

Srinitha Srinivas

Student, Center for Management studies
Department of Economics,
JAIN (Deemed to-be University)
Bengaluru

Abstract

This research paper recapitulates the comparison between the two significant OTT platforms in India: Netflix and Disney+ Hotstar. During the pandemic, everyone was locked inside their homes and were not in a position to go out. Due to this, everything switched and came to be online. People started finding their amusement through video streaming online- The OTT platforms. OTT (over-the-top) platforms have gained a lot of recognition, identity, visibility, and impetus especially during covid-19 as formerly people usually preferred conventional forms of entertainment such as theatres and television. To analyse the circumstances that led to the increase in the subscriber base of Disney + Hotstar subscribers over Netflix, the methodology used is Diagnostic study. A secondary source of data was utilized to collect the datarequired for the study. While conducting the review of literature, the study comprehended that the comparison of both OTT platforms has not been conducted hitherto thus leading to the research work done. During the process of research, the study realized that the Disney + Hotstar has a better subscriber base compared to that of Netflix due to various factors such as less subscription fee, better regional and sports content. It also had an edge over its competitor in terms of providing advertisement supported free content that attracted a good subscriber base. This research work provides evidence to show that Disney + Hotstar has got much more reasonable and optimistic customer base in India.

Keywords: *OTT in India, Disney + Hotstar, Netflix, Indian OTT subscribers and covid-19.*

1. Introduction: -

The commencement of the pandemic, people being locked up and not having much to do has turned their attention towards much approachable means. The OTT platforms had a field day especially during the lockdown period. Even after lockdown, people's fear of spending longer periods of time outdoors have caused a rapid increase in the use and subscriptions of OTT platforms.

So, what are these OTT platforms? OTT is an abbreviation for "over- the-top" which basically broadcasts films, shows and all types of tv content over the internet without any cable connection or a satellite pay tv and can be accessed by many users at the same point of time.

There are around 40 companies that provide OTT services in India and the sectors worth was 2150 crores as for 2018 data and was estimated to be 35 billion by 2019.

The first OTT platform in India was BigFlix which was started by reliance entertainment in the year 2008. Digivive launched the first OTT mobile application in the year 2010 under the name nexGTv.

The leading OTT players in the entertainment market are Netflix and Disney+ Hotstar followed by the other platforms in India.

Netflix was launched in India in the year 2016 and became a limited liability partnership in April 2017.Netflix CEO Reed Hastings said "ultimately, flexibility is more important than efficiency over the long term." as he explained why people should prefer Netflix over other OTT platforms. Netflix has always paid interest in collecting the user's search data to help them in finding content that interests them but now in response to genuine demand they started using the search history to measure which categories and talents it should follow which was used to produce Netflix originals.

In the year 2018, Netflix generated sales of 580 million and a net profit of $2.02 million as it started as a limited liability partnership in 2017. According to research by Morgan Stanley, the highest average streaming time on Netflix was more than 120 minutes with approximately 20 million viewers as of July 2018.

As of 2020, Netflix has 2 million paying subscribers.

Netflix initially released pre-existing movies, television shows and documentaries at a fixed price which was to be paid on a monthly basis and then in 2018, it has changed its approach

towards the Indian market and invested more in local productions and also provided lower mobile-only packages. To extend services to new audiences they formed an alliance with existing distributors like reliance jio.

In fact, this year Netflix plans to release 40 original Indian movies and television shows which is quite higher than the production in most of the other countries outside North America.

Hotstar, more commonly known as Disney+ hotstar, is one of the biggest streaming platforms in India. It has become one of the leading entertainment platforms in the. Hotstar is owned by a subsidiary of star India, 'Novi digital entertainment pvt ltd', which was launched in January 2015. Star officially held the domain and app in the next month (February 2015). Disney+ hotstar (pronounced as Disney plus hotstar), is an on-demand subscription streaming app and service owned and operated by star India, a subsidiary of 'the Walt Disney company India'.

Within just a week of its launch, hotstar hit over one million downloads. The streaming service platform had an advantage by marketing the popular shows from 'star entertainment', attracting millennials by marketing them. By including shows from channels like 'star plus', 'star pravah' and 'life ok'- it was no surprise that hotstar made it big within the first week of its launch. These channels and their viewers became a huge marketing tool for hotstar.

An interesting fact about hotstar's marketing is that it didn't just use digital advertising, but also used traditional marketing tools like print media to promote the platform to audiences. This gained them a lot of attention during their initial stages as well. Hotstar managed to attract a lot of people in its early stages as some of the popular daily soaps were available on the platform. It later became the main idea to market hotstar as a platform to watch easily shows the next day after it was aired as well as download the episodes for easy access.

Apart from the shows, hotstar also showed the ICC cricket world cup 2015 as a live stream on its mobile app, which created a huge subscription increase as well as viewer traffic on their app. Hotstar app offers over 50,000 hours of tv and movies across Hindi, English, and six other regional languages including Tamil, Telugu, Marathi, Bengali, etc.

A complete transformation occurred for hotstar in 2019 when Disney joined hands with it. Other than the existing content of daily soaps and sports, a whole new section was added which included all the Disney films. It spiked the appearance of hotstar among the Indian audience, especially the audience living abroad. Disney+ hotstar soon became a strong competition for other popular streaming platforms in India like amazon prime and Netflix. It even reached the

extent of competing with YouTube as well. As of July 2020, Disney+ hotstar's VIP plan costs rs.399 per year and the premium plan costs rs.1499 per year.

2.Research Methodology: -

The methodology of Research used in this paper is diagnostic study as the study focuses on the phenomenon of the surge of Disney+ hotstar subscriptions over Netflix. This study deals with the characteristics of the population of the Disney+ hotstar subscribers as well as the Netflix subscribers and to compare the preference of Disney+ hotstar over Netflix. It also tells us the instances that led to this phenomenon and predicts the future of both the OTT platforms.

The method used for finding the data is case study and statistical methods to understand the interaction between the factors that led to the improvement in the number of subscribers ofthe OTT platform- Disney+ Hotstar.

Case study methods help in getting an in depth view of a topic or the phenomenon and the statistical method helps in getting the accurate data in order to support the statement that has been put forward through the research.

To collect the data secondary method of data collection where the data and facts given are collected from various articles, websites, and previous research papers.

The method of case study is mainly used to analyse the factors that are responsible for Disney + hotstar to have a better subscriber base compared to that of Netflix.

We first collected all the data that is available regarding both the OTT platforms from various articles, websites and research papers and sorted it out.

Later we started to filter out the data and process it into the data required for the study.

2.1 Research Gap: -

The previous research that has been done so far has shown the data of either all the OTT platforms or either Netflix or Disney + hotstar. Through the previous research we can analyze that overall OTT platforms have grown over the years especially during covid-19.

The OTT platforms have taken advantage of the situation and have tried upgrading themselves to have a better reach to the consumers and to provide them with maximum satisfaction. They also show how the OTT platforms have taken over the conventional means of entertainment.

3. Objectives: -

1. To know the better reach of OTT platforms among Disney+ hotstar and Netflix to the Indian consumers.
2. To identify the factors determining Disney+ hotstar preference over Netflix.
3. To study the consumer behaviour of the Disney + hotstar and Netflix subscribers.

4.Review of literature: -

The Covid 19 pandemic has fuelled the OTT platforms and given a rise to the number of subscriptions, impacting the conventional media of entertainment i.e., the television and theatres. From this research, we can realise that people started preferring more of OTT platforms with device convenience rather than just the conventional methods. Live sports streaming on OTT platforms gave them a better advantage. The major catchpoint in this research is that the OTT platforms have a much better scope in the future as they provide the facility to watch everything and anywhere. **(Gaonkar)**

We can see in this research that a major share of people prefers both OTT platforms and television as a form of entertainment, but the second major share of people prefer watching OTT alone. We can see that Netflix had a major share followed by Disney +hotstar and amazon prime. OTT was majorly preferred because of the variety of content, the web series and the global content it used to provide and people also say that OTT platforms have a better future with a better scope for growth rather than televisions or any form of entertainment. **(Saini, 2020)**

Given the potential of US-based companies' large and growing user-base, India has emerged as the latest territory ripe for the global expansion of US OTT video platforms. India seems to be a key battleground for the major global OTT platforms like amazon and Netflix. Though the US based tech companies spend millions on improving their OTT services in India, according to the 2018 data Disney + hotstar and other platforms were leading. **(Fitzgerald, 2019)**

This article talks about the rise of OTT platforms during the pandemic and how the trend in the usage of OTT platforms has been an upward sloping graph. In this, we get to the percentages of the people preferring OTTs and the classifications. **(Parihar, 2021)**

There are two sides of a coin similarly the adoption of OTT platforms also has few repercussions, and the research conveys that a lot of people have preferred OTT platforms ratherthan normal conventional forms of entertainment such as television or theatres which shows the increase in the support of the usage of OTT platforms. **(Dasgupta, 2019)**

The major leading OTT platforms such as Netflix, amazon prime, Disney + hotstar have caused a commotion in the entertainment industry. These OTT platforms have changed the attitude of the consumers and made them comfortable when the content was easily accessible. According to this, Netflix is the most preferred OTT platform followed by amazon prime and Disney + hotstar. It is also mentioned what are the factors that are leading to an increasing trend in the usage of OTT platforms. **(Kumari, 2020)**

This article compared the various types of OTT platforms in India and their market share. It also talks abouts the problems and future growth of OTT platforms. Sports streaming is considered one of the major factors influencing the usage of OTT platforms along with the variety of content. It talks about how the sales of DTHs, and theatres have been hampered dueto the rise in the usage of OTT platforms. **(Sundaravel, 2020)**

The covid pandemic has contributed a lot in the increase in the subscriptions of various OTT platforms especially in India. In this article, it talks about the various OTT platforms and the analysis of how the platforms have conquered that market share which poses a threat to entertainment offline. **(Jain, 2021)**

The growing intensity of the consumption of Over-The-Top (OTT) platforms in India is responsible for a new era of digitalisation in the media and entertainment sector. The contribution to OTT platforms in India has been from both rural and urban areas. Factors like Internet penetration, enhanced supply of quality content in foreign as well as regional languages (Hindi, Tamil, Telugu, etc.), ad-free shows and binge-watching have effectively contributed to the rise of OTT consumers in India. **(Saha, 2021)**

Increased digital consumption has become a factor in the rise in OTT subscriptions across the country. Recently due to the COVID-19 pandemic that forced people to stay indoors, the subscriptions to these OTT platforms have largely increased, especially among students in their teen years. Because of this, Indian subscription platforms like Hotstar, Alt Bajaj, ZEE5, Voot, and many others could enter the OTT market easily. There is a total of 70 million subscribers in India and $1.3 million in subscriber payments overall. **(Priya, 2021)**

Growing internet usage and access and availability of multiple screens have encouraged the development and growth of OTT platforms in the past decade in India. We understand the various factors, including the COVID pandemic that acted as a catalyst in subscriptions, and what is a user's motivation for adopting OTT platforms during such times. **(Nijhawan, 2020)**

The increased usage of smartphones has led to increased video consumption in India. This led to a drastic shift of media consumption from traditional methods, like live TV and movie theatres, to digital methods accessible by anyone. There has been a decline in consumers who prefer watching shows on TV. In fact, internet usage in India is so intense that it is set to be among the world's top ten OTT platform viewers by 2020**. (Gupta, 2021)**

During the COVID-19 pandemic, the number of active subscribers to OTT streaming platforms like Hotstar, Amazon Prime Video, Netflix, Voot, Alt Balaji has increased by almost 6 million users in a single year. The study found that the subscribers of these OTT platforms had increased their usage by almost 3 hours on a daily average due to the pandemic, citing various reasons such as 'Boredom', 'Excess time', 'New content' etc. **(Parnami, 2021)**

A report by Delloite states that the video streaming subscription was around 8 US$ billion in 2020. The total number of smartphone users in India is expected to almost double to cross 700 million by 2022, closing the country's position as the second largest market of smartphones in the world. The growth is primarily being driven by the consumer's hungry desire for streaming videos over the internet. Indian consumer's usage of video content on mobile phones is said to cover 75% of the world's data usage by 2021. **(Yeole, 2022)**

Factors affecting consumers' willingness to subscribe to over-the-top (OTT) video streaming services in India: In this study we learn that only customers who use the services of OTT platforms were more concerned with the content available and access to such platforms. Many consumers bought the service due to peer pressure as compared to cable subscribers. **(Nagaraj, 2021)**

Indian OTT Subscribers: -

Indian OTT subscribers almost account to 423.8 million (42.38 crores) as of 2022.subscribers spending on subscription video on demand (SVOD) are over 119 million which has expanded by 20% from 2021 to 2022. 50% of the subscribers are streaming videos on YouTube and only 33% of the subscribers are watching content paid in India. Pandemic which forced people to be locked inside their houses has been the major factor that has raised the subscriber's growth percentage. Now only a few (3 out 10 people) still stick to the conventional methods of entertainment whereas most of the subscriber's stream most of the content they watch only on OTT platforms.

Around 184.5 million OTT viewers are watching advertisement-based video on demand where the free content viewed is supported by advertisements on OTT platforms.

There are around 109.2 million subscribers who are watching free content on platforms like YouTube and social media platforms.

OTT in India: -

Over- The -Top or OTT are platforms that can stream various content on any streaming device over the internet. OTT platforms are divided into audio and video markets. Audio markets include players like Spotify, Gaana, Wynk music and video players include platforms like Amazon Prime, Netflix, Disney + Hotstar, Voot, Zee 5, SonyLIV and others. These OTT platforms are regulated by the Over-the-top media services (OTT) in India. The OTT market was valued at $ 1.7 billion as of the year 2020.

The first independent OTT platform in India was AAO NXT that provided movies, short films, web series irrespective of the language.

Disney + Hotstar is the leading OTT platform in India especially due to the streaming of sports events such as IPL, world cup and the advertisement supported free content and this is followed by Netflix, amazon prime, zee 5 and others.

The rise of OTT platforms has led to the decline of conventional methods of entertainment.

Covid -19: -

Corona virus or commonly known as covid-19 is a virus that spreads rapidly among the crowd which mainly affects the respiratory system and causes various breathing problems. Patients affected by covid-19 faced a lot of problems such as tiredness, digestive problems, absence of the ability to taste food, vomiting, high fever, cough and cold.

In 2019, the virus outbreak was reported in Wuhan, China and it spread across the world. Lakhs of cases were reported every day and thousands of them have died in a day. The government of India, after seeing the virus outbreak had announced a lockdown for several months and everything has turned online. Inter-country and Inter- state movement was kept stationed for a long time. Businesses were also shut downed for a long period which led them to losses and online platforms and business were on a boom.

The medical facilities were not sufficient, and everyone suffered during the phase. Till 2021 people struggled a lot due to the rapid spread of the virus and thereafter the vaccination for the virus was invented and on a large scale were given to the citizens.

Netflix: -

The emergence of the first OTT platform Netflix was in the year 2007 which was founded by Reed Hastings and Marc Randolph on august 29, 1997 in Scott's valley, California. Initially, they were a production company which produced film and television series under the name Netflix originals.

They initially had an idea of delivering DVDs to consumers for rental purposes through postal mail and later they launched a website that was the first site to sell rental DVD's. Ever since, they have been updating the website with many unique features such as personalised recommendations and predicting customers' future choices of entertainment. In 2010, they introduced streaming of movies and series on mobile in Canada. From 2013, they started producing Netflix its own series called as the Netflix originals. They introduced the "skip Intro" button in the year 2017 to improve the customer's viewing experience. Their streaming services were updated regularly so that they don't seem obsolete when compared to their competitors.

They even provide one-month free trial for the consumers so that the consumers have an experience through the streaming platform and if they are not interested, they can always cancel the online subscriptions any time they are willing to.

It streams a variety of award winning tv shows, movies, animes, documentaries and so on through electronic devices that are connected through the internet. They stream in 30 languages over 190 countries around the world and claim themselves to be the world's biggest fans of entertainment where they feel that wonderful stories can come from anywhere and could be loved by everyone.

They have plans that range from Rs.149(1 screen) to Rs. 649(4 screens) per month for streaming on various devices with multiple profiles (up to 4) for various members of the family through the account that was purchased. They have mobile, basic, standard, and premium pricepackages for various customers depending upon their willingness to pay and the number of screens they would like to stream Netflix on as the mobile package would only let the consumerstream only on one device at a time. One of the main strategies that Netflix has used to increaseits customer base is by reducing the subscription fee. They reduced the subscription fee in Indiaas they thought they were overpriced. But according to the CEO of Netflix Reed Hastings, thecompany is frustrated that they have not achieved the expected results in India regardless of their success in various other major markets.

Netflix subscription can also be availed for free through the purchase of any of these packages: Reliance Jio postpaid Plus, Vodafone idea postpaid, Reliance Jio Fiber, Tata Play which was launched in India in 2022 to increase their subscribers' base.

They also promote gender equality by providing nearly half of the jobs to women in their company all around the world. By the end of 2021, the global workforce of women in Netflix was 51.7% of their total workforce.

Netflix has started adding new features and updates in such a way that it is difficult for its competitors to keep up and as for the content there is something or the other for everyone that keeps them engaged in their app or the website.

Disney+ Hotstar: -

Disney+ hotstar is an OTT platform i.e., over-the-top streaming platform that is owned by Novidigital entertainment operated by Disney media and entertainment that are a part of Walt Disney company.

Hotstar was launched by star India on February 11th, 2015, that coincided with the cricket worldcup and the Indian premier league (IPL) that were upcoming.it initially covered content of various languages as well as sports that include football, kabaddi, cricket and more. Hotstar generated its most views through the world cup and the IPL.

Later in 2016, hotstar launched a subscription tier that included international content and premium sports content.it also started a new deal with launching the HBO content on the platform.

Hotstar was acquired by Disney in the year 2019 under its parent company 21st century fox. After this, Disney added the main content such as the marvel studios, the national geography along with the other content that already existed on the platform.

The subscriptions vary from Rs. 299 per month all the way to Rs 1499 per year.

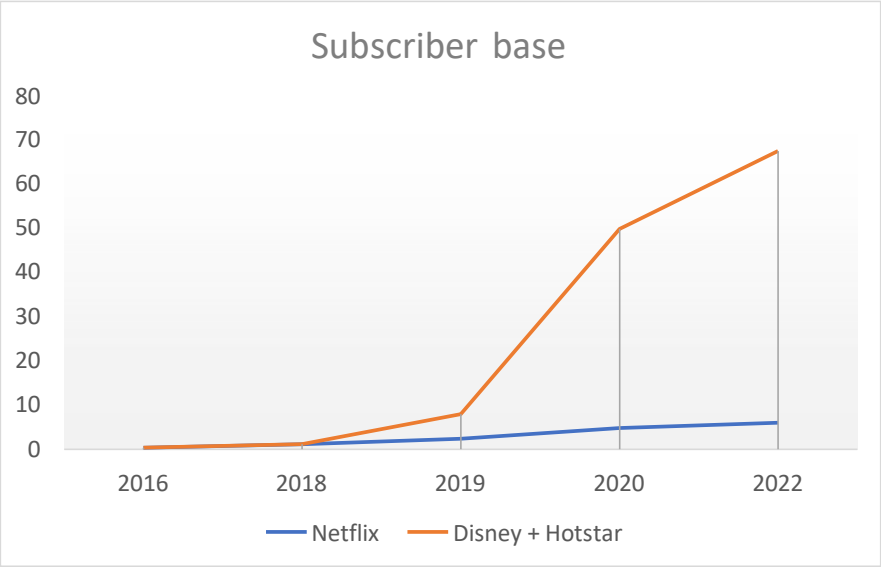
It provides seamless video playback with smart search. It has a friendly user interface that has a hot content catalogue. Disney + Hotstar also produces its own content under the name 'Originals'.

Marking the occasion of international women's day, Disney and Hotstar aims to increase the number of women in leadership roles in its next growth phase in order to improve the gender balance.

