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- Research Articles
- Book Reviews/Review Articles
- Research Notes/Commentaries
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Referees

OEJ expresses sincere gratitude to the following experts for their comments, suggestions and recommendations on draft papers.

Annavajhula J C Bose, Shri Ram College of Commerce, Delhi.

Mitali Chinara, Utkal University, Bhubaneswar.

Keshab Das, Institute for Human Development, New Delhi.

Udaya Shankar Mishra, International Institute of Population Sciences, Mumbai.

Sebastian Morris, Goa Institute of Management, Goa.

Tara Nair, Work Fair and Free Foundation, Bengaluru.

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Sudipta Sarangi, Virginia Tech University, USA.

R. Vijay, University of Hyderabad, Hyderabad.

Editorial

In keeping with our perseverance to improve the scholastic quality and wider acceptability and readership of the *Odisha Economic Journal (OEJ)* within and beyond India, important changes have been made to the Editorial Board recently. These include inducting distinguished scholars from abroad and India as members of the Editorial Board. We are grateful that these eminent scholars have accepted our invitation and, through this Editorial, we place on record our earnest gratitude to them. These changes have enhanced our hope to enrich *OEJ's* knowledge contribution to students, teachers and concerned readers across space and created boundaries. We are also glad to mention that Orissa Economics Association has now been renamed as Odisha Economic Association.

This issue opens with the slightly revised text of the Presidential Address (by Keshab Das) at the 55th Annual Conference of the Orissa Economic Association (OEA) held at the Kalahandi University, Bhawanipatna. As a treatise on issues in rural industrialisation in the Indian contextthis paper takes a 'long view' of policy and ideation around the theme. As the farm sector has been unable to emerge as a source of rural employment and income the non-farm sector, especially, rural industries hold hope. However, as the paper argues, there has been systemic policy apathy towards both recognising and addressing various challenges facing rural industries those include craft and artisan-based enterprises. Whether it is access to finance, basic business infrastructure or market linkages there is an imminent need for institutional innovations to ensure holistic interventions to promote both the demand and supply side stimuli. The paper discusses potential areas of intervention for, especially, the micro and home-based enterprises which could build competitiveness and participate in higher echelons of market.

Concerned with the rising burden of diseases including costs of treatment, the paper (by Ravinder Jha) deals with the specific case of vision impairment in India and other economies to enquire into theeconomic burden and costs incurred on private hospitalisation in India. Both the direct and indirect economic cost burden has risen particularly if the treatment is undertaken in private hospitals. This is exasperated by the lack of insurance and free public health facilities leading to higher out-of-pocket expenditure. The paper makes a case for enhanced public expenditure in the health sector.

Attempting a critical look at methodological approaches to field evidence-based research the paper (by Soumen Ray and Balakrushna Padhi) takes up the case of practical challenges faced by researchers during the COVID-19 pandemic. This analysis underscores choice and application of methodological and ethical issues, including the reach of technology, accessibility of participants, involvement, and

response rates. Towards engaging in policy-oriented primary data collection care needs to be exercised in ascertaining what and how dataneeds to be collected.

The article (by Shreyasee Kaushik and T Varun Reddy) presents an analysis comparing productivity trends in paddy between undivided Andhra Pradesh, Telanganaand present-day Andhra Pradesh.Towards explicating the dynamics of yield differences across time and space, the paper considers agro-climatic zones of both the states to assess the extent of intra-state variation in paddy productivity. Climatic factors have, mostly, been responsible for a steady growth in yield rates in both present-day Andhra Pradesh and Telangana.

The article (by Manisha Gupta and Minati Sahoo) delves into a rather less explored issue in how mining affects food security. This study takes up the case of bauxite mining in one of the economically most disadvantaged Koraput district in Odisha. This paper had received the Professor Baidyanath Misra Best Paper Award at the 55th Annual Conference of the OEA. The detailed analysis in this enquiry points to the fact that a large share of households in the mining region has been highly food insecure in the form of dietary diversity as well as food accessibility.

Focusing on Tribal Women Entrepreneurs as contributing to Local Development the paper (by Sonal Jain and M. K. Singh) explores the challenges facing and potential of such an emerging reality in the depressed natural resource based regions as in rural Ranchi district. The paper takes a closer look into factors affecting tribal women entrepreneurship and their nuanced nature. It also makes a case for 'tailored' policy measures responsive to business promotion with sustainable local environment.