They have launched #break the loop campaign that challenges women to help them vocalise their internal fears that arise from socialism and inspire them. #breaktheloop film shows the journey of a young girl to that of an old woman who is pressurised due to her gender. It's a month-long campaign to inspire woman employees.

5.The study: -

Fig 1- Subscriber base of Netflix and Disney + hotstar

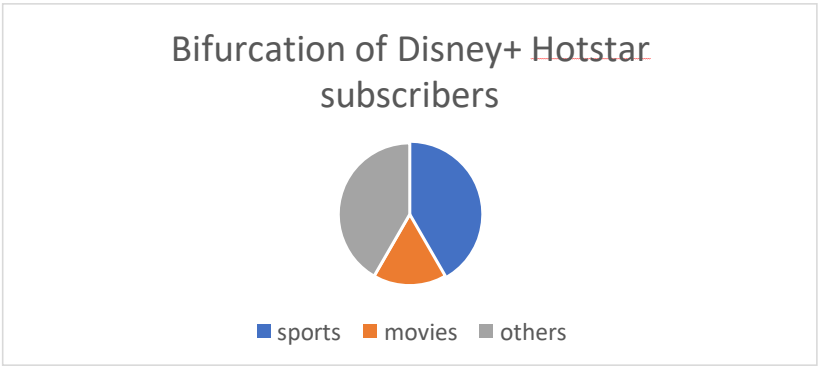


(Source: - website- statista)

Using the data, we can realise that Hotstar had a leading subscriber base compared to Netflix when it was bought by Disney in 2019.

The subscriber base of Netflix has been surpassed by Disney + Hotstar by 1 million on a global basis where Disney+ hotstar has 221 million global subscribers compared to that of 220 million Netflix global subscribers.

Fig 2-bifurcation of Disney + hotstar subscribers



(source: - website- exchange4media)

- From this graph, we can understand that a lot of subscribers watch sports which in turn led to the increase in the subscriber base especially during the premier league like the kabaddi premier league, Indian premier league(IPL) and even during the world cup and this type of content is not available on Netflix.

6.Study Findings: -

- Disney + Hotstar has a greater subscriber base than Netflix in India from the time hotstar was merged with Disney. Disney+ Hotstar on the global level has 1 million (221million) subscribers more than Netflix global subscribers(220 million) and is also expected to surpass Netflix on a greater level.
- Netflix has a high subscription fee and limits the number of screens that one can stream on at a time. Disney + Hotstar provides subscriptions at a reasonable rate, and this led to an increase in the subscriber base as the consumer is price sensitive.
- One of the advantages that Disney+ Hotstar has over Netflix is that the ad- supported free content helps the consumer to explore and understand the worth of the OTT platform that Netflix does not provide.
- Subscribers watch sports in a greater percentage which in turn led to the increase in the subscriber base of Disney + Hotstar especially during the premier league like the kabaddi premier league, Indian premier league (IPL) and even during the world cup andthis type of content is not available on Netflix.
- Though Netflix is trying various strategies such as reducing prices, localization of content(as the content available is more suitable for elite English speakers in India) and others it still has not got an edge over its competitors as they provide add on services and other benefits compared to Netflix.
- Even reality shows streaming such as BIG BOSS also has led to increase in the subscriber's base as it is very popular and is also available on the OTT as an ad-supported free content on Disney + Hotstar.
- The Indian subscribers are price sensitive, and a large part of the population have a separate fan base for sports. The subscribers who like to watch the content in more local languages and sports prefer Disney + Hotstar. Subscribers who prefer more international content along with a few of the regional content prefer Netflix.

7. Conclusion: -

From this study, we can understand that Disney + hotstar has a better consumer base compared to that of Netflix due to various reasons such as localisation of content, lower subscription fee, ad supported free content and various other benefits. Disney+ Hotstar has a larger consumer base also due to the sports and the reality show content that it provides that is not present in Netflix content. This also frustrates Netflix as to why they are failing in India even after reducing their subscription fee, but they are also trying to incorporate changes into their app and website to draw the consumer base more towards their OTT platform.

8. Bibliography :

- Dasgupta, D. &. (2019). Understanding adoption factors of over-the-top video services among millennial consumers. *International Journal of Computer Engineering and Technology,*
- Fitzgerald, S. (2019). Over-the-top video services in India: Media imperialism after globalization. *Media Industries Journal*, 6(2), 00-00.
- Gupta, P. (2021). The factors effecting shift of Indian customers from TV series to web series- the future of OTT services in India. *EPRA International Journal of Multidisciplinary Research (IJMR)*.
- Jain, M. K. (2021). The Rise of OTT Platform: Changing Consumer Preferences. *EPRA International Journal of Multidisciplinary Research (IJMR)*, 7(6), 257-261.
- Kumari, T. (2020). A study on growth of over the top (OTT) video services in India.
- Nagaraj, S. S. (2021). Factors affecting consumers' willingness to subscribe to over-the-top (OTT) video streaming services in India. . *Technology in Society,* , 65, 101534.
- Nijhawan, G. S. (2020). Role of COVID as a Catalyst in increasing adoption of OTTs in India: A Study of evolving consumer consumption patterns and future business scope. *Journal of Content, Community and Communication*, 12, 298-311.

- Parihar, S. &. (2021). Impact of Marketing Mix on Consumers Satisfaction-A Study of Consumers of OTT Platforms in India. . *International Journal of Research and Analytical Reviews (IJRAR)*.
- Priya, R. M. (2021). Understanding the intentions of students to use OTT platforms. .
- *International Journal of Innovative Research in Technology*, 8, 671-677.
- Saha, S. (2021). Consumption pattern of OTT platforms in India. *International Journal of Modern Agriculture*, 10(2), 641-655.
- Yeole, S. M. (2022). A study on User Perspective on OTT platform in India. . *Journal of Positive School Psychology,*, 6(3), 7351-7364.

What are the Obstacles that Prevent Women from Participating in the MNREGA Employment Program: A Literature Review

(Sub-Theme: Social Security, Employment and Migration)

Miss Kiran Bala Behera
Ph.D. Research Scholar, Ravenshaw University
Cuttack-753003.
Email Id. lony.kiran@gmail.com

Prof. Dharmabrata Mohapatra
Professor & Head, Department of Economics, Ravenshaw University
Cuttack-753003
Email id: dbmchrist@gmail.com

Abstract

Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was designed as a gender-sensitive piece of legislation to provide rural Indian women a fair chance to work without facing any kind of discrimination. In terms of national averages, the act's plan has succeeded in meeting its goal, although there are significant differences in each state's participation rates for women employees. This paper aims to pinpoint the obstacles that have limited the involvement of women. The study analyses the barriers that have prevented more women from participating in the Scheme, including a shortage of childcare, the nature of the labor, societal norms, the unlawful presence of contractors, payment delays, and a lack of input from women throughout the planning phase. Some states have a larger engagement of women workers than others because to the involvement of local initiatives like Kudumbashree and Self-Help Groups (SHGs), usage of Information Communication Technology (ICT), and involvement of NGOs. This study closes with recommendations for policy and operational steps that may be done to increase the involvement of women in the Scheme and, as a result, make the benefits of the Scheme available to many more rural women.

***Keywords**: Women, Obstacles, MGNREGA*

1. Introduction

Since women may influence socioeconomic change, efforts must be made to increase their involvement in family wealth management and livelihood security. The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) is one of the transformational process interventions that have been implemented during the last 20 years. According to social audits of MGNREGA conducted throughout the years, the programme has improved the social and economic well-being of rural women workers. However, at the same time, several substantial obstacles have appeared and have prevented women from enrolling in the programme. Women's engagement in India is influenced by a variety of factors other than just their willingness to participate. This research attempts to pinpoint many obstacles that have limited women's enrolment in MGNREGA and suggests solutions that help to reach the grassroots.

1.1. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)

According to the National Rural Employment Guarantee Act of 2005 (NREGA), each rural family with adult members who are willing to engage in unskilled manual labor is guaranteed 100 days of employment in a fiscal year. It was formed with two major goals in mind such as employment and rural development. The Act aimed to establish environmentally friendly infrastructure in rural parts of the nation, such as agricultural ponds for water conservation, check dams and earthen dams for flood protection, afforestation and building of roads, playgrounds, and restrooms. The Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) was given that name by the Indian government on October 2, 2009, to realize Gandhiji's objective of "Gram Swaraj" (Ahuja et al). The MGNREGA Program was first made available to 200 of India's most underdeveloped districts when it was introduced on February 2, 2006, in Anantapur, Andhra Pradesh.

In the second phase, 130 districts were added, and beginning on April 1, 2008, 274 more districts were included in the scope of the Act. The fundamental goal of MGNREGA was not to empower women. However, it was explicitly stated in the legislation that it was "gender sensitive." According to Schedule II (34) of the Act, equal salaries for men and women were required to be paid, Prior to this Act, the rural agriculture sector had never heard of such a notion. According to

Schedule II, paragraph 6 of the agreement, women workers shall be given preference, and their number should make up at least one-third of all employees working at the worksite. The third pertinent component was the need for at least 100 days of labor per family, with the decision on how many days to assign to each member left to the members' discretion. This gave women an opportunity to engage on construction sites (Khera and Nayak, 2009).

Another key clause was included in Schedule II (28) of the Act, which mandated the provision of child-care facilities on the jobsite for women who were working with children under the age of six. Although the rules limiting employment to a five-kilometer radius, allowing family members to work together, and banning contractors were not expressly targeted at women, they did serve to encourage more women to sign up for MGNREGA. Additionally, gender-sensitive policies have been introduced into the operating standards (Holmes, et al., 2011). The rules indicated that women should be given precedence at job locations that are near to their house (MGNREGA Operational Guidelines, 2013). In addition, it was advised in the recommendations that social audits be planned so that female employees could take part freely. The Act itself stipulated that women must be represented in local, state, and national bodies involved in the Act's implementation (MGNREGA Operational Guidelines, 2013). The Act instructed local governments to take into consideration both individual and joint accounts when paying salaries to female employees instead of only crediting revenue to the account of the male head of home. The Act's provisions have made sure that throughout the previous ten years of MGNREGA implementation, the involvement of women workers has increased significantly. This increase has been uneven, too, with some areas seeing a bigger percentage gain in the number of women employees signing up for the programme than other states. The research discovered that the variance in the number was related to a variety of barriers that prevented the execution of the scheme's "women friendly" features.

The purpose of the study is to close this gap by evaluating a large body of literature on the challenges women encounter while participating in MGNREGA and the solutions put out by various state governments and central government. To determine the limitations that have served as barriers to women's involvement in MGNREGA, this research will look at these issues. The government will be able to take action to eliminate the restraints by using this identification of limitations in both policy and execution. This will be ensured that the significant advances achieved by women workers in terms of having access to jobs, money, food, and healthcare for

themselves and their families are not lost and instead are made accessible to other women workers in rural India.

2. Methodology

A search strategy was established to find pertinent material on the limitations placed on women under MGNREGA for this literature study. The selection criteria were based on a search of relevant literature from academic databases, as this outlines the identification of papers and reports to carry out a review that is repeatable by other researchers and provide reliable data (Yang, et al., 2017). The following search phrases were used: "MGNREGA and Women" or "MGNREGA and Women's involvement," and "issues experienced by women in MGNREGA." The search method was specifically designed for research databases: Scopus, Science Direct, Research Gate, Google Scholar, PubMed, and Web of Science. Journal articles, review papers, and research summaries that were solely published in English were included in the database search, which covered the period up through February 2022. 5,170 items were found in the initial search that was conducted using the databases. The results were trimmed down to 1,030 after all items not related to problems women confront under MGNREGA were eliminated.

The second search was primarily focused on mapping pertinent material on the challenges women confront under MGNREGA in the social sciences, empowerment, environment, and gender and sex roles. The search was limited to environmental sciences, marine affairs, multidisciplinary, the arts, and humanities. By focusing on India from 2006 to 2022, the search was further condensed. Including duplicates with 180 retrieved entries, a total of 653 study findings were eliminated at this point. The study exclusively uses original research articles, reviews, reports, conference papers, and other related writing. All duplicates were carefully double-checked in Excel sheets to maintain the review's high standard. The quality and relevance of the academic literature used in the review process was ensured by carefully examining the abstracts of the articles before analysis and purification.

Later, a thorough analysis of each study report was conducted. The next exclusion standard was a restriction to publications published in English exclusively. At this point, 35 non-English items were dropped from the research. 211 more papers were also removed from the research following thorough examination and reading of the retrieved articles. After examining each study against the above inclusion and exclusion criteria, 30 research papers were chosen for assessment.

50 studies were taken into account during the data extraction step, and the features of the extracts were

- Extracted documents covered the years 2012 through 2022.
- Preference was also given to published publications and studies.
- Extracts in the social sciences, empowerment, environment, marine studies, and gender and sex roles were totally in the English language.
- Papers that were 100 percent original, reviews, conference papers, and reports were all considered articles.

3. Review of Related Literature

A. Problems Faced by Women in MGNREGA

In their study of six states, Khera and Nayak (2008) found that women's involvement in the MGNREGA programme was lower than the mandated minimum of 33 percent. Women made up just 5 percent and 13 percent of the MGNREGA workforce in Uttar Pradesh and Bihar respectively. Compared to Jharkhand (18 percent) and Chhattisgarh (25 percent), these states had lower rates. Madhya Pradesh (44 percent) and Rajasthan (71 per cent) were the only states with female participation over the required amount. The explanation given by Gram Panchayat officials in response to the query of what hindered women from participating in the MGNREGA in greater numbers in the other States was that women lacked interest in MGNREGA work.

When the researchers personally questioned women, a different perspective came to light. The majority of women not only indicated a desire to work but also mentioned the obstacles that stood in their way. Women were prohibited from working outside the home by rigid societal conventions in many places. The researchers saw that the women were advised that programme was not for them in Uttar Pradesh and Bihar. The absence of childcare services was the second significant barrier. The investigators were unable to locate any childcare establishments (except at two or three worksites, that too possibly as window dressing). The lack of these amenities was devastating for women, particularly those who were breastfeeding their infants. Thirdly, the accessibility of employment and its advantages for women were impacted by the unlawful presence of contractors at many workplaces. Only young, physically fit males were granted employment by contractors at several construction sites in Madhya Pradesh.

It was found that on worksites where contractors were present, 35 percent of female employees reported some kind of harassment, compared to 8 percent on locations where contractors weren't present. Fourth, the nature of the labor given in certain areas prevented rural women from participating since the production standards were so strict. At the time of the study, the typical job for a day's labor in Jharkhand was to dig 110 cubic feet (in soft soil), which was much above the capabilities of a woman worker. In other comparable circumstances, the nature of the labor provided by MGNREGA served as a barrier to women's involvement. Fifthly, delayed payments prevented disadvantaged women, especially single women who were the only wage earners in the household, from participating in the programme. These women could not afford to wait. Women laborers often had to take fewer desirable jobs in the past when their salaries did not arrive on time. To regulate wages, one account per registered MGNREGA worker, or at the very least joint bank accounts rather than accounts for males exclusively, has been recommended by the authors.

To comprehend the MGNREGA and the childcare practices of working women, Sudha Narayanan (2008) undertook a study of the MGNREGA-funded childcare facilities in the Viluppuram district of Tamil Nadu. According to the survey, childcare was shown to be a significant issue for many women employees. When working for MGNREGA, mothers with young children (under three) had the greatest difficulty finding childcare. If it was possible to guarantee that young children at the MGNREGA workplace had access to shade, food, and other necessities, the scheme under the Act may benefit them more. If measures connected to childcare were adopted, the involvement of women, especially mothers of small children, would grow dramatically. Despite MGNREGA having a good impact on their life, Sasi Kumar B. (2012) noted the predicament faced by young moms employed under the programme in Ramanathapuram, Tamil Nadu. Women's participation in MGNREGA has been hindered by serious implementation challenges, such as the dearth of childcare facilities for new mothers and the ongoing unlawful presence of contractors.

In their research on MGNREGA and women's empowerment in BPL households in the Aligarh district of Uttar Pradesh, Farooqi and Saleem (2015) concluded that the programme was not well-suited for women's involvement due to the unpredictable work schedule and little understanding of its provisions. Other significant barriers to women's involvement include the inability to be the family head due to social and religious taboos, the burden of caring for one's own property and livestock, the lack of a job with a 100-day guarantee, and the provision of

unemployment benefits. The difficulties that prevented women from participating in MGNREGA were low pay rates, a lack of job opportunities, and very short workweeks for women. According to a few of the female respondents, MGNREGA employment required more physically demanding manual labor than farming in the research region. According to Satya Sundaram (2011), women's involvement in MGNREGA has been hampered by a lack of independent monitoring systems, uncertainty regarding the operational needs of the act, and the absence of any grievance resolution mechanism. The researcher made notice of the issues that women employees experienced, including verbal abuse, harassment, and a lack of childcare facilities, which had an effect on their engagement.

The influence of MGNREGA on women's involvement was examined by Dinesh Das (2012) using secondary research. He highlighted certain obstacles to women's engagement in MGNREGA. The problems responsible for the low level of involvement of women employees were a lack of childcare facilities, a lack of knowledge, the nature of the labor, subpar amenities at the workplace, the presence of contractors without authorization, and a delay in payments. Women's involvement has continued to decline because of poor implementation throughout the country, particularly in the north-eastern state. The limitations experienced by women in the Faizabad area of Uttar Pradesh were explored by Tiwari and Upadhyay in 2012. The research found that barriers to women's engagement included family members' lack of collaboration, an excessive workload, the neglect of domestic work, a lack of additional work owing to exhaustion, and the neglect of children at home. Absence of clean drinking water, lack of a crèche, ex-gratia money not paid after accident, and lack of shade during rest periods were the workplace restrictions encountered by women. These, together with practical limitations, had a detrimental impact on the participation rate of women.

According to Rehman and Gul (2013), Pulwama had the lowest rate of female engagement in MGNREGA activities during 2011–12 in Kashmir (i.e., 0.06%), while Anantanag had the highest percentage (i.e. 2.32%). In other districts, women's participation in MGNREGA was low compared to the national average. According to their research, majority of the women who were questioned lacked an employment card. The respondents said that since the male members of their household had the employment cards, they were unable to participate in MGNERGA labor. Numerous women claimed that religious traditions prohibited them from working outside the house. The women in the study area thought that the daily pay they got from MGNERGA work

was less than what they got when they worked for themselves. Also, because of corruption and other problems, the daily rate for MGNREGA work sometimes came very late, and sometimes it didn't match the work that was done. The women said that more people would join if there were childcare services, since most of them were breastfeeding babies. The study showed that the State Rural Development Department needs to do something special for households where women have job cards. This would make it possible for women to get involved in MGNREGA.

Bishnoi, Rampal, and Meena (2015) did a study to compare the problems that people in the Bikaner and Ludhiana districts of Rajasthan and Punjab states with reference to MGNREGA. There were six collections of constraints: mate and registration, work, wages, job card, facilities, and social constraints. The biggest problems that 120 rural women from both states saw were not being able to read or write, having trouble filling out forms and going through a complicated registration process, having to do hard work, getting paid low wages, waiting too long to get paid, having too many job cards but not enough jobs, an elite group of workers getting most of the job cards, and not having a place to care for children.

To better understand the perspectives of moms working for MGNREGA in the Rajasthani area of Dungarpur, Manisha Nair, Proochista Ariana, and Premila Webster (2014) performed research. The research discovered that mothers believed there was a compromise in childcare and feeding because of lengthy work hours and a lack of alternative suitable care alternatives. Additionally, the advantages of the programme for female employees were offset by the low wage rate and delayed payments. In their study, Arora et al. (2013) discovered that additional workplace amenities, such as a crèche, rest area, first-aid station, recreational facility for children, and other facilities for the advancement of gender, were lacking at the worksites apart from the supply for drinking water. The dual workload of labor required both within and outside the home increased working hours and discouraged participation in MGNREGA.