Another paper (by Madhusudan Nag, Benoy Peter and Divya Varma) deals with caste dynamics in distress-driven labour migration from Odisha's Ganjam district, initially to Surat but of late to Kerala.It exposits the manner in which caste and migration influence mutually. Caste of the migrant worker has a bearing on all aspects her/his work and lives. The paper exemplifies how the informal yet referral-based recruitment system reproduces caste identities in urban India.

The detailed research note on the much-debated premature deindustrialisation in the Indian context (by Jayanta Kumar Mallik) points to the weakness of inward-looking import restriction (through tariff hike) approach as it would stymie the Make in India Initiative. The paper urges policy steps to boost productivity of the manufacturing sector both in domestic- and export markets. Investment in education and R&D holds the key to dynamic and competitive industrialisation, the paper observes.

This issue carries two book reviews as well.

Keshab Das
Editor-in-Chief

Article

Reimagining Rural Industrialisation in India

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Keshab Das

Abstract

In generating jobs and income in rural areas and small towns in India while the role of the rural non-farm sector (specifically, rural industries) has often been underscored it has continued to remain in a dismal state, bereft of proactive and responsive policy attention reflecting little understanding of the various challenges rural enterprises face. Substandard commodities, scant innovation in products and processes, weak or no links with higher echelons of markets and inadequate business infrastructure (power, transportation and storage/warehousing, in particular) have denuded the dynamism of rural industrialisation in India. A constellation of factors – technological and institutional – combined with a policy framework obsessed with modern and urban industrialisation path has perpetuated low-end industrialisation in rural India. In this article, taking a long view, an attempt has been made to present a critique of perspectives, policy and praxis of rural industrialisation over in postIndependence India. The discussion exposits potential areas of intervention whereby the rural enterprises, especially the micro and home-based, could find an opportunity to build competitiveness to engage with distinct layers of market.

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This is a slightly revised text of the Presidential Address delivered at the 55th Annual Conference of the Orissa Economics Association organised by and held at Kalahandi University, Bhawanipatna, Odisha, February 11-12, 2023.

Introduction

It has been a huge honour and privilege to deliver the Presidential Address at the 55th Annual Conference of the Orissa Economics Association (OEA). Before I begin, I wish to offer my heartfelt respect to three remarkable Odia scholars whose work, mentoring, kindness and vision have deeply influenced my academic career. They are: Baidyanath Misra, Sakti Padhi and Ashok Babu. I can only wish my lecture to live up to their standards and concerns. I express my earnest gratitude to all members and office bearers of the OEA for the great opportunity to serve the organisation with their hearty, wise and collegial support.

Transformation of rural economies into dynamic spaces of sustainable productive activities has been possible in several developing nations globally through intense community engagement, assessment of local skills and resources, and building effective and relevant networks with the state at local, subnational and national levels. Continued efforts in this direction are recognised essential in preventing rural regions descending into deprivation and subsequent distress migration to unwelcome urban areas. In generating jobs and income in rural areas and small towns in India while the role of the rural non-farm sector (specifically, rural industries) has often been underscored it has continued to remain in a dismal state, bereft of proactive and responsive policy attention reflecting little understanding of the various challenges rural enterprises face. Substandard commodities, scant innovation in products and processes, weak or no links with higher echelons of markets and inadequate business infrastructure (power, transportation and storage/warehousing, in particular) have denuded the dynamism of rural industrialisation in India. A constellation of factors – technological and institutional – combined with a policy framework obsessed with large, modern and urban industrialisation path has perpetuated the low-end industrialisation in rural India.

Taking a long view, somewhat concisely though, this paper attempts to provide a critique of policy on rural industrialisation over the last 75 years or so and discuss potential areas of intervention whereby the rural enterprises, especially the micro and home-based, could find an opportunity to build competitiveness to engage with diverse and distinct layers of market. The paper engages with strategies that articulate rural industrialization as

a value-adding economic activity and not merely a subsistence livelihood option often mediated through piecemeal welfare measures. Augmenting skills, innovative ethos, access to layers of market and business infrastructure would form core of the intervention, where state shall have a significant role to play to ensure greater participation by the rural population. In order to enhance the factor productivity, upgrading process standards, diversifying products, etc., particularly for rural microenterprises, new strategies are called for. There exist several effective policy instruments across developing economies in Asian, Latin American and African economies which share similar concerns, as in India, of promoting, broad-basing and upgrading of rural enterprises. An attempt is made in this paper to critique Indian policy approaches, wherever feasible, in a comparative international perspective to rural industrialisation and opportunities for moving up.