Delays in salary payments were problematic, especially for single women who could wait because they were the sole wage workers in the household. These single-earner women were forced to return to their former, less desirable jobs when they did not get their pay on time. The lengthy procedure for money release after the submission of each project's completion report by the local engineer was the cause of the pay delay. The establishment of salary payments via banks was another restriction. One account was often created in the name of a male family member when one account was formed for each work card. This meant that women had to rely on males for their

financial support. Women employees have very little knowledge of their MGNREGA rights. Additionally, because a recipient did not receive either a 100-day work requirement or an unemployment benefit, there was no incentive for women to accept employment under the Scheme.

When Bhattacharyya and Vauquline (2013) looked at how MGNREGA affected women beneficiaries in the Assamn districts of Kamrup and Barpeta, they discovered that the lack of childcare facilities prevented women from participating fully on the job sites. The lack of workplace amenities including restrooms, first aid stations, and equipment, the presence of contractors without authorization, and the suspension of work owing to widespread corruption were further barriers to women's involvement in Assam. Kar (2013) found that one of the biggest problems with the Scheme was that there were no good crèche facilities at the work site, even though the Act called for them. The study found that many women didn't take part in the programme because they didn't know how it worked or what they were entitled to. The study found that most facilities were missing, with the exception of places to get water. Delays in payments were another reason why women didn't vote as much, especially single women who were the main source of income for their families. Banks were far from the village, which made it hard for women to open bank accounts and get cash. This also made women less likely to take part.

Borah and Bordoloi (2014) did a study that agreed with the CAG Report from 2007, which said that the lack of dedicated administrative and technical staff for MGNREGA was the main reason for procedural lapses. The other big problem with the Act was that there were no places to watch children at the job site, even though the Act said that there should be. Women worried about their kids while they were at work, and some women didn't take the job because there wasn't a good place for their kids to stay. From the survey, it was found that, with the exception of places to get drinking water, most of the other facilities were not there. Women didn't vote as much because their payments were late. This was especially true for single women who were the main breadwinners for their families. In Assam, women didn't take part in the programme very much because they didn't know much about how it worked or what they could get out of it. Many of the men stopped working in agriculture and started working for MGNREGA. The men's jobs in agriculture have been taken over by women.

Smita Nayak did the study in 2013 to find out how MGNREGA affected the social and economic empowerment of Odisha's tribal women. The study found that few tribal women in the Sundergarh

district of Odisha's Rajgangpur Block participated in the MGNREGA programme, and when they did, they were exploited. The study showed that there were some problems, such as the fact that tribal women weren't involved in planning the work. There aren't enough creches at work sites, women don't have job cards or bank accounts, men and women are paid differently, women are harassed at work, and there aren't enough gender-friendly ways to spread information. The researcher thought that in order for MGNREGA to be effective, it needed to fix governance problems, make scheme implementers more aware, and give free legal help to beneficiaries who were denied their rights.

Soumya Mohanty's 2012 dissertation on MGNREGA and tribal livelihood in the Sundargarh district of Orissa said that the participation of tribal women workers was hindered by religious rules and bias in the distribution of job cards, the dominance of elite families, bad leadership, and a lack of coordination among the stakeholders. Mudliyar and Ghorude's 2016 study on tribal women's empowerment through MGNREGA in South Goa found that family problems, religious and social restrictions, the availability of easier alternative jobs, the inability of the Panchayat to provide 100 days of work, higher income from other sources, and the lack of an unemployment allowance were all reasons why women didn't take part.

B. Measures for improvement

Some governments have implemented certain policies that have boosted the participation of women. After the essential modifications have been made to meet the demands of the female employees, they might be brought into consideration for implementation. According to Puthukkeril & Manoj's (2015) research, the Kerala model of using government-sponsored poverty alleviation initiatives like "Kudumbashree," with greater daily wages, and direct payment to the employees should be maintained and enhanced. It is necessary to guarantee and further improve the powerful "Kudumbashree" machinery's active support and cooperation. Increased use of ICT and other e-Governance technologies would save costs, improve operational effectiveness, lessen middlemen corruption, and boost the inclusion of women in the workforce. To increase the engagement of women employees, the system needed to be regularly monitored and followed up on, bureaucratic intrusions should be kept to a minimum, and women workers should be more involved in local self-government.

Ahangar (2014) looked at how many women were participating in the MGNREGA in the Shahabad block of the Anantnag district of Jammu & Kashmir and made some recommendations to increase their number. According to the study, the job offered under this programme was only in the agricultural sector, thus growth is required. The MGNREGA social audit programme should be enhanced by making more inventive use of information technology to address loopholes and scams. The establishment of a facility for quick registration and job card distribution is required. To lessen corruption in budget allocation, the distribution of funds for campaigns that receive media and other agency assistance must be simplified.

According to Gundeti Ramesh and T.Krishna Kumar's research from 2009, the beneficiaries wanted their earnings to be given to them on time. Benefits for health and life insurance were necessary not only on workdays but on other days as well. Beneficiaries and authorities should be able to communicate more effectively, and the job itself should be helpful to the community and kind to all of the employees. To get rid of phoney beneficiaries, a social audit was required. According to Farooqi and Saleem (2015), the female recipient continued to be an unskilled worker even after participating in the programme for three to five years. Due to a small land mass and the saturation of such projects in some geographic locations, MGNREGA cannot be supported with the specific set of activities like excavating ponds, building water harvesting projects, and building roads. Therefore, arrangements must be established to protect women from strenuous physical labor and to expand the MGNREGA programme to skilled or semiskilled employment so that women become professionally skilled and participation rates increase.

According to Pankaj and Tankha's (2010) study, if working conditions were improved by enforcing and tightening current regulations and introducing new ones, the participation rate would rise dramatically. Examples include the provision of breastfeeding breaks for lactating women and flexibility in working hours, the availability of crèches connected to Anganwadi or Integrated Child Development Services (ICDS) centres, maternity relief for women along the lines of MEGS (Maharashtra Employment Guarantee Scheme), temporary restrooms on the jobsite, and innovations in work tools to lessen labor-intensive tasks. Social and communal benefits may be increased by increasing procedural involvement and giving people more say in the kinds and management of assets.

For increased process engagement, the Kerala model of collaborating between MGNREGS and women's organisations (Kudumbashree) may be helpful. The MGNREGA officials, such as

programme officers, rozgar sevaks, ombudsmen, members of vigilance and monitoring committees, and mates, should include at least a minimal percentage of women. There are social and cultural constraints that, in certain regions, limit the involvement of women in addition to the implementation challenges. Some of these social and cultural restrictions might be made up for by persistent community mobilisation and a strong governmental engagement.

4. Results and Discussion on the Literature Review

The analysis of the research showed that, despite the fact that the Act contains this provision, the lack of childcare facilities at the job site was the single biggest barrier to women's involvement in MGNREGA (Khera and Nayak, 2008; Narayana, 2018; Das, 2009; Rehman & Gul, 2013). According to many studies, women who work at the MGNREGA workplace have been reported to worry about their kids while they are there. Due to a lack of appropriate child care facilities, several women even declined to take the opportunity to receive compensation for employment under the MGNREGA programme.

Social norms (Khera and Nayak, 2008; Farooqi and Saleem, 2015; Rehman & Gul, 2013), the dual responsibility of work outside and inside the home (Arora et al, 2016; Tiwari and Upadhyaya, 2012), the absence of worksite facilities, one's own agricultural work, wages below market wages, and workplace harassment were the other barriers for respondents to participate in MGNREGA even though they were willing to work. Delays in payment (Khera and Nayak, 2008; Dinesh Das, 2012; Kamala Das, 2009), a lack of knowledge, corruption, discrimination, the existence of unregistered contractors, and the difficulties to get guaranteed employment further limited the extent of women's involvement in MGNREGA.

According to the study, women employees were not helped by the nature of the jobs. The majority of the initiatives chosen have to do with improving water bodies nearby and connecting rural areas. In these, physical force was used, and males were favored over women in the workforce (Hazarika, 2009). Most implementation hazards must be avoided since MGNREGA's success relies on its careful execution. Only if the right processes and procedures were in place could this occur. The public has to be well informed about the various MGNREGA provisions, and efforts must be made continuously to achieve this. Making individuals aware of the programme is essential to encouraging them to participate in its conception and execution as well as to inspire them to work under the programme.

The first step toward an efficient implementation would be the provision of different workplace amenities including shade, clean drinking water, and notably child care facilities in accordance with the Act's stipulations. To guarantee the security of children, the Anganwadi staff may also be checked by MGNREGA women employees. To guarantee that they get Job Cards and 100 days of employment, widowed, abandoned, and impoverished women who meet the Act's definition of a household must be recognized. Unskilled manual labor is made available to job seekers under MGNREGA. It would be unfair to expose rural Indian women to the strain of rigorous physical labor year after year given that they are the hardest affected by undernourishment and lack of access to health care services. Second, the women who are reporting to the workplaces are in a range of ages. Thus, the program's design must consider the differences in life cycles and physical capabilities required to do strenuous manual labor. The problem of scheme awareness and the intricate paper work required might be handled through NGOs' engagement. For social mobilisation and guidance of women workers, female members of Panchayati Raj Institutions might be engaged. Due to the scheme's greater salary payout than other job opportunities in rural India, NGOs may significantly contribute to the active engagement of women (Sudarshan, 2010).

Women need to be specifically educated about taking part in social audits. Rural women's absence from the planning process creates another barrier for planners trying to create employment that is suited for rural women. The Panchayati Raj Institutions may help with programme formulation and execution. Another problem that to be addressed in order to eliminate unjustified payment delays and deductions is corruption. The development of an appropriate monitoring system is necessary to guarantee the prompt resolution of complaints. Regular social audits should be conducted by impartial organizations or educational institutions. A one-person family is regarded as a household under the Act. This explanation does not consider a single woman living with her brother's family or any other relative's family who has her own income from any source when her father and mother are not present as a household. A woman forfeits her chance to have her name on the job card and the possibility to work under the MGNREGA if she is single, widowed, divorced, has an independent earning status, and if she lives with her brother's family. This is crucial to take into account since in rural India, it is against societal patterns for a woman to live alone. Rural women with no alternative job possibilities are left with the option of self-employment, which is often not particularly lucrative. Poor, unmarried women who work for an employer are often underpaid and mistreated.

All female MGNREGA employees are required to create their own personal bank or post office accounts, and their wage must be automatically deposited to those accounts for the days they worked. At every workplace, it should be assured that there are at least 50 percent female worksite supervisors (Mates). These steps may not be enough to ensure that MGNREGA's implementation and policies are impenetrable, but they do indicate the intention and future course that the Act's scheme will follow. Implementing these steps becomes even more important in the present pandemic situation since there has been a shift from urban to rural regions, where a boost to the rural economy is urgently needed.

5. Conclusion

The research concludes with recommendations based on findings from a literature analysis on the barriers women experience to MGNREGA participation. If the barriers were elevated, MGNREGA would enable female employees to advance socially and economically. Increased participation of women in MGNREGA planning and social audits, better implementation of provisions relating to worksite facilities, timely and commensurate-to-work payment of wages, phased project planning, and prompt grievance redressal, if implemented, will all encourage women to demand more work under this programme.

6. Limitations of this study and scope for future research

The research has several limitations since it solely uses secondary data. Since the reviews were compiled from a variety of articles that were published in reputable national and international journals, the perspectives they provided might not be helpful when making crucial managerial decisions because the studies were limited to a few regions of the nation, and we were unable to generalize the findings. The researcher needs to conduct a disaggregate level of investigation to understand the level of knowledge about the provisions, problem areas during scheme implementation, and finally an evaluation of the measures taken to understand whether the old barriers have been removed and new ones prevented from taking root.

Acknowledgement

The authors would like to thank everyone for their excellent contributions to the making of journal and research publications, web articles, published reports, and unpublished dissertations, which helped the authors get familiar with the topic and served as secondary sources for this study.

References

- Ahuja, U., Tyagi, D, Chauhan, S., & Choudhary, K. (2012). Impact of MGNREGA on Rural Employment and Migration: A Study in agriculturally Backward and agriculturally-advanced districts of Haryana. *Agricultural Economics Research Review,* 24, 495-502.
- Bashir, A. G. (2014). Women Empowerment through MGNREGA: A Case Study of Block Shahabad of District Anantnag, Jammu And Kashmir. *Abhinav National Monthly Refereed Journal of Research in Commerce & Management,* 3, 55-62.
- Arora, V., Kulshreshtha, L. R., & Upadhyay V. (2013). Mahatma Gandhi National Rural Employment Guarantee Scheme: A unique scheme for Indian rural women. *International Journal of Economics Practices and Theories.* 3(2), 14-18.
- Bhattacharyya, R., & Vauquline, P. (2013). A Mirage or a Rural Life Line? Analyzing the Impact of Mahatma Gandhi Rural Employment Guarantee Act on Women Beneficiaries of Assam. Space and Culture, India, 1(1), 83-101.
- Rebecca, H., Rath, S., & Nidhi, S.(2011). An Opportunity for Change? Gender Analysis of the Mahatma Gandhi National Rural Employment Guarantee Act. 53, Overseas Development Institute.
- Hazarika, P.G. (2009). *Promoting Women Empowerment and Gender Equality through the Right to decent Work: Implementation of National Rural Employment Guarantee Programme (NREGP) in Assam State (India): A Case Study*. International Institute of Social Studies, 1-57.
- Kar, S.(2013). Empowerment of Women through MGNREGAS: Issues and Challenges. *Odisha Review*, 76-80.
- Tiwari, N. & Upadhyay, R.(2012). Constraints faced by the Women Beneficiaries under Mahatma Gandhi National Rural Employment Guarantee Act. *Studies on Home and Community Science*, 6(2), 99-102.

Economic Contribution of Cardamom Production to India's GDP: An Analysis

M Subramanian **Sivajothi Ramalingam** **Abraham Pradeep**

Department of Management, R L Institute of Management Studies, (A unit of Subbalakshmi Lakshmipathy College of Science, Madurai, Tamil Nadu, India)
E Mail: sivamathematics@gmail.com

Abstract:

Spices usage is more after the Covid -19 impact, especially Indian Cardamom has highly demanded in the world market at approximately 25 USD per Kg. The Global whole cardamom market in India has contributed 16.85 percent, approximately 193.64 M USD after Guatemala. India is the second largest cardamom producer of the world, it helps the Indian economic growth too. The high yield cardamom producers of India from Kerala, cardamom hills region, on an average, India produce about 26.51 tons of spices every year. In fact, more than 90 percent of our spices production is consumed in India itself. It is amazing to see that the remaining 10 percent of the spices exported from India gives us 40 percent share of the world spices market. The Production of cardamom showed the increasing trend in the production in the Indian sub-continent so it will increase the Indian economical GDP in the next decade.

***Key Words**: GDP, Economics, Cardamom, Climate Change, Temperature*

1. Introduction

Elettaria cardamomum, which is native to southern India and Sri Lanka. The seeds are small and green, and have a strong, pungent aroma and a warm, slightly sweet flavour. Cardamom is used in both sweet and savoury dishes and is a common ingredient in spice blends such as garam masala and biryani masala. It is also used to flavour desserts such as kulfi and Gulab jamun, as well as drinks like chai and coffee. In addition to its culinary uses, cardamom is also used in traditional medicine to treat a variety of ailments, including digestive issues and bad breath. Cardamom can be used in its whole seed form, or as a powder. It is also used as essential oil which is used in perfumery, food, and beverages. The oil is also used as an additive in various medicinal and cosmetic products. Cardamom has been used in traditional medicine for centuries to treat a variety of ailments. Some of the medical uses of cardamom include:

Digestive issues: Cardamom is believed to help stimulate digestion and relieve symptoms of indigestion, such as bloating, gas and stomach cramps.

Respiratory issues: The essential oil of cardamom is used to treat respiratory issues such as asthma, bronchitis, and coughing.

Bad breath: Chewing on cardamom seeds or drinking cardamom tea is said to freshen breath and eliminate bad odour.

Blood pressure: Regular consumption of cardamom powder is known to lower high blood pressure and reduce the risk of heart disease.

Antioxidant: Cardamom is rich in antioxidants that help fight against the harmful effects of free radicals, which can damage cells and lead to ageing and disease.

Anti-inflammatory: Cardamom has anti-inflammatory properties that can help reduce pain and swelling.

Climate change is affecting the production of cardamom in India, as well as other agricultural crops. Some of the specific impacts include:

Temperature changes: Cardamom is a crop that requires a specific temperature range to grow well. Rising temperatures in India are making it difficult for cardamom to thrive in some regions, resulting in lower yields.

Water availability: Cardamom is a crop that requires a consistent water supply to grow. Climate change is leading to more extreme weather patterns, including more frequent droughts and floods, which can make it difficult for farmers to provide the necessary water for their crops.

Pest and disease pressure: Climate change can create conditions that are favourable for pests and diseases to thrive. This can increase the risk of crop loss due to pests and diseases, which can lead to lower yields.

Distribution of cardamom: As the temperature rises, the suitable climate zone for cardamom production is shifting to the higher elevations.

Increasing frequency and severity of extreme weather events such as heavy rain, drought and frost can also cause damage to the crop which leads to lower yields. Overall, climate change is affecting the production of cardamom in India and other countries, but more research is needed to understand the specific impacts and to develop strategies for mitigating them.

Unfortunately, I do not have the specific data on the quantity of pesticide used on cardamom in the Indian cardamom hills. However, it is generally known that the use of pesticides in the cardamom cultivation industry in India can be high. The use of pesticides is often necessary to protect the crop from pests and diseases, but it can also have negative impacts on the environment and human health. Strategies for reducing pesticide usage in the cardamom industry could include implementing integrated pest management (IPM) techniques, which involve using a combination of methods such as biological control, crop rotation, and cultural practices to reduce pest populations and minimise the need for chemical pesticides. Additionally, promoting organic farming methods that rely on natural pest control methods and prohibit the use of synthetic pesticides, could also be a solution.

Murugan et al 2014 studied another strategy could be the use of precision agriculture techniques, such as using remote sensing, drones, and geospatial technologies to identify areas of the field where pests and diseases are present, and then applying pesticides only to those areas, rather than using a blanket application over the entire field. It is also important to educate farmers about the proper use and handling of pesticides, as well as the potential risks associated with their use. This includes providing training on how to safely store and handle pesticides, as well as how to properly apply them to minimise the risk of exposure to farmers and the surrounding community.

Overall, a multi-pronged approach that includes a combination of these strategies will be needed to effectively reduce pesticide usage and minimise the pesticide load in the cardamom hills ecosystem. Shetty et al., 2008 studied on human health and the environment. Short-term effects include skin irritation, respiratory issues, and nausea. Long-term effects can include cancer, reproductive and developmental harm, and damage to the immune and nervous systems.

The use of these chemicals also contributes to environmental pollution and can harm wildlife and ecosystems. It is important to use these chemicals responsibly and in accordance with safety guidelines to minimise negative impacts. Wang & Liu, 2007 analysed the heavy use of

pesticides can have negative impacts on the cardamom ecosystem. Pesticides can harm beneficial insects, birds, and other wildlife that help to control pests. Additionally, the majority of pesticides applied do not reach their intended target, instead they can contaminate water sources, affect non-target species, and lead to pesticide resistance in the target pests.

This can result in a decrease in the effectiveness of pest control and an increase in the amount of pesticides needed, exacerbating the negative impacts on the environment. Fleming *et al*., 2004; Shape & Irvine, 2004; Safe, 2004 studies showed certain pesticides such as DDT, Chlorpyrifos, endosulfan, and methyl mercury have been found to have toxic effects on human health and the environment when present at high levels. These chemicals can cause a range of health problems, including neurological damage, reproductive issues, and cancer. They can also harm wildlife and pollute soil and water. It is important to use pesticides responsibly and follow recommended guidelines for safe use to minimise exposure and potential harm. Phorate, carbofuran, and chlorpyrifos are all insecticides that are commonly used in the cultivation of cardamom.