Growing Potential of the Rural Non-Farm Economy

With the farm sector constrained to reach a target of 4 per cent annual growth in income, landless households accounting for a staggering 38 per cent of all rural households and the marginal and small farmers accounting for 85 per cent of cultivators the burden of rural income and employment rests on the so-called non-farm sector. A dynamic rural non-farm sector, as Mellor (1976) argued, not only contributes to raising income and employment opportunities in the rural areas but helps modernise the farm sector through direct and indirect manner of value addition. Further, in articulating intimate connections between the farm and non-farm activities, Hazell and Haggblade (1991: 515) observe that, "A substantial share of rural manufacturing involves agro-processing and the production, repair and supply of farm inputs. Moreover, the dominant sectors in the rural non-farm economy consist of trade, and service establishments that cater largely to rural consumer demand…The prospects for growth in the non-farm economy will, therefore, hinge on future agricultural performance…(W)hen agricultural growth id focused on small and medium-sized farms, the resulting demand patterns typically favour products produced by small, labour-intensive enterprises whose growth can contribute to increased employment opportunities for the poor". In his detailed study on the rural non-farm sector Vaidyanathan (1986) pointed out the preponderance of the residual nature of employment in the sector.

This could be attributed to the sustained neglect of agricultural infrastructure especially irrigation and also a variety of farm technology. Several studies also concurred with these concerns and discussed the low level of wages as a consequence of low factor productivity in the non-farm sector. Lack of attention to building a range of physical infrastructure, especially, transportation and electrification, adversely affected the growth of both the farm and non-farm sectors. Rural industries were particularly affected as little support was available to them towards imparting skills, bringing about technological upgradation, accessing newer markets and procuring raw materials and inputs at a reasonable price.

The employment potential of the non-farm sector has grown over the decades, nevertheless. As the sectoral share of rural employment suggests (Table 1), for both men and women the job opportunities in non-farm sector have been on the rise. While the manufacturing sector employment share has risen slowly, it is the construction and certain services which have emerged as the important sources of rural non-farm employment. That for men, especially, the shift away from agriculture has been pronounced, the share has declined from about 81 per cent to 54 per cent between 1977-78 and 2020-21. This unmistakable rise in importance of the non-farm sector as a source of jobs also enhances the responsibility of policy to ensure that most such activities (including manufacturing) are rendered more productive, competitive and remunerative.

Table 1: Distribution (%) of Usually Employed (PS+SS) by Broad Industry Division (All-India Rural): 1977-2021

Year	Agriculture	Manufac-turing	Electricity and Water	Construc-tion	Industry*	Trade, hotels & restaurants	Transport, storage, com-munications	Other Services**	Tertiary	Rural nonfarm	Total
Males											
1977-78	80.6	6.4	0.2	1.7	8.8	4.0	1.2	5.3	10.5	19.4	100.0
1983	77.5	7.0	0.2	2.2	100.0	4.4	1.7	6.1	12.2	22.5	100.0
1987-88	74.5	7.4	0.3	3.7	12.1	5.1	2.0	6.2	13.3	25.5	100.0
1993-94	71.4	7.0	0.3	3.2	25.5	5.5	2.2	7.0	14.7	25.9	100.0
1999-00	71.4	7.3	0.2	4.5	128.6	6.8	3.2	6.1	16.1	28.6	100.0
2004-05	66.5	7.9	0.2	6.8	15.5	8.3	3.8	5.9	18.0	33.5	100.0

2011-12	59.7	8.5	0.3	13.1	21.9	8.5	4.1	5.9	18.5	40.3	100.0
2017-18	55.2	8.3	0.4	14.5	23.2	9.5	4.9	7.4	21.8	44.8	100.0
2018-19	53.5	7.7	0.3	15.5	23.5	10.1	5.2	7.8	23.1	46.5	100.0
2019-20	55.8	7.5	0.4	15.1	22.8	9.6	5.1	6.5	21.2	44.2	100.0
2020-21	54.2	8.0	0.4	15.6	24.0	10.0	4.9	6.8	21.7	45.8	100.0
Females											
1977-78	88.1	5.9	-	0.6	6.7	2.0	0.1	3.0	5.1	11.9	100.0
1983	87.5	6.4	-	0.7	7.4	1.9	0.1	2.8	4.8	12.5	100.0
1987-88	84.7	6.9	-	2.7	10.0	2.1	0.1	3.0	5.2	15.3	100.0
1993-94	86.2	7.0	-	0.9	8.3	2.1	0.1	3.4	5.6	13.8	100.0
1999-00	85.4	7.6	-	1.1	2.0	2.0	0.1	3.7	5.8	14.6	100.0
2004-05	83.3	8.4	-	1.5	9.9	2.5	0.2	3.9	6.6	16.7	100.0
2011-12	75.8	9.7	-	6.4	16.1	2.9	0.1	5.1	8.1	24.2	100.0
2017-18	73.7	8.2	-	5.2	13.4	3.9	0.2	8.7	12.8	26.3	100.0
2018-19	71.9	9.0	-	5.7	14.7	4.3	0.1	8.9	13.3	28.1	100.0
2019-20	76.5	7.2	-	5.4	12.6	3.6	0.1	7.1	10.8	23.5	100.0
2020-21	76.2	7.3	-	5.7	13.0	3.4	0.2	7.2	10.8	23.8	100.0

Source: Up to 2011-12, relevant Employment Unemployment Surveys, NSSO and for subsequent years, PLFS data. (This data has been kindly shared by Balakrushna Padhi, BITS, Pilani.)

Notes: * Includes Mining and quarrying
** Includes Finance, real estates, Public administration and Other services
PS = Principal Status; SS = Subsidiary Status

Rural Industrialisation around the Time of Independence

The deindustrialisation debate that had its roots in the early nationalist writings of Dadabhai Naoroji, Pamela Dutt, Ramesh Dutt and several others including M.K. Gandhi had pointed to the decline and/or decimation of craft/artisan based enterprises especially in rural India with the advent of modern, mechanised industries and also imports from the United Kingdom during and till the end of the colonial regime. The intense debate during the late 1960s (especially, that triggered by the essay of Morris D. Morris in 1968 in the Indian Economic and Social History Review) regarding the fall of rural industries (mainly, craft and traditional skill based) in the face of lack of state support, absence of product and process innovation and markets remains relevant from a policy perspective even today. The argument that the decline in manufacturing employment hardly had shrunk during the Census decades spanning 1881 to 1931 (Thorner and Thorner, 1962) was not tenable as there were other non-Census sources establishing that the rural and traditional enterprises and employment therein did contract

notably around the same period. Notwithstanding the regional variations in the fate of traditional and artisanal industries and an overemphasis on 'male' workers and the textile sector in most these analyses, as Roy (1999: 17) points out, several other handicrafts based on, for instance, silk, wool, brassware, wood, ceramics, pottery, food and rice-processing witnessed a decline in male workers during 1911-31. Albeit rural industrial/ manufacturing employment data for the period 1931 to 1951 are not readily available at least two studies suggest that manufacturing (rural and urban) employment had declined marginally during the period (Thorner, 1962: 1157; Mills and Becker, 1983: 6).

In any case, promoting rural industries remained an explicit objective of economic development around the time India achieved independence. In December 1934 Gandhi had set up the All India Village Industries Association at his Ashram in Wardha, with J.C. Kumarappa as its lead coordinator. This, subsequently, turned into the present Mahatma Gandhi Institute for Rural industrialisation (MGIRI), a central government organisation. The National Planning Committee (NPC), chaired by Jawaharlal Nehru, through its Sub-Committee on Village and Cottage Industries had recognised the significance of this sector in addressing issues of unemployment, underemployment, productive use of local resources and skill, and had argued for a range of state provisions. It held that "the State should also encourage and foster such cottage and rural industries as can, with State assistance, in the form of provision of finance, improved processes and equipment, research, marketing and other facilities, be in a position to produce goods and services at a cost and return comparable to those of other competing methods of production" (NPC, 1938: 235). Among others, the Gandhian Plan in 1944 and the Congress Agrarian Reforms Committee had proffered several policy suggestions to develop the khadi and village industries. Similarly, Article 43 concerning the Directive Principles of State Policy records that the state shall endeavour to promote cottage industries would be promoted in rural areas either on a proprietary or cooperative. The Industrial Policy Resolution (IPR) 1948 accorded primacy to the cottage and small scale industries. It observed that "These industries are particularly suited for the better utilisation of local resources and for the achievement of local self-sufficiency in respect of certain types of essential consumer goods like food, cloth and agricultural implements. The healthy expansion of cottage and small-scale industries depends upon a number of factors like the provision of raw materials, cheap power, technical advice, organised