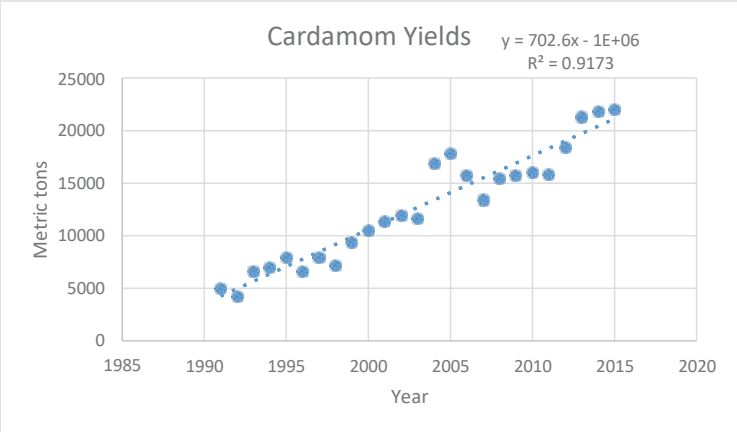
These chemicals can be harmful to both the environment and human health if used in excessive amounts. It is important to use these pesticides responsibly and in accordance with the guidelines provided by the manufacturer to minimise potential negative effects. Bhaskar *et al*., 1984; Haselkorn, 1992; Anand & Subramanian, 1997; Rajendran *et al*., 2007; Gangawane, 1980 analysed pesticides can have a detrimental effect on a wide variety of beneficial microorganisms in the soil, as they persist in the ecosystem and can accumulate over time. This can include important nitrogen-fixing organisms, which are responsible for converting nitrogen gas in the air into a form that plants can use.

When these organisms are killed or suppressed, it can lead to a decline in soil fertility and negatively impact crop yields. Additionally, pesticides can affect other microorganisms that play important roles in soil health, such as those involved in nutrient cycling and disease suppression. Therefore, it is essential to use pesticides in a responsible manner and with consideration of the potential impacts on beneficial microorganisms.

Table 1: Yield production of Cardamom in year wise

Year	Production Metric Tons	Area (Hects.)	Yield(Kgs. /Hects.)
1991-92	5000	81,845	80
1992-93	4,250	82,392	70
1993-94	6,600	83,960	108
1994-95	7,000	83,651	113
1995-96	7,900	83,802	128
1996-97	6,625	73,593	125
1997-98	7,900	72,444	149
1998-99	7,170	72,135	135
1999-00	9,330	72,429	174
2000-01	10,480	72,320	195
2001-02	11,365	72,663	210
2002-03	11,920	73,125	218
2003-04	11,580	73,237	210
2004-05	16,900	73,663	240
2005-06	17,800	73,320	230
2006-07	15,700	73,135	210
2007-08	13,400	72,125	215
2008-09	15,450	73,333	218
2009-10	15,720	73,210	220
2010-11	16,000	73,240	230
2011-12	15,800	73,300	215
2012-13	18,400	73,210	230
2013-14	21,280	73,444	210
2014-15	21,800	73,392	220
2015-16	22,000	73,320	250

Fig 1: Trend of cardamom production



From fig 1, the equation y = 702.6x - 1E+06 represents a line in a two-dimensional coordinate system. The line is determined by its slope (702.6 in this case) and y-intercept (-1E+06). R^2 (R-squared) is a statistical measure of how close the data are to the fitted regression line. The value of 0.9173 indicates that 91.73% of the variance in the dependent variable (y) is predictable from the independent variable (x). Based on the data provided, it appears that there is an overall trend of increasing agricultural production over time, with some fluctuations. From Table 1, the production metric tons increased from 5000 in 1991-92 to 22,000 in 2015-2016. There also appears to be a trend of increasing yield over time, with the yield (measured in kilograms per hectare) increasing from 80 in 1991-92 to 250 in 2015-2016. However, it is worth nothing.

ng that the area used for agricultural production does not show a clear trend over time, and the area varies between 72,125 hectares in 2007-2008 and 83,960 hectares in 1993-1994.

2. Conclusion

Cardamom is an important cash crop in India and contributes significantly to the country's economy. The production of cardamom in India is primarily concentrated in the states of Kerala, Tamil Nadu, and Karnataka. Cardamom is one of the major foreign exchange earners for India and is exported to various countries worldwide. According to data from the Spices Board of India, the export of cardamom from India was valued at around $200 million in 2019-

20. Cardamom cultivation also provides employment opportunities for farmers and rural communities in India. The crop is grown on small and marginal landholdings and provides a livelihood for many smallholder farmers. Cardamom is a valuable cash crop for farmers in India, and its production contributes to the country's GDP. However, the specific economic contribution of cardamom production to India's GDP is not readily available. Factors such as the total area of land dedicated to cardamom cultivation, the yield per hectare, and the market price of cardamom can all impact the crop's overall economic contribution to the country's GDP. Additionally, cardamom production may also create jobs and stimulate economic activity in related industries, such as processing and export. Overall, cardamom production in India plays a significant role in the country's economy by generating foreign exchange, providing employment opportunities, and contributing to the income of smallholder farmers.

References:

- Murugan, M., Shetty, P. K., George, T., Ravi, R., Subbiah, A., & Vijayakumar, K. (2014). Pesticide Use in Indian Cardamom Hills: Factors, Patterns and Intensity. *International Journal of Social Ecology and Sustainable Development (IJSESD)*, *5*(3), 65-80.
- Shetty, P. K., Murugan, M., & Sreeja, K. G. (2008). Crop protection stewardship in India: wanted or unwanted. *Current science*, 457-464.
- Wang, C. J., & Liu, Z. Q. (2007). Foliar uptake of pesticides—present status and future challenge. *Pesticide Biochemistry and Physiology*, *87*(1), 1-8.
- Safea, S. (2004). Endocrine disruptors and human health: is there a problem. *Toxicology*, *205*(1-2), 3-10.
- Fleming, L., Mann, J. B., Bean, J., Briggle, T., & Sanchez-Ramos, J. R. (1994). Parkinson's disease and brain levels of organochlorine pesticides. *Annals of Neurology: Official Journal of the American Neurological Association and the Child Neurology Society*, *36*(1), 100-103.
- Sharpe, R. M., & Irvine, D. S. (2004). How strong is the evidence of a link between environmental chemicals and adverse effects on human reproductive health? *Bmj*, *328*(7437), 447-451.
- Bhaskar, M., Sreenivasulu, C., & Venkateswarlu, K. (1992). Interactions of monocrotophos and quinalphos with Anabaena torulosa isolated from rice soil. *Biochemistry international*, *28*(5), 767-773.
- HASELKOEN, R. (1992). Developmentally regulated gene arrangements in prokaryotes. *Annu Rev Genet*, *26*, 111-128.

Inefficacious Public Healthcare Insurance Sector with Special Reference to PMJAY/Ayushman Bharat-Arogya Karnataka Scheme (AB-ARK), 2018

Priya Sanghamitra
MA Public Policy (first year)
Mount Carmel College

Anushka Joshi
BA – PEJ (final year)
Mount Carmel College

Abstract:

Public Healthcare Insurance Scheme has existed in Karnataka for the disenfranchised section of the society since early 2000s to present. However, the model of Public funded state government schemes has garnered criticism from Economists.

Catastrophic Healthcare Expenditure and out-patient expenses have pushed entire families into poverty. Through this paper we attempt to analyze and compare Out of Pocket Expenditure of households in 2004 and 2014 (at constant prices). We also look into National Family Health Survey Reports of 2005-06, 2015-16 and 2019-20 to understand the trend of Healthcare Insurance Coverage from the period 2005-2020, in rural and urban areas of Karnataka. We combine a macro view of public expenditure on healthcare in India and relevance of such public-funded schemes.

Key words:

Public healthcare Insurance, Public Expenditure, private healthcare Insurance, National Family Health Survey (NFHS), National Sample Survey Office (NSSO), Out of Pocket Expenditure (OOP), National Health Policy.

1. Introduction:

Universal Healthcare Coverage is laid on the foundation that good healthcare is a good social investment. A healthier population is a more productive population because healthier populations have higher earnings and require less medical care. Rationing of healthcare leaves crucial demands unmet and impoverishes many and damages the public health system.

In India, **Aatma Bharat-Arogya Karnataka Scheme** was launched in 2018 to provide *Universal Healthcare Coverage* to those under the Below Poverty Line. Karnataka has witnessed a series of such schemes with similar healthcare welfare objectives. From Yeshavini Arogyasri (2003), Rashtriya Swasthya Bima Yojana (2008) and Vajpayee Arogyashree (2012) which is now merged under the Ayushman Bharat Arogya Karnataka Scheme (2018) in Karnataka.

In this model, the Suvarna Arogya Suraksha Trust (SAST) served as intermediary and has empanelled public and private facilities for service provision. [2]Under RSBY, private hospitals were empanelled more than the public hospitals.

2. Review of literature

The state targeted insurance scheme did not reduce pressure to access health services in a fundamentally private healthcare delivery model. An assessment of RSBY tells us that there laid an issue of enrolment of the eligible families. Out of those who got enrolled, had a low claim rate in 2012. In the same year, 6.2% families fell in Below Poverty Line (BPL) due to healthcare expenses. The RSBY scheme wasn't successful since it didn't meet its basic objective of economic safety net to poor families and focussed on secondary hospitalization coverage for the BPL (Sodhi C et al, 2014). There was an absence of a monitoring mechanism of the scheme to keep track of its performance. More so, the exclusion of outpatient care expenses which is almost three fourths of the Out of Pocket Expense (OOPE) has led to indebtedness of these families (in 2011) Berman et al (2010).

2.1 Evolving Objectives of National Health Policy (NHP) through the years (1980s to 2017)

The Government relaunched National Health Policy, 2017, with the aim to attain the highest possible level of health and well-being for all at all ages, while also improving quality and lowering the cost of healthcare.

The need for the change in policy was two folds. Firstly, the National Health Policy of 1983 and National health policy of 2002 was no more relevant to modern health problems such as premature mortality to cardiovascular diseases, diabetes and chronic respiratory diseases. Secondly, the rationale behind changing the priorities of NHP 1983 in 2002 is because Maternal and child mortality have rapidly declined and there is growing burden on account of non-communicable diseases and some infectious diseases.

India's National Health Policy 2017 envisages significant reduction in Out of Pocket Expenditure (OOPE) leading to a decrease in proportion of households facing catastrophic health expenditure from the current levels by 25%, by 2025. So, by this, it's clear how the priority has shifted through the years. As there was some stability in infant mortality rate and life expectancy, the priority shifted to communicable diseases like HIV, TB, blindness etc and now the priority is more on developing and building a strong healthcare structure while also giving importance to global healthcare goals under Sustainable Development Goals.

2.2 Public Expenditure on Health in India

The expenditure on social services (health, education and others) by the Centre and States as a proportion of GDP increased from 6.2 per cent in 2014-15 to 7.7 per cent in 2019-20 (Economic Survey of India, 2020-21). We see that through the years, the government has increasingly also started to rely on the private sector in welfare especially in health. This is said to be the founding of a welfare-oriented government. Public Expenditure on health in India is increasingly shrinkingover the years as compared to other developing countries like Thailand and Sri Lanka, which have done far well on the health front. Chhavi Sodhi et al (2014) talks how developing countries like Thailand and Sri Lanka have done way better by targeting the base of primary care in rural areas. a middle-income country like Cuba was able to attain better health outcomes at the

aggregate level with substantially lower levels of investment in its health sector as compared to the United States (Sodhi C et al, 2014).

There's an escalated **shift to the private healthcare sector** as there is decline of investment in public service delivery systems (Sodhi C et al, 2014). In India, there are more empanelled private hospitals than public hospitals, because the public hospitals are not as equipped as the private hospitals. The most commonly reported reason for not using government health facilities at the national level is the **poor quality of care**, **long waiting time at government facilities** and **no government facility nearby** (NFHS-5 Report 2019-2020) .

Jaison Joseph et al (2021) state how a majority of the hospitals empanelled under the scheme are in states with previous experience of implementing publicly funded health insurance schemes. The role of the public sector remains critical, particularly in underserved areas of India. Although the inclusion and regulation of the private sector is a goal that could be taken care of by empanelment, the idea of basic healthcare being met by the most disenfranchised sector is largely unaddressed.

2.3 Households pushed in Below Poverty Line due to Catastrophic Healthcare Expenditure

Berman et al (2010) state that the failure of the public healthcare system and the healthcare expenditure have pushed around 3.25% of the total population into poverty . Healthcare spending in rural and urban areas also varies a lot, according to the data more people from rural areas fell into poverty because of healthcare expenditure than those from urban areas. The Outpatient expenditure being higher (77.5%) than inpatient expenditure in rural areas (72.28%). In the states of Uttar Pradesh and Kerala maximum people fell into BPL category because of the health care cost. **The research found that the burden of healthcare was mostly felt by the middle-income households in the rural area while in the urban area it was mostly the second poorest who suffered because of the health care price.**

Peter Berman et al (2010) found that the main consequence of health payments for the measurement of poverty is the inflation of total household expenditures by the exercise of coping strategies adopted to pay for healthcare which is a dimension of hidden poverty[3] and not the temporary diversions of spending on basic needs to healthcare (called transient poverty).

It raises important issues for the development of health insurance benefit package in India, most of which only cover inpatient care and sometimes only **high-cost inpatient care**. It is likely that the shock to households of inpatient care is larger for any given event, but the research suggest that the overall financial burden and aggregate impoverishing effect is larger from outpatient care and shoved economically weaker class further down the class rung.

2.4 Demand and supply side of Public-funded state government scheme

National Rural Health Mission (NRHM) largely relies (except for Janani Suraksha Yojana or the JSY scheme) on supply-side financing, through the traditional way of an integrated financing and provision functions under the umbrella of government ministries and departments. Demand-side financing, on the other hand, focuses on the split between financing and provision. Under demand side financing, while the financing function is left to the government and/or contribution from employees, mediated by an insurer or other financing intermediaries, healthcare is purchased by the intermediaries from both the public and private providers. The approach behind Demand-side financing, is supposed to be "money follows the patients", approach (Sakthivel Selvaraj et al, 2012)

3. Research Objective

- To understand the efficacy of Public Healthcare Insurance schemes including Yashaswini Arogyasri (2003), Rashtriya Swasthya Bima Yojana (2008), AB-Arogya Karnataka Scheme from the perspective in Karnataka (2018).
- To achieve the above objective a trend analysis of Out Of Pocket Expenditure (OOPE) in healthcare with reference to Karnataka from 2005 onwards to 2020 using data from National Health Systems Resource Center NHSRC NFHS- National Family Health Survey Report (from the years 2005-06, 2014-15, 2019-20) and National Sample Survey 75th round report (2017-2018).

4. Trend Analysis

4.1 Out of Pocket Expenditure in Hospitalization, Maternal Health, Maternal Expenditure from 2004 versus 2014 at constant prices.

In 2014 compared to 2004, there has been an increase in the number of pregnant women aged 15-49, both in rural and urban areas. The percentage of institutional deliveries has also increased, with 90% of women giving birth in institutional settings in urban areas and 80% in rural areas. The percentage of women giving birth in **public facilities has decreased**, while the percentage of women giving birth in private facilities has increased.

Common reasons being that over one-fifth (21%) of women cite **money** as a problem. Twenty-three percent of women cite the **distance** to a health facility and (22 %) cite having to take **transport** as a problem. Thirty-one percent of women report concerns that **no female health provider** is available. Thirty-nine percent of women report a concern that **no provider is available** and 40 percent that **no drugs are available** (NFHS-5, 2019-20).

The percentage of women availing ANC (antenatal care) services has also increased, with 93% of women availing these services in urban areas and 89% in rural areas. In terms of maternal health expenditure, the average medical expenditure per childbirth has increased, with private expenditure being higher than public expenditure. Out of pocket expenditure on ANC and PNC (postnatal care) services has also increased, with private expenditure being higher than public expenditure. **The percentage of households reporting catastrophic OOPE has also increased from 15% in 2004 to 18% in 2014.**

4.2 The following data provided shows healthcare insurance covergage by type in urban and rural areas of karnataka from 2019-2020, 2015-16 to 2005-06 .

Source: (NFHS-5 (2019-20), NFHS-4(2015-16), NFHS-3(2005-06))

4.3 Analysis

- Medical Reimbursement in rural areas has staggeringly come down eight folds or 12.5% of rural population covered in 2005-06.

- From 2015-16 to 2019-20, in a span of five years, RSBY scheme witnessed lowered enrollment and participation in both rural and urban areas. Less than 1/4th of urban population in 2015-16 and only 1/3rd of rural population covered in the year 2019-20.
- Surprisingly, the Community Health Insurance Programme also saw a hit from 2005-06, to 2019-20. For the rural population, 36.1% was covered under some community insurance programme which dropped tenfold to 2.7% (2015-16) and within the following five years to 1%. Similarly, for urban population 17.8% (2005-06) to 2.4% (2015-16) less than 1/6th of the previous record. By 2019-20, it was 0.4% among urban population, which is a twelve-fold drop in community coverage of this category.
- As high as 86% of the rural population and 82% of the urban population were not covered under any scheme of health expenditure support.

5. Discussion

The public health sector is the primary source of health care in rural areas (52%) and urban areas (47%). The private health sector is the main source of health care for 52 percent of households in urban areas and 46 percent of households in rural areas (NFHS-5, 2019-20). Catastrophic headcount across income/expenditure increased in the post-insurance period. The poor income group was hit the most. 'A rising per capita health spending mainly on hospitalization and the associated increase in the catastrophic headcount, especially among the poor population, is reflective of a continuation of the trend witnessed since the last two decades, with RSBY and state-based health insurance schemes making no impact whatsoever' Selvaraj and Karan (2012)

The major design flaw of RSBY and other such state health insurance programmes is their narrow focus on secondary and tertiary care hospitalization. In December last year, the Private Hospitals and Nursing Association (PHANA) demanded for the license renewal process be more seamless and online only. They sought that Karnataka Private Medical Establishments (KPME) Act, renewal of licenses to be mandated once in five years and not every year as is the norm now.

They along with Indian Medical Association (IMA) were upset over the low rates of AB-ArK scheme and demanded revision of rates under the healthcare scheme. They said that the empanelled private hospitals will refuse to treat patients if rates aren't revised. The idea of welfare is dominated by the lobby of the private sector and the thirty-party mechanism.

AB-ArK intends to cover surgical procedures twice more than what Yashaswini Insurance package covered (from 823 to 1650). So far, 33 Lakh people have enrolled under the AB-ArK, but the scheme is operational under the autonomous government hospitals only. This creates increased expenditure on the scheme to bring more hospitals on board. The government, upon pressure from the IMA and PHANA, decided to revise the rates. The reimbursements and surgical procedures would take place as per the higher rates of either Yeshasvini Package or the AB-ArK.

6. Conclusion

India becomes the world's fifth largest economy as per IMF World Economic Outlook with a GDP of 2.94 trillion dollars. As we move towards a road to Economic Development or *Amrit Kaal*, we must take cognizance of where welfare models are headed in the name of *'development'* and *'well-being'*. An ideal health system must take lessons from several models and avoid disastrous models, such as that of the US. Development at the cost of who (?) and if we continue to have a lop-sided view of development then that could end up generating poverty at the other end. Greater decentralization through non-profitable and autonomous regulation can help manage a pool of premiums, further expanding in areas with a high level of formal employment. Erstwhile welfare models no longer look the same, the entrenched privatization has left the beneficiaries with insurance coverage for namesake. In the name of *Amrit Kaal*, we must come up with more alternative non-market mechanisms to strengthen the socio-economic classes of India.