marketing of their produce…" These industries were also seen as sources of large scale employment, acting as a supportive or complementary sector for the large enterprises, containing inflationary tendencies and catering to the huge demand for basic consumer goods locally. Even the First Five Year Plan (1951-56) and IPR 1956 continued to emphasize the significant role state would play in both protecting and promoting rural enterprises. The IPR 1956 went on to state "…whenever necessary, the aim of the State policy will be to ensure that the decentralised sector acquires sufficient vitality to be self-supporting and its development is integrated with that of large scale industry. The State will, therefore, concentrate on measures designed to improve the competitive strength of the small-scale producer. For this it is essential that the technique of production should be constantly improved and modernised, the pace of transformation being regulated so as to avoid, as far as possible, technological unemployment. Lack of technical and financial assistance, of suitable working accommodation and inadequacy of facilities for repair and maintenance are among the serious handicaps." It also envisaged a growing role for rural industries that would be facilitated by establishing industrial estates, community workshops and ensuring constant upgradation of techniques of production to enhance competitiveness of the rural small scale industry as compared their large counterparts.

However, the equivocality over conceptualising 'rural industrialisation' remained during these early years of planned development. While the NPC clubbed cottage and small scale industries the First Five Year Plan (1951-56) distinguished between the cottage (as traditional artisanal or manual activities typically home-based) and small enterprises (as modern, mechanised production involving hired workers). Moreover, the IPR 1956 came up with the cottage, village and small scale sector (only to separate it from the large scale sector) and suggested policies to support small producers. The Second Five Year Plan (1956-61) also went by the IPR 1956 conceptualisation. These early years of transition from an entrenched colonial regime that hardly cared for the rural industries to a progression (and eventuality) of self-rule that was seriously caught in the conundrum of what is described as 'walking on two legs' – a reference to Gandhi-Kumarappa vision of traditionally rooted village enterprises and the Nehru-Singer prescription of modern manufacturing within the import-substitution industrialisation framework. The lack of precise notion of how to conceptualise rural industries has remained even till date. As Chadha (2003:

40) observes, "there is no simple way of identifying 'rural industry' in our country. While the location of industry in rural areas is important for its general development, the relevance of employment linkages that rural people may have with units located in the semi-urban and urban locales, cannot be trivialized or dismissed at hand. Besides, if one is working with published reports or secondary data, finer classifications are not possible."

Rural Industries during 1956-77: In the Backburner?

With the advent of the Second Five Year Plan (1956-61), rural industrialisation had clearly fallen out of favour. Some pointed to the dysfunctionality of mixing up small scale enterprises with those of rural/ traditional/artisanal origin as the challenges these two faced were distinctive. Some, however, were convinced that the over-emphasis on heavy and large scale industries had clouded the role and existence of rural industries; the small scale industries were at least seen useful as appendage/ subcontractor to their large counterparts. The formulaic references to rural industries in the Second Five Year Plan and the Third Five Year Plan (1961-66) documents notwithstanding, sidelining of the rural enterprises had clearly occurred during the early decades of independence in India. The Rural Industries Programme (RIP) which was floated during the Third Plan brought in the idea of farm-non-farm linkages as the key approach to rural area development. Nevertheless, by coining the expression Village and Small Industries (VSI) the RIP perpetuated the question of absence of focused or exclusive attention to rural industries. The one important exception was the much-discussed Karimnagar Experiment (initiated in 1972 by Y. Nayudamma, Director General of the Council for Scientific and Industrial Research) that worked out application of S&T in rural industrialisation. By focusing on speciality paper, straw boards, rice mills, a tanning unit, building materials and a general engineering workshop this experiment established the potential for farm-non-farm linkages in transforming a 'backward' rural region into a progressive one.

The crisis of industrial stagnation (due mainly to the underutilisation of capacity in the large scale manufacturing and also contraction of domestic demand) that was noted since the mid-1960s and lasted till almost the early 1980s had further distanced policy attention from the challenges facing rural industries. It was only by December 1977 (when the Janata government was at the Centre, for a short span of about three years) that again there