7.References

- Berman, P., Ahuja, R., & Bhandari, L. (2010). The Impoverishing Effect of Healthcare Payments in India: New Methodology and Findings. *Economic Political Weekly*, *45*(16), 65-71. http://www.jstor.org/stable/25664359
- https://www.researchgate.net/publication/326773745_National_Health_Policy_of_India
- International Institute for Population Sciences (IIPS) and ICF. 2021. National Family Health
- Sodhi, C., & Rabbani, A. (2014). Health Service System in India: Is Insurance the Way Forward?
- *Economic Political Weekly*, *49*(35), 26-28. http://www.jstor.org/stable/24480488
- The Hindu Bureau. (2022, December 17). Members of PHANA seek simplification of licence renewal process and AB-ArK package rate revision. *The Hindu*.
- https://www.thehindu.com/news/cities/bangalore/members-of-phana-seek-simplificationof-licence-renewal-process-and-ab-ark-package-rate-revision/article66275297.ece
- Yasmeen, A. (2022, October 21). Ayushman Bharat-Arogya Karnataka does not fully deliver on promised assurance of health coverage. *The Hindu*.
- https://www.thehindu.com/news/national/karnataka/ayushman-bharat-arogya-karnataka-does-not-fully-deliver-on-promised-assurance-of-health-coverage/article66032541.ece
- Yeshasvini package rates. *The Hindu*. https://www.thehindu.com/news/national/karnataka/under-pressure-from-private-hospitals-government-modifies-yeshasvini-package-rates/article66432779.ece

- A patient who is a resident of Karnataka State and belongs to “Eligible Household” as defined under the National Food Security Act, 2013; The enrollment is based on a person’s Aadhar Card number https://arogya.karnataka.gov.in/
- Under pressure from private hospitals, government modifies Yeshasvini package rates - The Hindu

Water and Sustainable Management in India

Prerana P S
3rd B A HEP (History, Economics & Political Science)Mount Carmel College, Autonomous

Abstract

Life on earth is not possible without water. Only 3% of total water available is freshwater. India has just 4% of the world's freshwater but must share it with 18% of the global population, India is facing a freshwater crisis. 40% of India's will have no access to drinking water by 2030[NITI Ayog]. The paper aims to analyse various sources of water in India and the usage of the same, and the government's contribution to the field, the paper also aims to congregate diverse solutions including drip irrigation and a few with focus on creating water conscious citizens who are believed to successfully contribute to sustainably manage the water resources.

Water is a merit good that is essential for life and is classified as Human Rights by the United Nations. It is also a key input into the global economy, forms the foundation of the green economy and is essential for inclusive growth. Water, rated as 'oil' of the 21st century, has been at the core of any discussion on sustainable development. Water being one of the most important renewable natural resources for supporting life, needs sustainable management and development. Water resource management involves the interaction between all the pillars of the green economy including food, energy, and Environmental Protection. Especially in a country like India where the population is high it is a complex challenge that needs to consider different water users with different interests. Concomitantly, horizontal coordination between all relevant sectors such as irrigation, energy, drinking water supply, and recreation is vital.

Keywords: *sustainable management, water resources, ground water, Israel.*

1. Introduction

India's water resources:

Table 1 :Water availability at a glance

Water resource at a glance	Quantity [BCM]	Percentage
Annual precipitation [including snowfall]	4,000	100
Precipitation during monsoon	3000	75
Evaporation + soil water	2131	53.3
Average annual potential flowing rivers	1869	46.7
Estimated utilisable water resources	1,123	28.1
Surface water	690	17.3
Replenishable groundwater	433	10.8
Storage created of utilisable water	253.381	22.52
Storage [under construction] of utilisable water	50.737	4.5
Estimated water needed in 2050	1450	129
Estimated deficit	327	29

Source: CWC [2011]

The population of India is 18% of the world population, whereas the water resources are only 4% of that of the world, on an average India receives annual precipitation

off about 4000 billion cubic metres [BCM (Billion Cubic Metres)], there exist considerable spatial and temporal variations in the distribution of rainfall across the country which is reflected in availability of water at certain times and places. The water demand in the year 2000 Was 634 BCM and it is likely to shoot up to 1,093 BCM by the year 2025. Due to rapid urbanisation, growth in economy and a surge in population across the country, there will be continual increase in demand for water leading to it becoming a scarce commodity in the future decades. [kateja 2019]

Based on the understanding generated from the standing subcommittee of the ministry of water resources [Mo WR] It is relevant to highlight the fact that water requirement has increased in the last decade and is expected to rise even further in coming decades. The need for water consumption would be required by energy, industry, and drinking water sectors as well. Increasing demand of water in the irrigation sector is likely to be associated with the rising population and consequent rise in the food consumption.

Water requirements across various sectors [2010-2050]:

Table 2 :Water demand in BCM: Standing Sub Committee OF MoWR (ministry of water resources)

	2010	2025	2050
Irrigation	688	910	1072
Drinking water	56	73	102
Industry	12	23	63
Energy	5	15	130
Others	52	72	80

Source :MoWR [2011]

The above provided data shows us a clear picture of availability of water and its usage in the country. To be more specific India is a water stressed country.

1.1. Ministry of Water Resource/ Jal Shakti:

The government of India has a separate ministry for water [ministry of water resources] which is responsible for planning, development and management of water

resources that need to be governed by common integrated perspective considering local, regional, state, and national context, having an environmentally sound basis, keeping in view the human social and economic needs. All water related data like rainfall, snowfall, geomorphological, climatic, geological, surface water, groundwater water quality, ecological, water extraction and use, irrigated area, glacier's etc is covered under the department.

The ministry of Water resource has bought in policies like:

1] Jal Jeevan- Har ghar nal se jhal programme

2] Jal shakti abhiyan

3] Namami Gange

4] Pradhan Mantri Krishi sanchayi yojana

5] Atal Bhujal yojana etc

which are excellent and responsible for providing drinking water to around 11 crore and more households across the country. The government of India also announces budget to the department of water every year , which covers wide range of subjects , but there is no focus on allocation of budget for sustainable management of water specifically , even though government has put indirect efforts to attain sustainability like establishment of institute of hydrology , informatics centre , river conservation directorates , ground water management systems etc there is no direct effort or budget for sustainable management of water in India , because most of the efforts invested by government can be considered as “REACTIVE RATHER THAN PROTECTIVE” especially in protection of environment goods for example: the Namami Ganga , is a flagship programme which has 2 aims , the first one is abatement of pollution and second being the cleaning and rejuvenation of the river , the government has allotted over 20,000 crores for this project .

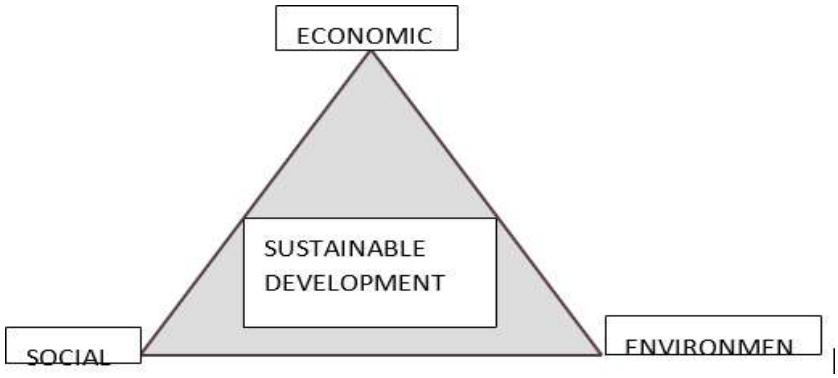
But the current need of the hour is protection / protection of resources, especially India which spends most of its water on irrigation. We should remember that we are utilising the resources of tomorrow and adding pressure on the future generation to be reactive again rather than preventive or protective.

2023-24 FY budget: The government of India has allocated a sum of rupees 86,189 crore for ministry of Jal shakti, out of which around 60,000 crores [78% of the total allocation of the ministry] is spent for Jal Jeevan mission [drinking water] the remaining is mostly spent on other water resources.

1.3. Sustainable Management of Water Resources:

Sustainable water management means to ensure using water in a way that meets both current and future socio –economic and ecological demand. ("Sustainable Water Management - A section of Sustainability - MDPI") .

Fig:1



We should ensure to maintain a good balance, by focusing and contributing equally to all the three sections, if any section is ignored the sustainable triangle will collapse and the present as well as the future generations might have to face the repercussions.

The pressing priority is to focus on the sustainable management of water resources, but it is a bit tough to determine sustainability, because the parameters differ from society to society, they are different in different economies, and cultural conditions, thus one of the greatest challenges for achieving sustainable development is lack of indicators to measure it properly.

The water related ecological issues and strategies to ensure integrated water management are more crucial challenges for sustenance of the environment. In high temporal variation, it is very much essential to manage surface and the ground water

resource, it is also necessary for the stakeholders/user group to be aware of the fact that faster development and better management would have to be vigorously followed.

When we look at any countries or plans which were successful in achieving sustainable management of water, we can recall the success story of Israel.

2. The success story of Israel

Israel went from being water scarce to water abundant, which means they were successful in sustainably managing the limited water resources of their nation. Israel managed to avert this threat by developing both techniques to increase water sources as well as practices to efficiently manage and control water usage. The Israel water authority launched a series of programmes for children that taught them how to save water by simple means, building a new generation of water conscious citizens. ("Based on Israel's success story, we want to help India in its quest for ...") The school students in Israel are taught about how the 'water metre' works, which allows them to understand '**how much is too much water?'** Every school in Israel has a rainwater harvesting system installed, the students are taught to grow vegetables with limited water.

Along with this every citizen of Israel came together to solve the water scarcity challenge, the street gutters of Israel were fixed with a series of barrels and filters which filtered dust from rainwater an collected it in a tank, every house in Israel has a rainwater harvesting system which nearly provides them up to 60% of the required water for domestic purpose. The country also became home to advanced technological innovations and solutions in water. A country with over 60% desert and less than 20% naturally arable landmass, Israel has become a world leader in water management and water recycling. Over 90% of Israel's water is recycled, and nearly 80% of drinking water consumed is desalination or recycled.

Israel surely has lessons in central management, where everyone can drink and shower.

2.2. The holy grail of Israeli water innovation: drip irrigation

Another major step which Israel followed was the "DRIP IRRIGATION," even though it was not a new method, they adopted it more efficiently than anyone else, they did not reinvent the new wheel, but emulated it.

Drip irrigation also called as micro irrigation, was the first watering innovation in thousands of years, instead of flooding the fields with prodigious amounts of water and fertiliser, much of which get wasted, small amount of both is dripped directly onto the plant's roots, the 'Netafim' which makes the technology, says the technique saves 25%-75% pumped water compared to flood, on average. So, the farmer uses less water, less fertiliser, man has been irrigating his farm fields by flooding them since farming was invented over 12,000 years ago, some of the water soaking the land is used by crops, some evaporates and sinks in and recharges the aquifer. Drip irrigation causes rice and tomatoes to emit less greenhouse gases and nitrous oxide, emissions of which have been associated with deadly algae blooms.

Another key to water conservation is usage of wastewater, Israel treats most of its sewage and reduces the water in agriculture, the world does not need to take 70 years during which Israel has been solving its water problem, says Seth M Seigel; the world can emulate it, but it must get a move on before the water runs out. [the secret of Israel's water miracle and how it can help a thirsty world by Ruth Schuster]

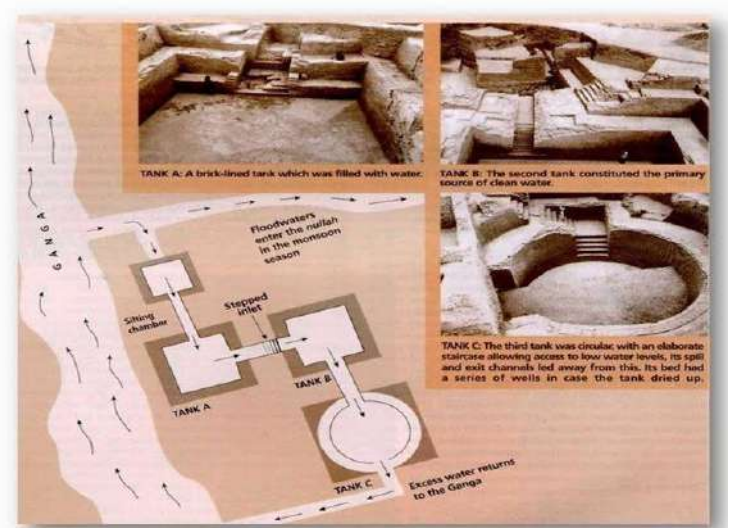
Israel's success is not only from government policies or technologies, but the focus also lies on the 'joint collective action' taken by the citizens.

3. What can India do?

The concept of sustainable management of water resources is present in our roots itself, we can observe that ancient texts like **Manu smriti** have mentioned and educated people about having a hygienic lifestyle, there is also a mention of not to pollute or excrete into the water, rather treat water as a precious resource, we have many ancient techniques which are economic and ecologic. **Kautilya's Arthasastra** discussed kings providing fiscal incentives to the communities or individuals to build water systems; archaeologists have found evidence of early Indian hydraulic engineering. A few such examples are:

The **Sringaverapura tank near Allahabad** is a remarkable system to convert floodwater of river ganga into a set of desalting chambers, including water weirs to clean the water for drinking, during early Harappan phase we can find drainage systems included soak pits built of pottery ring which were used for disposal of domestic wastewater which was canalised out from the houses through earthenware drain pipes into soak pits , the **British gazettes written of these systems , have mentioned India as a ' HYDRAULIC SOCIETY**' . **Vishweshwarayya the architect of water management of modern India took inspiration from ancient civilizations because they are not only simple, but they are effective, economic, and very importantly they are sustainable.**

Fig 2: sringaverapura water tank



Source: twitter – shrines of Varuna

Again, when we look back at history, they have showed the importance of joint collective action,

To attain sustainable management two things are especially important,

1] Government efforts: to make sustainable water management a main goal without any compromise, and allocation of required budget to the same.

2] Joint collective effort from citizens: the citizens of India will have to be more conscious about the natural resources and its importance and should adopt a suitable lifestyle and contribute towards managing the resource.

Bengaluru is a water stressed place, where most of the cities have lost rainwater absorbing capacity. In such a place still, people are not aware of the issue and its repercussions, and are not even aware of the basic knowledge of how much water the individual uses every day. What does the water metre look like? , for whom are we paying water bill, are there any Chances of recycling at least 10-15 litres of water every day? [these questions were asked to family members and friends who are residents of Bengaluru] most of them could not answer a single question and had no idea about sustainable water management.

The Government of India must pay more attention to the creation of **'GRAVIS'** the gramin vikas vigyan samiti, which is based in jodhpur, it is the centre for people's science for redevelopment. Through our relentless struggle over the years for community empowerment and rural reconstruction in the thar desert, GRAVIS has come to occupy a leading position, it is involved in literacy programmes, human resource development, health, women empowerment, what are resource development, agriculture and forestry, labour issues and advocacy. GRAVIS works to install rainwater harvesting structures using a combination of technical experts and traditional knowledge, TANKAAS or water tanks are constructed by farmers which are 30 feet in radius and have the capacity to store 18000 – 20000 litres of water, which is sufficient for a family for four to five months. Thousands of families are trained on conservation of water, in addition to construction of taankas , Nadis and percolation wells' [Sandeep Narula]. A similar organisation to GRAVIS must be established across the nuke and corner of the country to create conscious citizens and achieve sustainable water management.

In India there is a need emphasis on creating awareness among the consumers especially because the user groups are not aware about the importance of water resources, therefore imparting grass-root level trainings, conducting workshops or in India we can have more 'PANI SAMITIS' user groups, and other stakeholders are required for basic understanding of the water budgeting and to trigger community for 24/7 water security.

Training materials should be prepared with the help of a committee having sufficient field experience of working in the water sector, knowledge of water resources, judicious use of water, cropping patterns, calculation of water budget, and these materials should be prepared in local languages to circulate it to all participants.

4. Conclusion

Poor management of water resources will continue to have serious social, economic and environmental implications at the local and national levels over the short and long term. often such mismanagement has contributed to increasing poverty and a deteriorating quality of life. While insufficient funding is certainly a constraint, even bigger constraints have been the absence of leadership and managerial and technical capacities, the almost exclusive top-down centralised approach, the absence of stakeholder participation and the lack of any long-term vision in any field. India with having the highest population can create the best or the highest number of water conscious citizens with imparting basic level of training, if small change is bought , for example in India an individual on an average spends 150-200 litres of water every day , if the government trains the citizens to reduce the spending of water by 10 litre per individual we can save around 0.0014 BCM of water every day without any investment , for this to happen the citizens should be water conscious .

John F Kennedy once said ‘anyone who can solve the problems of water will be worthy of two Nobel prizes- one for peace and one for science ‘

It is not easy to sustainably manage the water resource, but it can be made easy with participation and contribution of water conscious citizens, wherein they can reduce inefficient use of water through scientific, simple, and economic methods and avert global water crisis.

‘We never know the worth of water till the well is dry’ - THOMAS FULLER, GNOMOLOGIA.

Bibliography

- The secret of Israel's water miracle and how it can help a thirsty world by Ruth Schuster
- lessons from Israel in the time of drought by Puneeth Nagarajaiah [DHNS]
- Rethinking water management: innovative approaches to contemporary issues
- 'water' by M N Sastri [formerly professor in chemistry, Andhra university, Visakhapatnam]
- Water resource management – problems and prospects edited by Alpana Kateja 6] low-cost wastewater treatment technologies by Mariam Noor

Impact of Covid-19 on different Production sectors

Mr.Thippesha.L
Assistant Professor
Department of Economics Surana College.
#167,5th main Industrial Suburb 2nd stage
Near ESIC Hospital Peenya Bangalore-560020

1. Abstract:

The outbreak of the Covid-19 pandemic is an unprecedented shock to the Indian economy. The Government of India has announced a variety of measures to tackle the situation, from food security and extra funds for healthcare, to sector related incentives and tax deadline extensions. With the prolonged country-wide lockdown, global economic downturn and associated disruption of demand and supply chains, the economy is likely to face a protracted period of slowdown. This study revealed the potential impact of the shock on various sectors like manufacturing, financial services, banking, infrastructure, real estate, and services and put forward a set of policy recommendations for specific sectors.

Keywords: *Indian Economy, Economic Downturn, Corona Pandemic, Supply Chain.*

2. Introduction:

The outbreak of coronavirus disease 2019. First identified in Wuhan, the capital of Hubel China. In Dec-19and since then having spread globally, has been recognized as a pandemic by the world Health organisation on 11 March 2020. India is widely affected by this pandemic. As on 29.4.2020.

Taking into consideration the governments at both central and state levels. Commenced necessary action on this pandemic had far-hitting consequences, predicted to be the worst economic crunch since the Great Depression of 1930. So India imposed national lockdown to contain the wises from spreading . this lockdown harmed the various sectors in India and worldwide.

3. Impact on Agriculture and allied activities:

Agriculture is the backbone of our country. Due to the lockdown farmers could not complete preparation and suffer from agricultural inputs. Which caused a negative impact on crop productivity. And negative effect on perishable goods.

Agricultural allied activities like horticulture, fishery, forestry, dairy and floriculture suffered loss. Because the closure of hotel and others business, in Urban areas and animal husbandry activities also suffered loss in the time of lockdown. because low demand in Hotel, Restaurant closed in urban areas.

As per WTO's Trade Statistics 2020, the share of India's agricultural exports and imports in the world agricultural trade in 2019 was 2.07 per cent and 1.46 per cent, respectively. India is among the world's leading producer for many commodities such as dairy, cereals, spices, fruits and vegetables, rice, wheat, cotton and others (Kumar, 2021). Total food grain production in the country increased from 176.39 million tonnes (MT) in 1990-91 to 305.45 MT in 2020-21 and horticultural production increased much faster, 96.6 MT in 1991-92 to 326.6 MT in 2020-21. Milk production has also increased significantly from 53.9 MT in 1990-91 to 208 MT in 2020-21. Fish production increased from 3.84 MT in 1990-91 to 14.07 MT in 2019-20 and egg production increased from 21101 million in 1990-91 to 114419 million in 2019-20. India has consistently maintained trade surplus in the agricultural products over the years. Despite COVID-19 pandemic, agri-exports from India increased to Rs.305469 crore in 2020-21 from Rs.252976 crore in 2019-20 and net agriculture export surplus has also increased to Rs.147681 crore in 2020-21 from Rs.105530 crore in 2019-20, registering a growth of 20.75 per cent and 39.94 per cent, respectively as compared to the previous year.

4.Covid -19 Impact on Manufacturing Industries:

The key issues impacting the manufacturing sector are listed in the image below:



- The manufacturing industry was affected in several ways due to the pandemic leading to low-scale operations, and eventually, a negative impact on production volumes. Over a period, this adversely affected the turnover and revenue.
- The IIP also fell to a negative growth of 9.6% indicating that core manufacturing activity also suffered setbacks resulting from the first and the second wave.
- The complete lockdown and partial lockdowns had both demand-side and supply-side impacts on the manufacturing sector. On the supply side, the limited movement of goods, services, and personnel affected the production network.
- The downturn in economic activity and the overall slowdown in production caused employment loss. These supply impacts were further compounded due to the demand-side facing issues such as reduced disposable income, savings, and increased uncertainties.

5. Covid -19 Impact on Education sector:

The spread of covid-19 was witnessed throughout the world in April, most of countries shut down their school, colleges and universities. this encourages distance and online learning using technology, and it has shown its value in providing virtual learning -based platforms that can mitigate the loss of education. Teacher and students show adoptability in using technology -based platform for online learning as on alternative to the existing conventional classroom system.

E-learning programmes

- E-learning has shown a 25% uptick since march 2020
- Zoom market capitalisation has reached $48.8 billion on may 15, 2020
- 30 million minutes of watch time by students on Unacademy every single day.
- Digital initiatives taken by the government include,
- DIKSHA portal serves as national Digital infrastructure for Teacher.
- e-Patashala hosts educational web resource's for students, parents , researchers and educators in rural areas.

6. Covid-19 on Tourism industry:

In covid-19 lockdown time Global and domestic governments have Imposed different levels and sanctions on their citizens. Including travel bans, restrict gatherings. Stay home orders, self- quarantine and other business closures and time specific restrains. The countries whose economics are hospitality- based have felt a significant negative impact on their economies as travel, tourism and other sectors used technology on their operations to online platforms to various degrees because of nature and adaptability. This sector is facing challenges in adopting the technology. The tourism industries sub sectors have also taken bad hits. Including transportation hotel, restaurants, food supply chain etc.

7.Covid-19 impact on Pharmaceuticals:

the pandemic created enormous pharmaceutical supply chain disruptions that escalated costs, the Indian government implemented regulatory restrictions to minimise interruption of essential drug supplies such as:

7.1. ***E pharmacy*** – On account of the mobility restrictions imposed by the government during the COVID-19 induced lockdowns, the drug retailers and distributors were permitted *via* the Drug Delivery Notification[2] to extend their last−mile delivery of prescriptive drugs as mentioned under Schedule H1 and Schedule X of DCR provided that compliance of mail registration, book keeping of stocks, invoice generation etc. is made.

7.2. ***Export of PPE kits, surgical masks, ventilators, sanitisers*** – In order to match an excess demand against limited domestic production, the government temporarily banned exports of *inter alia* these essential goods. Consequently, this trade measure resulted in optimal price standardisation and prevention of illegal hoarding of these goods.

1. ***Increased vaccine awareness in the Indian market*** – There has been an increased efforts to create awareness of and reduce vaccine resistance in adults for the Covid-19 vaccine in the Indian market. The Ministry of Health and Family Welfare, Government of India released the 'Covid-19 Vaccine Communication Strategy' to disseminate timely, accurate and transparent information to generate awareness and alleviate apprehensions and fears regarding the Covid-19 vaccine. As a result, Indian pharmaceutical manufacturers and marketers have used this opportunity to increase awareness of other adult vaccinations offered by them for vaccine preventable diseases. There has a been an increase in vaccine awareness campaigns by such manufacturers and marketers for adult vaccination on platforms such as social media, radio, television etc. While initiating such awareness campaigns the vaccine manufacturers and marketers must ensure that the same is not being undertaken in contravention of the applicable laws, so as to induce promotion or advertisement of a particular brand of vaccines but is only an awareness creation measure. Patients must be advised that any person choosing to be vaccinated for any vaccine preventable disease must consult their health care professional and be administered the same under supervision.

8. Covid-19 impact on healthcare sector:

Given that the healthcare sector provides spiritual services to the public. The health sector is the first an emergency digitalisation and technology are becoming a vital part of the health sector. Technology advancements like online doctor consultations, telemedicine and other treatment related application play an important role in providing best health service.

The 15000-crore spending plan tended to crisis and long-haul measures. Crisis reaction included increase in the quantity of testing offices and individual defensive gear (PPE), advancement of Corona virus committed therapy offices, unified obtainment of fundamental clinical hardware and medications expected for therapy of contaminated patients and

preparing of clinical and paramedical labour. Long haul estimates included reinforcing and constructing versatile public and state wellbeing frameworks to help avoidance and readiness for future infection episodes by setting up of labs and supporting observation exercises. These mediations and drives would be carried out under the general umbrella of the MoHFW which is answerable for conveyance of assets among the different execution organizations like Public Wellbeing Mission, Focal Acquirement, Railroads, Branch of Wellbeing Exploration/ICMR, Public Community for Infection Prevention. The travel industry framework and rail line foundation were incorporated to get a more prominent number of isolation zones. Confidential clinics and labs upheld to defeat the test of powerless medical services foundation in India.

Aarogya Setu

The Ministry of Electronics and Information Technology launched a smart phone application called **Aarogya Setu** to help in "contact tracing and containing the spread" of COVID-19 pandemic in the nation. The World Bank lauded the early deployment of such technology to combat the pandemic. Amid growing privacy and security concerns, the government released the source code of the app, making it open source on 26 May. The Government has promoted voluntary adoption of the app in its guidelines and standard operating procedures.

Economic package

On 12 May 2020, the Prime Minister, in an address to the nation, said that the coronavirus crisis should be seen as an opportunity, laying emphasis on domestic products and "economic self-reliance", creation of an *Atmanirbhar Bharat* (transl. Self-reliant India) through *Atmanirbhar Bharat Abhiyan* (transl. Self-reliant India Mission). He announced a 20 trillion rupees stimulus package, equivalent to 10% of India's GDP, which was laid out in detail by the Finance Minister in a series of tranches.[61][62] During the COVID-19 pandemic in India, Finance Minister announced a ₹1.70 Lakh Crore($24 billion) relief package under **Pradhan Mantri Garib Kalyan Yojana** for the poor.

- ₹500 each to 19.86 crore women Jan Dhan account holders.
- LPG cylinders to be provided to 8 crore poor families for the next three months free of cost.
- ₹1,000 for senior citizens to tide over difficulties during the next three months.
- As of 11 April, ₹28,256 crores($4 billion) were disbursed through PMGKY to nearly 32 crore beneficiaries.
- Rs 50,000-Crore in Garib Kalyan Rojgar Abhiyan for returnee migrant workers.

i. The emergence of COVID-19 in the country in early 2020 called for immediate action. The Government adopted a pre-emptive, pro-active, whole-of- government, whole-of-society approach, built around a comprehensive strategy to prevent infections, save lives and minimize impact.

ii. Focus was given on strengthening medical and healthcare infrastructure. Efforts were made to strengthen the core capacities in terms of laboratory, hospital infrastructure, R & D on diagnostics etc., along with the development of indigenous capacities in terms of essential logistics including personal protective equipment, diagnostics, ventilators and oxygen generation plants, among others.

iii. Measures were taken to keep the citizens at the centre of the Government‟s efforts, ranging from prevention, diagnosis and treatment of COVID-19 to awareness on Covid-Appropriate Behaviour.

iv. The Government extended logistic and financial support to the States in orde to enable them to effectively combat the COVID-19 pandemic.

v. India launched the world’s largest vaccination programme covering the entire length and breadth of the country.1

vi. Steps taken by the Government to enhance the manufacturing of Covid-19 Vaccines in the country. vii. Several measures were also adopted to enable

training and capacity building for healthcare professionals in the face of the pandemic.

vii. Testing Labs The number of testing labs for detection of Covid-19 has been increased to 3062 labs as on 1st December 2021

9. CONCLUSION

This paper dealt with the impact of the Covid-19 pandemic on the Indian economy.

Conclusion: In India, this has not yet started in a systematic manner and needs to be prioritised alongside steps to deal with the health crisis. By rationalizing tax rates or providing tax relief curb the impact of COVID-19 on the Indian economy might know after implementation of measures. About necessary measures to combat the economic impact from the rapidly spreading coronavirus, the Government policymakers would need to implement a substantial targeted fiscal, broader monetary stimulus, and policy rate cuts to help normalize the economic situation. As the COVID-19 crisis continues to expand, manufacturers will likely face challenges on numerous fronts. Manufacturers will also need to look beyond their own economic viability. They will need to coordinate closely with the public sector to forge plans that are essential to both public safety and the solvency of their workforce, while keeping the lights on in their operations. challenging climate. Some will be austere, but austerity measures should be tempered to preserve long-term objectives.

References:

- ASSOCHAM-Primus Partners Survey, (2020). Recommendations for a National Response to the Economic Impact of Covid-19. https://www.assocham.org/upload/Recommendations-for-aNational-Response-to-the-Economic-Impact-of-Covid-19_Final.pdf
- Economic Survey 2020-21
- Economic Survey 2021-22
- www.timesofindia.com
- www.iimu.ac.in
- www.fci.com

The Right to Bleed: Investigating India's Menstrual Health Policy

Korrapati Anuhya
Senior Research Fellow, Department of Economics
CHRIST (Deemed to be) University, Bengaluru.

Abstract

Menstruation is a normal physiological process, beginning on average around the age of 13 and continuing till the age of 40 to 50. This menstrual lifecycle spans menarche, pregnancy, perimenopause and finally, menopause. In many cultures, including those in India, the menstruating body - a sign of good health - has been constructed as being 'dirty' and an object of shame, leading to dietary restrictions and social seclusion. This social alienation of the menstruating body and a lack of body literacy in schools or at home makes menstruation an incredibly isolating experience. Although menstruation is a highly significant part of reproductive health, menstrual health management is often reduced to the narrow domain of menstrual hygiene. Despite the persistent stigmatization of menstruation and menstruating bodies, it was not until 2011 that the Government of India's Ministry of Health and Family Welfare launched its "Freeday Pad Scheme"—a pilot program that provides subsidized single-use pads to rural girls. It was only in 2015 that the Government of India introduced the Menstrual Hygiene Management National Guidelines, which characterize the problem of menstruation as a natural process that renders girls vulnerable. However, it quickly shifts to toilets, directly bridging MHM to extant WASH priorities. In addition, the exclusion of menstrual products from essential goods during the national level COVID-19 lockdown highlights the relegation of menstruation in Indian policymaking.

This paper traces the history of menstrual policy in India from the 1900s to the present. It also highlights the challenges of implementing the menstrual health policy while critically analysing the Adolescent Friendly Health Clinics and Menstrual Hygiene Scheme under Rashtriya Kishor Swasthya Karyakram. Furthermore, this paper examines the reliability of menstrual health data and advocates for constitute, regulatory and distributive policy.

Keywords: *Menstruation, Health Policy, WASH, Adolescent Friendly Health Clinics, Menstrual Hygiene Scheme*

1.Introduction

Menstruation is a normal physiological process, beginning on average around the age of 13 and continuing till the age of 40 to 50. This menstrual lifecycle spans menarche, pregnancy, perimenopause and finally, menopause. In many cultures, including those in India, the menstruating body - a sign of good health - has been constructed as being 'dirty' and an object of shame, leading to dietary restrictions and social seclusion. This social alienation of the menstruating body and a lack of body literacy in schools or at home makes menstruation an incredibly isolating experience. In India, menstruation is often shrouded in stigma, taboo, and misinformation. The lack of awareness, poor sanitation facilities, and unaffordable menstrual products make it difficult for girls and women to manage their menstrual health. Although implementing a significant part of reproductive health, menstrual health management is often reduced to the narrow domain of menstrual hygiene.

To address these challenges, the Indian government introduced the Menstrual Hygiene Scheme to provide free sanitary napkins to school-going girls and women from economically weaker sections. The scheme has been implemented in various states and praised for its efforts to break the menstrual taboo and improve women's menstrual hygiene in India. However, despite the government's efforts, implementing the Menstrual Hygiene Scheme has faced various challenges. The quality of sanitary napkins is often poor, and there have been reports of shortages and irregular distribution of napkins. In some areas, there are still inadequate facilities for menstrual waste disposal, and girls and women continue to face shame and discrimination due to their menstrual status. Moreover, the lack of access to menstrual products and proper sanitation facilities can lead to absenteeism from school and work, impacting women's education and employment opportunities.

This paper traces the history of menstrual policy in India from the 1900s to the present. It also highlights the challenges of implementing the menstrual health policy while critically analyzing the Adolescent Friendly Health Clinics and Menstrual Hygiene Scheme under Rashtriya Kishor Swasthya Karyakram. Furthermore, this paper examines the reliability of menstrual health data and advocates for constitute, regulatory and distributive policy.

1.1 History of Menstrual Health Policy in India

In the last 80s, there was secrecy and stillness around menstruation; in fact, the period between 1990-2000 was referred to as a "*wall of silence: poor menstrual hygiene not recognized as an issue; absence of literature*" by Dasra, an Indian philanthropy foundation that researched the

Menstrual Health Management (MHM) landscape in India. It was also a time when the health infrastructure was still in its infancy, and WASH infrastructure was almost non-existent. The absence of a menstrual health policy highlighted the stigma and taboo associated with menstruation.

In the mid-2000s, the wall of silence around menstruation was broken with an Oxford Roundtable, jointly sponsored by UNICEF and the International Rescue Committee (IRC) in 2005, bringing explicit attention to menstrual issues impacting schoolgirls. UNICEF strongly advocated for girl-friendly sanitation facilities – entirely private toilets located in secure areas away from boys' toilets and equipped with facilities for menstrual hygiene. Alongside this, many non-governmental organizations-initiated campaigns to create awareness around menstruation. At the same time, in 2005, the government introduced the National Rural Health Mission, which aimed to improve the health of rural populations and included provisions for menstrual health management.

The period from 2005 to 2010 saw the introduction of both single-use and reusable menstrual products, the creation of self-help groups that started manufacturing menstrual pads and finally, the introduction of menstrual pad advertisements on television that popularized the use of single-use pads. It was in 2011 that the government launched the Menstrual Hygiene Scheme to provide free sanitary napkins to school-going girls and women from economically weaker sections in 107 selected districts in 17 States wherein a pack of six sanitary napkins called "Freedays" was provided to rural adolescent girls for INR 6. From 2014 onwards, funds are now being provided to States/UTs under the National Health Mission for decentralized procurement of sanitary napkin packs for provision to rural adolescent girls at a subsidized rate of INR 6 for a pack of 6 napkins.

In 2012, the Ministry of Health and Family Welfare released the National Guidelines for Menstrual Hygiene Management, which aimed to improve the menstrual health of girls and women by providing guidelines for menstrual hygiene management and promoting the use of sanitary napkins. In the same year, The Ministry of Drinking Water & Sanitation initiated the Nirmal Bharat Yatra, also called The Great WASH Yatra. This multichannel mega-campaign harnessed the positive power of Cricket and Bollywood to promote awareness and enact behavioral change around sanitation and hygiene in India.

The Indian government also launched the Swachh Bharat Abhiyan, a national cleanliness campaign aimed at improving sanitation facilities in schools and communities, in 2014. As part of this campaign, the government has introduced the construction of toilets with provisions for menstrual waste disposal in schools, which aims to improve the menstrual health of school-going girls. Finally, In 2018, the Samagra Shiksha Abhiyan promoted sanitary napkin vending machines and incinerators.

Tracing the history of menstrual health policy in India shows that the government of India has been undertaking substantial efforts to address menstrual health. Additionally, the work of NGOs' has been fundamental in improving awareness, availability and affordability of menstrual products and increasing WASH facilities.

1.2 An Audit of the Inter-Ministerial Efforts

Six different ministries have taken up the menstrual health policy - the Ministry of Chemicals and Fertilizers, the Ministry of Drinking Water and Sanitation, the Ministry of Health and Family Welfare, the Ministry of Women and Child Development, the Ministry of Human Resource Development and the Ministry of Education.

The Ministry of Chemical and Fertilizers undertake the promotion of low-cost sanitary napkins. In 2018, they launched an oxo-biodegradable sanitary napkin called "Suvidha" under the Pradhan Mantri Bhartiya Janaushadhi Pariyojana. The Suvidha pads are made of high-quality materials and are manufactured using state-of-the-art technology. These pads are also available in various sizes and absorbencies to cater to the needs of different menstruators. One of the significant advantages of Suvidha pads is that they are much more affordable than branded sanitary pads, making them accessible to women and girls from low-income families. The pads are available at Jan Aushadhi Kendras (JAKs), retail stores operated by the government across the country. In addition to providing affordable sanitary pads, the PMBJP initiative also aims to create awareness about menstrual health and hygiene among women and girls. The government runs various awareness campaigns and educational programs to educate women and girls about menstrual health and hygiene and the importance of using safe and hygienic menstrual products.

The Ministry of Health and Family Welfare plays a crucial role in shaping the menstrual health policy in India. It is responsible for developing and implementing policies, programs, and regulations related to health and family welfare in the country, including menstrual health. One of their essential programs involves counselling young adolescent girls on puberty and menstrual health management through Rashtriya Kishor Swasthya Karyakram.

They also conduct educational sessions with students through Rashtriya Bal Swasthya Karyakram (National Child Health Program). It is a comprehensive health screening program launched by the Ministry of Health and Family Welfare in India to identify health and development issues among children, including those related to menstrual health.

As part of the RBSK program, trained health workers visit schools and Anganwadis to conduct health screenings for children and provide health education, including menstrual health education. The health workers educate children, especially girls, about menstrual health and hygiene and the importance of using safe and hygienic menstrual products.
They are also responsible for implementing the Adolescent Girls Anaemia Control Programme, Weekly Iron and Folic Acid Supplementation through the Integrated Child Development Services. It is important to note that the Ministry of Health and Family Welfare implements the Integrated Child Development Services program through the Ministry of Women and Child Development at the central level and through the state and local governments.

Most importantly, the Menstrual Hygiene Scheme, which is responsible for promotional activities of Menstrual Hygiene Management, distribution and supply of menstrual pads, disposal mechanism and training of ASHAs, is implemented by the Ministry of Health and Family Welfare.

The role of the ***Ministry of Women and Child Development*** in the menstrual health policy of India can be established through the Rajiv Gandhi Scheme for Empowerment of Adolescent Girls, Integrated Child Development Services, and Mahila Arthi Vikas Mahamandal. The Rajiv Gandhi Scheme for Empowerment promotes awareness about health, hygiene, nutrition, andmenstrual health among adolescent girls. Self-Help groups are set up by the Mahila ArthiVikas Mahamandal, which assists in the start of manufacturing menstrual pads.

The ***Ministry of Human Resource Development*** and the ***Ministry of Education*** work closely to develop and disseminate the menstrual health curriculum. They provide menstrual health education in the Kasturba Gandhi Balika Vidayalaya (KGBV), a government-run residential school for girls from economically and socially disadvantaged backgrounds in India. In addition to training nodal teachers to support girls with their menstrual health management, they also provide menstrual absorbent and WASH facilities at the school level. One of its most important roles is to set up the school Management Committee, provide gender-sensitive training, and train peers to promote menstrual hygiene practices.

Finally, the ***Ministry of Drinking Water and Sanitation*** funds the WASH facilities that directly support menstrual hygiene management. They also have a provision for disposal mechanisms like incinerators and provision for Information, Education and Communication.

1.3 Menstrual Health Scheme and Adolescent-Friendly Health Clinics: A Critical Analysis

The RMNCH+A strategy was launched in 2013. The predecessors of this strategy - RCH and RCH - II, were launched in 1997 and 2005, respectively. The strategies focused solely on Reproductive and child health. In 2014, Rashtriya Kishor Swasthya Karyakram -RKSK was put in motion to expand the narrow focus of RMNCH+A “from being limited to sexual and reproductive health." It now includes nutrition, injuries and violence, non-communicable diseases, mental health, and substance misuse. (National Health Mission, 2014). The Adolescent Reproductive Sexual Health Clinic was initiated in 2006 under RCH-II, and the clinic exclusively provided counselling on sexual and reproductive health issues. These ARSH clinics were rebranded as Adolescent Friendly Health Clinic Services under RKSK in 2014 to include the expanded objectives.

The target population is adolescents, whose estimated population as of 2021 is 251 million, out of which 119 million are girls. The glaring exclusion of menstrual health education can be noticed in the RMNCH+A program, while the MHS program and AFHCS under RKSK take a narrow approach to menstrual health. The current healthcare programs and the system ignore adolescent girls' menstrual health needs.

Rahatgaonkar. VG et al., (2018) highlight the need to introduce counselling sessions and menstrual health education activities for adolescent schoolgirls with parent and teacher participation.

Bachloo. T., Kumar. R et al., (2016) recommend incorporating menstrual health into the school curriculum. Somer. M., Caruso. BA et al., (2016) emphasize MHM's expansion to focus on menstrual care guidance. Phillips-Howard. P.A., Hennegan. J et al., (2018) express disappointment with the Guttmacher-Lancet Commission's reductive approach to menstruation and champion for inclusion of menstrual health education as a component of sexual and reproductive health and rights globally.

Bachloo. T., Kumar. R et al., (2016) find that 77.6% and 66.2% (n=358) of adolescent girls report pain in the abdomen and leg, respectively. Holambe. V.M., Thakur. N.A., Wadagale. AV (2013) states that 60.71% and 59.52% (n= 252) of college-going girls in Latur city experience pain in the abdomen and weakness as significant symptoms. Rahatgaonkar. VG et al., (2018) record that 66.9% (n=471) of adolescent girls experience painful menses. Smitha. MC, Narayana. MMR et al., (2016) observe that 72% (n=700) of adolescent girls experience one or the other symptoms during menstruation.

Holambe. V.M., Thakur. N.A., Wadagale. AV (2013) report that of college-going girls in Latur city, 56% of the college-going girls seek help from their mothers, while 8% visit a doctor and 6% seek help from a pharmacist. Rahatgaonkar. VG et al., (2018) record that 33%, 26.7%, and 25.7% of the girls with cycle irregularity, painful menses, and high menstrual bleeding, respectively, visited a doctor for their symptoms. Additionally, it also reports that approximately 19% of adolescent girls face debilitating effects from menstrual symptoms.

Tariq. N., Hashim. MJ et al., (2009) cite Sharma. P., Malhotra. C et al., (2008) found that 17% of adolescent girls in India reported missing school due to dysmenorrhea. Smitha. MC, Narayana. MMR et al., (2016) observe 60.2% of adolescent girls seek help. While 43.4% sought advice fromfamily members, 39.2% visited doctors, and 22.5% asked friends. On average, 22.1%-43% exhibited help-seeking behaviour for menstrual symptoms.

The current MHS programme disproportionately focuses on sanitary napkins and has inadequate training modules and reading information for ANMs and adolescents. In contrast, Adolescent Friendly Health Clinics do not cater to the menstrual health disorders observed in the adolescent population. Adolescents under the MHS are unequipped to understand menstrual symptoms, hindering their menstrual health-seeking behaviour. Among the reasons for not seeking treatment, a perception that their symptoms were normal or a lack of perception about the severity of symptoms were notable.

Medical Officers, Auxiliary nurse midwives, and counsellors at Primary Health Centers, Community Health Centers, District Hospitals, and Medical Colleges provide AFHC services. The ANMs and counsellors are trained to counsel and refer the adolescents to medical officers in menstrual disorders such as primary and secondary amenorrhea, primary dysmenorrhea, and PMS. However, other common menstrual disorders such as Abnormal Uterine Bleeding, Menorrhagia, Metrorrhagia, Hypermenorrhea, Secondary Dysmenorrhea, and Premenstrual Dysphoric Disorder are overlooked.

The undue emphasis on period products, the tunneled focus of MHS programs on hygiene, the exclusion of a comprehensive lifecycle approach to menstrual health education, and the lack of intervention in addressing the social taboo of menstruation have left society burdened with the inability to access menstrual health care needs.

2. Menstrual Health Data: A case of Zombie Statistics

Zombie statistics refer to incorrect or outdated statistics that continue to be cited and spread despite being proven inaccurate. For example, A widely cited statistic comes from a 2010 study by Nielsen Corp., a market research company. It says that 12 percent of India's 355 million menstruating women use sanitary napkins, and 88 percent use cloth. "No other absorbent is mentioned,"

Menstrual health management practices have become commodified, scalable, and packageable. The Times of India reports that only 12% of women in India use sanitary pads, while the rest use 'shocking' materials like rags. Allegedly, 23% of girls drop out of school when they begin menstruating. These statistics are baseless – we know nothing about how these studies were conducted. Nevertheless, they have enormous social power.

The India Human Development Survey (IHDS) and the National Family Health Survey (NFHS) are two large-scale survey programs that collect data on various aspects of health and development in India.

Data collected by the IHDS and NFHS provide valuable insights into the menstrual health and hygiene practices of women and girls in India, including information on the availability and use of menstrual products, beliefs and attitudes surrounding menstruation, and barriers to accessing menstrual health services. The data from these surveys can inform policies and programs to improve menstrual health and hygiene for women and girls in India.

For example, the NFHS provides data on the percentage of women and girls in India who use sanitary pads during menstruation, which can be used to track trends and inform efforts to increase access to menstrual products. The IHDS also provides data on attitudes and beliefs surrounding menstruation, which can be used to understand the cultural and social barriers to menstrual health and hygiene.

While the India Human Development Survey (IHDS) and the National Family Health Survey (NFHS) are valuable sources of information on menstrual health and hygiene practices in India, they have some limitations.

1. Sampling bias: IHDS and NFHS are based on samples of households and individuals, and the sample may not represent the entire population. This could result in sampling bias, limiting the findings' generalizability.
2. Self-reported data: Both IHDS and NFHS rely on self-reported data, which may be subject to biases and inaccuracies. For example, women may underreport the use of traditional or unhygienic menstrual products or may need to be made aware of all of the menstrual health and hygiene products available to them.
3. Cultural sensitivity: Menstruation is still a sensitive topic in many parts of India, and women may be hesitant to discuss it, even in the survey context. This can lead to underreporting or inaccuracies in the data.
4. Data availability: IHDS and NFHS collect data on various topics, and menstrual health and hygiene may only be a priority for some respondents. As a result, the data on menstrual health and hygiene may be less robust and comprehensive than data on other topics.

In order to improve menstrual health and hygiene for women and girls, tracking and monitoring menstrual health data is crucial. This information can help identify gaps in access to menstrual products, address cultural and social barriers to menstrual health and hygiene, monitor progress towards improving menstrual health and hygiene, and inform policy and program decisions related to menstrual health and hygiene.

Tracking and monitoring menstrual health data is critical for evidence-based decision-making regarding menstrual health and hygiene. Data on menstrual health and hygiene practices can inform policy and program decisions related to menstrual health and hygiene. This information can be used to design and implement programs based on the target population's specific needs and challenges. By tracking and monitoring menstrual health data, it is possible to ensure that policies and programs related to menstrual health and hygiene are evidence-based and effective.

3. Measuring Menstrual Health Outcomes

The State Indicator Framework can track and monitor menstrual health using proxy indicators. Proxy indicators are variables that are related to the outcome of interest but are easier to measure and are commonly used to estimate the value of an outcome when direct measurement is not feasible. In the context of menstrual health, proxy indicators can be used to estimate the prevalence of menstrual health problems, access to menstrual products, and attitudes and beliefs related to menstruation.

Below is table 1, which shows the Proxy Indicators for Menstrual Health derived from the state indicator framework and table 2, which highlights the menstrual health outcomes based on the priority menstrual health theme.

Table 1: State Indicator Framework - Proxy Indicators for Menstrual Health

Indicator Number	**State Indicator**	**How does it serve as a Proxy Indicator?**
1.4.1.2	The proportion of the population (Rural) living in households with access to Safe Sanitation (Toilets)	This can act as an indicator of the proportion of people who can safely and privately manage menstruation in rural areas.
1.4.2.2	The proportion of the population (Urban) living in households with access to Sanitation (Toilets)	This can act as an indicator of the proportion of people who can safely and privately manage menstruation in urban areas.
1.B.1	The proportion of budget earmarked under prop-poor gender-specific budgeting	Gender-specific budgeting includes menstrual health. This indicator may help us understand the budget allocated for menstruation under gender-specific budgeting.
4.1.7.3	Out of School ratio - secondary education	This indicator can show us how many students dropped out of school and the percentage of dropouts due to menstrual health-related reasons or on reaching menarche.

4.1.7.4	Out of School ratio - higher secondary education	This indicator can show how many students dropped out of school and the percentage of dropout due to menstrual health-related reasons or on reaching menarche.
4.A.1.1	The proportion of schools with access to (b) adapted infrastructure and Materials for students with disabilities; (d) functional single-sex basic sanitation facilities	(b) To understand if the needs of children with disabilities are met concerning menstrual health. (d) To understand access to toilets and sanitation at schools to enable safe and private management of menstruation.
6.4.3	Per Capita availability of water (M3/person)	This can act as an indicator for understanding the availability of water to manage menstruation.
6.A.1.1	Percentage of water and sanitation-related investments undertaken in the State in partnership with multilateral agencies and international private sector entities	This can act as an indicator of the proportion of investment directed at safe sanitation measures.
11.1.2.4	No of households with toilet facilities	This can act as an indicator to measure the number of households that can safely and privately manage menstruation.
12.5.2	Number of municipal corporations using waste segregation techniques	To understand if proper collection and disposal methods are employed for menstrual waste.
13.1.2.10	The number of hospitals/PHCs established.	This can act as an indicator of understanding access to help for menstrual health-related concerns. Additionally, the establishment of AFHCs is often within hospitals or PHCs.

14.1.2	Number of Sewage treatment plants installed along the coast and construction of toilets under the Swachh Bharat Mission	To understand if proper collection and disposal methods are employed for menstrual waste and to know the proportion of people who can safely and privately manage menstruation.

Table 2: The Measure of Menstrual Health Outcomes

Priority Menstrual Health Theme	**Measures in MHM**
Education	Enrollment or Dropout rates in both secondary and higher secondary education. (SIF - 4.1.7.3 and 4.1.7.4) Completing school till grade 12. Knowledge, attitudes and practices towards menstruation. (can be measured using tools MAQ-A, MAQ, BATM, AMAQ)
WASH	Access to safe sanitation (toilets) (SIF - 1.4.1.2, 1.4.2.2, 4.A.11, 6.43, 6.A.1.1., 11.1.2.4 and 14.1.2) Hand washing stations (SIF 4.8.1.1) Infrastructure for menstrual product disposal Menstrual Waste Management (SIF - 6.A.1.1, 12.5.2) Availability of female-friendly WASH facilities in school (SIF - 4.A.1.1) Availability of WASH facilities at home (SIF - 11.1.2.4)

Sexual and Reproductive Health	Adolescent pregnancies: Percentage of adolescents who are pregnant (statistics) Anaemia: Percentage of adolescents with Anemia (statistics) Percentage of pregnant adolescent girls who are anaemic (statistics) Contraception: Percentage of adolescents using modern family planning methods. Child Marriage: Number of child marriages (statistics)
Psychosocial Health	Stigma - There are no tools available to measure Menstrual stigma. However, tools to measure stigma associated with HIV, Mental Health can be used with sufficient psychometric evaluations. Additionally, the SBAM tool may be used. Well-being - Many well-being tools are However, tools like these to measure well-being need to be adapted to the context and sufficient psychometric evaluations. Psychological distress - Symptom checklist-90 revised can be used. However, tools like these to measure distressed psychological need to be adapted to the context and sufficient psychometric evaluations. MR-SSS tool may be used.
Gender	Gender norms: They can be measured through the following tools - Gender equitable Men scale, Global Early Adolescent Study, Gender Norms Scale and Vignettes Based Measure of Gender Equality) Child labour: Child labour Statistics

4. Menstrual Health Research and Advocacy: The Way Forward

Menstrual health is a critical aspect of women's health and well-being, yet it remains a neglected and stigmatized issue in terms of policy and research. Despite the significant impact of poor menstrual health on women's lives, there is a lack of attention, resources, and action towards addressing the problem. This is particularly concerning, given that menstrual health issues can affect women throughout their lives, from early adolescence to menopause.

Research and advocacy in menstrual health are urgently needed to address this critical gap. By conducting research, we can better understand the extent of the problem, the underlying causes, and the impact of poor menstrual health on women's lives. This information is critical for developing evidence-based policies and programs to improve menstrual health and reduce the burden of related health problems.

Advocacy is also a critical component of addressing menstrual health. By raising awareness and advocating for change, we can challenge the cultural and social taboos that surround menstruation and create an environment in which menstrual health is taken seriously and is seen as a critical aspect of women's health.

There are several critical areas of focus for menstrual health research and advocacy:

1. Understanding the extent of the problem: To address menstrual health, it is crucial to understand the extent of the problem and the impact of poor menstrual health on women's lives. This requires researching to gather data on the prevalence of menstrual health problems, attitudes and beliefs related to menstruation, and access to menstrual products and information.
2. Identifying the root causes of poor menstrual health: To address the problem, it is critical to identify the root causes. This requires a multi-disciplinary approach, drawing on public health, anthropology, sociology, and economics.

3. Addressing the barriers to menstrual health: Numerous barriers prevent women from accessing menstrual health information and products, including poverty, lack of access to water and sanitation infrastructure, cultural and social taboos, and limited access to education. Research and advocacy in these areas are critical for developing solutions to these barriers and improving women's menstrual health.

4. Promoting policies and programs that support menstrual health: To address menstrual health, it is essential to promote policies and programs that support menstrual health and reduce the burden of related health problems. This requires national, regional, and local advocacy to secure political commitment, resources, and action.
5. Engaging men and boys: Men and boys play a critical role in shaping attitudes and beliefs about menstruation. They have a critical role in advocating for change and promoting menstrual health. Research and advocacy aimed at engaging men and boys are critical for breaking down cultural and social taboos and for improving menstrual health for all women.

In conclusion, menstrual health is a critical aspect of women's health and well-being, and addressing it requires a multi-disciplinary approach that draws on research and advocacy. By researching and advocating for change, we can better understand the extent of the problem, identify the root causes, and promote policies and programs that support menstrual health and reduce the burden of related health problems. This is the way forward for addressing menstrual health and improving the lives of women and girls worldwide.

References

- ACOG Clinical (2015) Menstruation in Girls and Adolescents: Using the Menstrual Cycle as a Vital Sign. Retrieved from https://www.acog.org/clinical/clinical-guidance/committee-opinion/articles/2015/12/menstruation-in-girls-and-adolescents-using-the-menstrual-cycle-as-a- vital-sign.
- Bachloo. T., Kumar. R., Goyal. A., Singh. P., Yadav. S., Bharadwaj. A., & Mittal. A (2016). A study on perception and practice of menstruation among school going adolescent girls in district Ambala, Haryana, India, *International Journal of community medicine and public health*, 3(4), 931-937. Doi: 10.18203/2394-6040.ijcmph20160931
- Dixit. G.T., Jain. S et al., (2017). Adolescent Friendly Health Services: Where are we actually standing? *International Journal of community medicine and public health*, 4(3), 820-824. Doi: 10.18203/2394-6040.ijcmph20170765
- Jena. P., Andalib. S., Khuatia. S., & Mishra. A (2017). Spectrum of menstrual disorder and health consciousness of adolescent school going girls: a competitive study between two socio-economic group, *Indian journal of Obstetrics and Gynaecology Research*, 4(3), 235-239. Doi: 10.18231/2394-2754.2017.0053

- Menstrual Hygiene Management Needs in Schools, PLoS Med, 13(2), 1-9.

- Phillips-Howard. P.A., Hennegan. J et al., (2018). Inclusion of menstrual health in sexual and reproductive health and rights, The Lancet, vol. 2.

- Rahatgaonkar. V.G., Watankar. A.H., Oka. GA, & Kambte. VS (2018). Menstrual disorders and treatment seeking behaviour of adolescents, *International journal of community medicine and public health*, 5(10), 1-6. Doi: 10.18203/2394-6040.ijcmph20183886

- Sommer. M., Caruso. B.A et al., (2016). A time for global action: Addressing Girls'
- Tariq. N., Hashim. M. J., Jaffrey. T., Ijaz. S., Sami. S. A., Badar. S., & Ara. Z (2009). Impact and health care seeking behaviour of premenstrual symptoms and dysmenorrhea, *British journal of medical practitioners*, 2(4), 40-43.

- https://www.indiawaterportal.org/articles/nirmal-bharat-yatra-great-wash-yatra-travelling- carnival-over-6-weeks-spreading-awareness

Growth of the Online Food Delivery Market (A Case Study on Zomato)

Lalitha K* Kusuma P S**
Final year M.A. Economics, The National College, Basavangudi, Bangalore
Final year M.A. Economics, The National College, Basavangudi, Bangalore

Abstract

Economic development is essential for every country, which represents the per capita income of the nation. For the last 30 years there has been a considerable shift from the primary and secondary sector to the service sector. Now it is the largest sector of the economy. In India, substantial GDP is received from the service sector i.e., 53.89% as per 2021 statistics. India's trade in services has expanded overtime, and services account for the larger share in India's foreign direct investment (FDI). India is witnessing a tremendous growth of the restaurant industry after the leap of technological development in the restaurant industry. Online food delivery systems are giving several benefits to society as they provide fresh food at the doorstep to the customers, giving many payment options, cash back offers, and nobody can refuse the attractive discounts popping on their mobile app. The present Indian market is captured with various popular players like foodpanda, swiggy, zomato and faasos etc. This paper focuses on online food services provided by Zomato, employment opportunities and challenges faced by the application.

Keywords: *Service sector, online food delivery, mobile application, Zomato*

1. Introduction

The Services Sector constitutes a larger part of the Indian economy both in terms of employment potential and its contribution to national income. Online food ordering is gaining popularity with the existence of different players like Swiggy, Zomato, Faasos etc. Zomato is one such food delivering company bringing restaurants and customers together, which not only delivers food but also renders information about restaurants, menu and users review. Started on 26th January 2008 as *foodlet.in* in Delhi and renamed as foodiebay.com on 10th July 2008. On 8th January 2010 started providing online food delivery services along with previous information and again renamed itself Zomato. Currently operating in 24 countries and selected 10000+ cities serving 100 million+ customers. It was founded by Deepinder Goyal and Pankaj Chaddah.

2. Objectives

- To highlight the service sector in accelerating economic growth and development.
- A study with special reference to zomato contributing to development.
- To focus on Zomato providing employment opportunities and benefits.

3. Research Methodology

Primary data Questionnaire was used to collect primary data from respondents/customers using Zomato. The questions included in the questionnaire are close-ended offering multiple choices and rating questions also. Direct interview method was also used for delivery agents of Zomato. The study is also based on secondary data. The data has been extracted from various sources like research articles, publications, and authenticated websites.

3.1 Sources of Data

A questionnaire was designed and formulated to collect reviews from Zomato users in Bangalore. Also, certain reports and research papers were referred to for conducting/ compiling review of literature. Thus, the report contains a combination of data collected from primary as well as secondary sources.

• **Sample Design**: Convenience Sampling

• **Sample Size**: Data was collected from 36 respondents and 10 delivery agents of Zomato

3.2 Research Instrument

- The tools used are questionnaires and personal interviews.
- We attempted to build the questionnaire in such a way that it would function as a logical component of a well-thought-out tabulation plan, as well as to write it in simple language.
- The majority of the questions are multiple-choice.
- First, we made a rough copy of the questionnaire to ensure that the questions were arranged in a logical order.
- We also paid close attention to the fact that the questionnaire should include simple but clear instructions for the respondents so that they do not have any difficulty answering the questions.

4. Data Analysis

In this study, 10 delivery persons were interviewed by using a direct interview method. A list of questions was randomly asked and the working status and condition is discussed below.

Zomato delivery agents

Table 1: Income of full time and part time workers

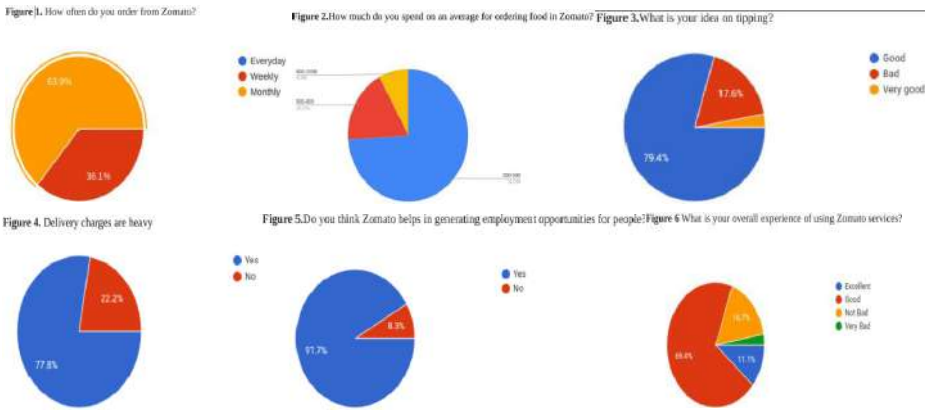
Category	Average Net Income (Rs.)	Minimum Income (Rs.)	Maximum Income (Rs.)
Full-Time	15500	3000	35500
Part-Time	14500	2800	33000

Table 2: Working Hours of Delivery Agents

Working hours	No of Riders in percent
0-8 hours/day	20%
8-12 hours/day	30%
12-15 hours/day	30%
Above 15 hours/day	20%
Total	**100%**



Different questionnaires were given to the consumers to find out the pros and cons that are experienced by them while using the online food ordering application process. The given responses were tabulated and analyzed below.



5. Findings

In our survey, we have found that most of the delivery agents which include college students take this job as part time earning around 30,000 monthly who work for 8 hours a day. As per the data, customers use zomato majorly on a monthly basis and most of them fall under the working age group. Around 74% of the respondents spend between Rs. 200-500 on ordering food on Zomato. The research data shows that most of the customers feel that the delivery

charges are heavy and they have come across certain unpleasant situations. Few respondents opined that the packaging is good and feel that Zomato helps in employment generation. As per the data, the overall experience of using Zomato services is satisfactory. From all the analysis and interpretation drawn we can say that Zomato is doing very well in the platforms of online food delivery market but still there are few developments that should be done in place of food quality, Logistics, proper food handling, pay scales, charges, customer services etc. The above mentioned improvements can be made by the Zomato app which enhances performance and in turn helps in developmental aspects of the economy.

6.Suggestions

- The Zomato application must be highly responsive, Timely delivery will increase the likeness toward the application since most complaints are related to it.
- Expand the functioning of the online delivery services in suburban and rural areas. People in rural areas take time to adapt to technology and thus online services like this will help them in many ways. People in rural areas can enroll and work part time which might help them financially.
- Women Participation: There are currently around 0.5% women delivery partners. Hence zomato can increase the participation of women in its delivery fleet.
- Food quality should be increased, freshness, taste and quality of the food should be the priority which increases customer satisfaction and also enhances the business.
- Unnecessary charges should be avoided as much as possible which makes the customers lose interest as they feel it is expensive.
- Delivery agents/employees can be brought under the organized section of the society as till now they come under the bracket of informal sector can also be called as “gig economy”.
- Social security benefits like only medical insurance are being provided and there is no stable salary package provided to them. Provision of these things can make the lives of delivery agents better. Better pay scale and working hours for the delivery partners can be modified. Allowances can be given the fuel and incentives can also be increased according to the distance.

7.Conclusion

With technology continuously growing, food delivery platforms have considered new business models in the food delivery market that are growing in popularity such as on demand delivery, restaurant and food discovery, cloud kitchen, full stack, and home cooked food models. This study has demonstrated how the food delivering app Zomato has gained immense popularity in the current food business. The study has also explored how it helps in employment generation and provides a convenient and easy way for customers. Hence there is a huge market and scope for online food delivery platforms, hence it is an important engine for the progress of the service sector and the economy.

References

1. Jay Kandampully, (2009), "Service Sector has major role in growth expert", Economic News, 20th Dec 2009.
2. Das, J. (2018). Consumer Perception Towards "Online Food Ordering and Delivery Services": An Empirical Study. Journal of Management (JOM), 5(5), 155–163.
3. https://www.zomato.com/blog/annual-report-19#:~:text=Today%2C%20Zomato%20is%20present%20in,active%20users%20on%20our%20platform.
4. Goyal, D. (2020). Zomato Mid COVID-19 Performance Report. In Zomato Pvt Ltd. Retrieved on January 10, 2021
5. Statistics Database. International Telecommunication Union. http://www.itu.int/ ITU-D/ict/statistics/index.html
6. https://static.pib.gov.in/WriteReadData/specificdocs/documents/2022/feb/doc20222241820 1.pdf
7. https://www.statista.com/statistics/271320/distribution-of-the-workforce-across-economic-sectors-in-india/
8. file:///home/chronos/uc558d9b55eb24f4dc1dea0cd3af68d02819020c7/MyFiles/Downloads/CaseStudyofZomato-JMRA.pdf

****

Multidimensional Outlook: A Paradigm shift in the Estimation of Poverty in India

Mrs. Jaya Gupta
Assistant Professor
Department of Economics
Jawaharlal Nehru Degree College, Etah, Uttar Pradesh
(Affiliated to Raja Mahendra Pratap Singh University, Aligarh)

Abstract

Measuring poverty is commonly defined as an unacceptable deprivation in the well-being of an individual. It is considered to be a challenging and complicated task because well-being is a multitude of both economic and non-economic dimensions. The conventional approach of estimating poverty based on income or consumption expenditure failed to capture many of the critical deprivations faced by poor people. As a result, in the 2000s, global economists started looking for a better approach regarding poverty estimations i.e., beyond income and focussing on deprivations of multiple attributes or freedom. This led to the development of the Multidimensional Poverty Index by UNDP with the help of OPHI in 2010. This new index is considered to be a blueprint for growth, prosperity, happiness, and development of the people which could be achieved by the global partnership. The main aim of MPI is to focus on each and every deprivation at the micro level and to lift the people out of that deprivation by an essential policy developmental tool for promoting more effective actions to reduce poverty.

Recent economic analysis shows that MPI through its key dimensions based on Health, Education, and Standard of Living along with multiple indicators has significant potential to target the poorest, keep pace with Sustainable Development Goals, and can help in designing policies that could directly benefit the deprived poor households. Between 2020-21 many countries have developed their own National MPI, and India being one of them as it published its first MPI baseline report in 2021. This paper attempts to highlight the unique feature and benefits of MPI, as it is highly flexible, and countries could design it per their needs and requirements through micro-level household surveys.

According to the Global MPI report of 2022, a historic change has happened in India because around 412 million people came out of poverty in 15 years between 2005-06 and 2019-21. Thus, this paper also attempts to focus on the fact that how micro-level economic policy measures adopted by the Indian government in recent years have worked towards the enhancement of quality of life and helped deprived people to come out from multidimensional poverty by focusing on both monetary and non-monetary deprivations. The study will focus on the well-being of the households of different states based on NFHS-4 (2014-15) and NHFS - 5(2019-20.)prior to and after the implementation of schemes like Jal Jeevan Mission (JJM), Pradhan Mantri Sahaj Bijli Har Ghar Yojana (Saubhagya), Pradhan Mantri Ujjwala Yojana (PMUY), Pradhan Mantri Jan Dhan Yojana (PMJDY), POSHAN Abhiyaan and Samagra Shiksha, Pradhan Mantri Awas Yojana (PMAY), Swachh Bharat Mission (SBM), etc to name few. The main aim of this paradigm shift in the estimation of poverty is to meet the targets of the UNDP Sustainable Development Goals as a universal call for ending poverty and ensuring peace and security for all by leaving no one behind by the year 2030.

***Keywords**: Multidimensional Poverty, reforms, Sustainable Development Goals, households*

An Analysis of Sectoral Transition in the Post-Reform Period in India

Dr. Mohammed Ashfaq
AhamedAssistant Professor
Department of Economics
MES College of Arts, Commerce and
ScienceMalleswaram, Bengaluru – 560003
Email ID: ashfaq786.2007@gmail.com

Abstract

Post-reform

This article tries to explore the changes across socio-economic sectors after the new economic reforms were implemented in India. It is found that the share of workers across primary sectors has declined from 66.8 % in 1991 to that of 41.19% in 2021. On the contrary, the share of workers across secondary and tertiary sectors have registered an increase. A similar trend is observed in the case of sectoral contribution to GDP. There is change in the cropping pattern from food-grain production to commercial crops production. The overall per-capita income of India has witnessed gradual transition from Rs. 6835 in 1991-92 to 1.5 lakhs in 2021. Analysis of social sectors with specific reference to education reveals that the literacy rate has seen a positive transition across regions and gender.

India is witnessing structural transition due to various sectoral flagship programs, reforms and policies being implemented by the Government. Monetary policies, fiscal policies, trade policies, industrial policies etc have further transformed India into a Digital economy, thereby registering a GDP of 3.5 trillion dollars.

Keywords: *Occupational transition, Commercialization of agriculture, Digital India*

An Analysis of Sectoral Transition in the Post-Reform Period in India

Dr. Mohammed Ashfaq
AhamedAssistant Professor
Department of Economics
MES College of Arts, Commerce and
ScienceMalleswaram, Bengaluru – 560003
Email ID: ashfaq786.2007@gmail.com

Abstract

Post-reform

This article tries to explore the changes across socio-economic sectors after the new economic reforms were implemented in India. It is found that the share of workers across primary sectors has declined from 66.8 % in 1991 to that of 41.19% in 2021. On the contrary, the share of workers across secondary and tertiary sectors have registered an increase. A similar trend is observed in the case of sectoral contribution to GDP. There is change in the cropping pattern from food-grain production to commercial crops production. The overall per-capita income of India has witnessed gradual transition from Rs. 6835 in 1991-92 to 1.5 lakhs in 2021. Analysis of social sectors with specific reference to education reveals that the literacy rate has seen a positive transition across regions and gender.

India is witnessing structural transition due to various sectoral flagship programs, reforms and policies being implemented by the Government. Monetary policies, fiscal policies, trade policies, industrial policies etc have further transformed India into a Digital economy, thereby registering a GDP of 3.5 trillion dollars.

Keywords: *Occupational transition, Commercialization of agriculture, Digital India*

Decomposition Analysis of Carbon Emissions from Energy Consumption in India using Logarithmic Mean Divisia Index, Mean Rate of Change Index and Shapley Value

Satrajit Dutta
Assistant Professor,
Department of Economics
Gorubathan Government College,
PO- Fagu, Dt.-Kalimpong,
West Bengal- 735231, India
jit2458@gmail.com

Soumyananda Dinda
Professor
Department of Economics
University of Burdwan,
Dt.-Burdwan
West Bengal – 713104, India
sdinda@eco.buruniv.ac.in

Background – IPAT model is related to the level of environmental Impact (I) from anthropogenic activities with Population Size (P), Affluence (A), i.e., the level of income and technological development (T). Kaya Identity is generated from the IPAT model and is more specific about total level of CO_2 emissions and it expresses CO_2 emissions as the product of four factors: Population (P), GDP per capita (Y/P), energy intensity per unit of GDP (EI) and carbon intensity (CI) and can be extended with energy structure. India has taken different measures to curtail emission with expansion of renewable energy especially solar and wind power for energy structure shift and reduction in energy intensity which is considered as reverse of energy efficiency.

Purpose – To compare and analyze results of methods with no residual for decomposition of emission from fossil fuel burning which has been a major contributor to the global emission in India for the study period 1990 – 2020.

Methodology – Logarithmic Mean Divisia Index (LMDI) additive and multiplicative methods are used to decompose CO_2 emissions as per the Kaya factors. The results of the LMDI methods are compared with other methods like Shapley Value decomposition and Mean Rate of Change Index (MRCI).

Result – The primary result from the LMDI additive result shows that the GDP per capita and population are positive factors for emission and energy intensity is the prime negative factor for emission.

Digital banking awareness among the higher secondary students

Anthony Keneth

Abstract

In the era of rapid digitalization, there have been changes in the mode of financial transactions. The use of digital banking has witnessed a major bloom since the demonetization policy and the pandemic aggravating us to a cashless economy in India. It also resulted in the emergence of various platforms for UPI payments from google pay and even social media platforms like WhatsApp introducing payment modes through WhatsApp pay, enabling transactions with ease. Banking done through these digital platforms exclude the use of various paperwork like cheques, Demand draft etc., and are known as digital banking. However, in a developing economy like India, most of the population should be aware of digital banking. More importantly, is the younger population aware of digital banking? Since the youth population contributes to the future economy and the GDP. Hence, the present study explores the awareness of digital banking among higher secondary students.

Keywords: *Digitalization, Finance, Banking, UPI, Pandemic*

Trends of Digital Economy in India –A Road Map to Digital Revolution

Divya R Reddy
St. Joseph's University, Bengaluru

Meghna Singh
St. Joseph's University, Bengaluru

Abstract

All across the globe, the digitalization of economic activities / proceedings is bringing about a financial revolution due to the rapidly increasing pace of transformation from traditional economy to internet economy. The International Monetary Fund (IMF) has described the term 'digital economy' as all the activities involved in the utilization of digital data and processes as a part of the digital economy; mainly dealing with the digital techniques in the production of goods and services and their supply. Furthermore, as per the data released by the Reserve Bank of India (RBI) in its latest bulletin, India's digital economy has grown 2.4 times faster than the economy between 2014 and 2019 itself.

This paper sheds light on how the Indian Economy, in particular, has developed over the last 75 years and study the potential advancement of India's economy by the time the country attains 100 years of independence. However, the main aim of this research is the impact of digital economy in India, in the light of the above-mentioned phases of development. The purpose of this study is to understand the trends of digital economy in India in the past and the near future. Understanding the future prospects in the country, the opportunities, and the challenges this would lead to, due to digitalization of the economy is the subject matter of this paper. Hence establishing the prominent role of digital economy in India.

Keywords: *Advancement, Digitalization, Economic Development, Transformation,Transparency.*

Evaluation of Female Entrepreneurial Participation and Performance: A Study of Jharkhand's Informal Manufacturing Sector

Annesha Biswas
PhD Research Scholar
Department of Economics
CHRIST (Deemed to be University)
Bangalore -560029

Mahesh E
Associate Professor
Department of Economics
CHRIST (Deemed to be University)
Bangalore -560029

Abstract

The existence of a large informal economy is often categorized by the presence of enormous number of non-entrepreneurial firms in most developing countries. Since the 1990s, the majority of household enterprises and workers in India are based in the informal sector. The informal sector enterprises in India constitute about 75 percent of the manufacturing employment and most of them are family firms or Own Account Enterprises (NCEUS 2007, Raj and Sen 2016).

As per the National Sample survey organization's (NSSO) and Sen's (2016) classification of enterprises, informal manufacturing enterprises in India are classified into three categories of Pure Household Enterprises (PHE) or Own Account enterprises (OAE), Mixed household enterprises (MHE), and Non-Household enterprises (NHE) (Raj and Sen 2016). The transition of the enterprises from a pure household firm to a non-household firm could be a route out of poverty, and an employment opportunity for a larger proportion of unskilled women workers in semi-urban and rural areas.

However, Female entrepreneurial firms tend to face additional challenges as compared to male-headed enterprises in the transition of their household firms to the non-household firm. Some of the constraints include lesser access to financial availability, infrastructural and human resource capital, and geographical and demographic factors. Therefore, the study tends to analyze different characteristics and constraints of Female Entrepreneurial firms and their effect on the firm's performance in terms of size and Productivity. The present study uses NSSO's 73rd round Unincorporated Non-agricultural enterprise data (excluding construction), a cross-sectional unit level data to analyze the several characteristics of the female entrepreneurial firms and the

determinants or constraints of their firm's transition from a household level to a non-household level enterprise in the state of Jharkhand.

Keywords: *Entrepreneurship, Female entrepreneurs, Informal economy, Gender*

References:

- Ira N. Gang, Rajesh Raj Natarajan & Kunal Sen (2022) Finance, Gender, and Entrepreneurship: India's Informal Sector Firms, The Journal of Development Studies, 58:7, 1383-1402, DOI: 10.1080/00220388.2022.2061855

- National Commission for Enterprises in the Unorganised Sector (NCEUS) (2007) Conditions of work and promotion of livelihood in the unorganized sector. Report submitted to the Government of India, New Delhi

- Raj, R.S., Sen, K. Moving out of the bottom of the economy? Constraints to firm transition in the Indian informal manufacturing sector. *IZA J Labor Develop* 5, 10 (2016). https://doi.org/10.1186/s40175-016-0056-8

- Raj S.N., Rajesh, and Kunal Sen, 'Firms in the Indian Informal Manufacturing Sector: Characteristics and Evolution over Time', *Out of the Shadows? The Informal Sector in Post-reform India* (Delhi, 2016; online edn, Oxford Academic, 23 June 2016), https://doi.org/10.1093/acprof:oso/9780199460847.003.0005, accessed 22 Dec. 2022.

India's Digital Transformation and Economic Performance: Evidence from an Econometric Analysis

Nikhat Khalid

Analyst

Bharti Institute of Public Policy, Indian School of Business

nikhat6995@gmail.com

Abstract

The digital revolution has brought about a paradigm change in the manner in which economic agents interact with one another and has transformed the macroenvironment of India, impacting every sector included in the economy. It has led to a rise in productivity, production, employment, and standard of living. As digitalization to a large extent depends on diffusion amongst the population, it forms a critical aspect of public policy. The study uses empirical data of variables such as Gross Domestic Product per capita, Mobile Connections, Internet Connections, the Global Competitiveness Index, the Index of Digital Life, the Digital Adoption Index, and the Network Readiness Index. In this context, the present study undertakes an econometric analysis through the panel data approach and causality analysis to elucidate the factors among digitalization that have been impacting economic growth in India, and the degree to which these factors have had an impact on economic growth in India. The study can have significant policy implications in terms of the areas of digital variables that are crucial, and need emphasis, which if addressed, can uplift the growth of Indian economy.

Keywords: *Digitalization, Economic Growth, Indian Economy, Panel Data, Granger Causality.*

About the College

MCC is a leading college in India which, since 1948, is working towards the cause of "Empowering through Education". Owned and managed by the Carmelite Sisters of St.Teresa (CSST), the college offers 65 undergraduate and 21 post graduate programmes and doctoral programmes in 6 subjects. MCC has successfully completed 4 rounds of accreditation and was awarded "A+" grade in the last round.

About the Department

Established in 1948, the Department of Economics is at the threshold of its Platinum Jubilee along with the post-independent Economy and the Institution. The prime objective of the department is to give a sound foundation in economic theory and applications, which would enable the students to apply their knowledge to decode real world economic problems. The Department aims to facilitate and equip students to be future agents of change in spaces of research, policy making, analytics, advisory, consultancy services and much more.

About the Conference

Post independent economy has been on a remarkable development journey, transition from low income nation to an emerging nation is a home for 1.3 billion people and nearly a 3$ trillion economy. We are marking *Amrit Mahotsav* and have embarked into *Amrit Kaal*; the economy has seen transformation from 'Garibhi Hatao' to 'Digital India' today. The economy has encrypted Nationalisation to Disinvestment, witnessed Green and White revolutions, experienced the structural change of 1990s, along with Global Crises, yet has registered resilient growth.

India becomes the world's fifth largest economy according to IMF World Economic Outllook with a GDP of 2.94 trillion dollars. The current year Budget targets economy's GDP to a 5 trillion economy by 2024 relying through big push on saving, investment and exports.

In this background, the conference aims to take a relook at the economy's progress in the last seven and a half decades and would focus on the prospective path for the ensuing two and a half decades, hitting at how the economy would progress at the threshold of India at 100.

We invite original research papers, case studies and scholarly articles which have high quality work that focuses on research, development and application in the aforesaid area.