was talk of rural industrialisation at the district level by supporting enterprises financially and technologically. Though small industries were not separated from the policy frame, there was some scope for rural enterprises to be promoted. In many ways, the Industrial Policy 1977 (IP 1977) articulated a more definitive and forward-looking approach to rural industries in India. Inter alia, it recognised and defined the 'tiny' industries (which, in fact, populated the rural industries), underscored the role of technological capacity building of the village and cottage industries, made a strong case for expanding the sector's product base, visualised linking regional/spatial development (through economic infrastructure, mainly), emphasized reservation of more products in the sector and set up District Industries Centres (DICs) as a conduit for accessing credit, raw material, market channels and a number of business development services. This was, probably, the most transformative policy approach in the history of rural industrialisation in India. The subsequent Industrial Policy 1980 (with the Congress back in power) retained most components of the IP 1977 - technology infusion and regional development remaining the central focus. It stated that "The Government is determined to promote such a form of industrialisation in the country as can generate economic viability in the villages. Promotion of suitable industries in rural areas will be accelerated to generate higher employment and higher per capital income for the villages in the country without disturbing the ecological balance. Handlooms, handicrafts, Khadi and other Village industries will receive greater attention to achieve a faster rate of growth in the villages" The following decade remains exemplary in terms of novel ideas, experiments and policy learning.

The Dynamic Decade for Rural Industrialisation: Late 1970s through the Late 1980s

During the late 1970s and much of the 1980s one finds quite some engagement in the policy as well as academic circles regarding infusing an innovation ethos in rural industries. While much of these revolved around science and technology (S & amp;T) based interventions, issues in institutional innovations towards this end were not prominent in these discussions. A particular mention needs to be made of the exceptionally dynamic role played by the Department of Science and Technology (DST) of the Government of India that envisaged the possibility of bringing about a turn-around in the technological imagination of rural industrialisation by fostering long-term engagement with a select few S&T-enabled civil

society organisations (CSOs). The DST's Science and Society Division (that was started in 1985 and later, in 2009, rechristened as the Science for Equity Empowerment and Development or, SEED Division) had initiated a Core Support Programme wherein, through CSOs, highly committed and knowledgeable scientists/engineers/innovators/activists could promote and implement several S&T interventions (including technologies in processing, designing, storing and manufacturing) in rural areas closely involving the local community and their resources – physical inputs as well as skills. Even as not every such CSO (or, individual technologies promoted) succeeded this remains an extraordinary foray into co-working of the state and non-state agencies to imbue technological dynamism in rural industries.

Through a series of national level workshops/seminars (often sponsored by the central or state governments) held during the decade a wide range of stakeholders of rural industrialisation (entrepreneurs, community leaders, S&T experts, policy makers, academics, business service providers, etc.) had discussed various aspects of infrastructure and technological advancement needed for rural industries to be both viable and competitive. Proceedings of one of the oft-cited such events is documented as "Gaon Ke Karigar Aur Science" (Village Artisans and Science) (1981) which also enquired into challenges facing modernising rural industrialisation as learnt through the Karimnagar Experiment. This indicates deeper policy engagement to promote science, technology and innovation (STI) in rural enterprises. During the same decade and later, a number of well-argued academic writings were published on why partial modernisation (whether using intermediate technology or even beyond) and electrification of rural enterprises were crucial for building their competitiveness (Papola, 1982; Papola and Singh, 1982; Rau, 1985; Kurien, 1989; Abrol, 2004).

Tracing the antecedents of rural industrialisation, however, suggests that during the very early years of Planning and sporadically thenceforth (say, as during the late 1970s through the late 1980s) rural industrialisation had received state attention towards infusing technological dynamism and bringing in innovations in marketing and product promotion. For instance, the Planning Commission in its 1988 report observed that "A new perception is needed for the village industries which should modernise their production process. While the obsolescent industries may be de-emphasised, new ones to be taken up and backed up by adequate infrastructure. For instance, food processing and agro-based industries like agricultural implements,

pump-sets, diesel engines, dairy products, machine tools packaging industries, food processing, service industries etc. be given special emphasis and non-engineering workshops and mini tool rooms would require to be established at the district level" (Planning Commission, 1988: 59). It, importantly, recommended, inter alia, that i. thrust on marketing of handicrafts be prioritised; ii. low cost computer integrated design and sample making system be set up; iii. Greater push for R&D be given; and iv. Plan outlays be increased (Planning Commission, 1988: 131). Even as certain subsector and area centric state policies were devised these failed to address the business needs of the rural enterprises whether in clusters or not. The craft enterprises (both handicrafts and handlooms) were the worst hit both due to policy imprudence and absence of institutional innovations to support these in terms of new skills, partial mechanisation, raw material banks and incentives to innovate. Credit to informal enterprises, of course, remained a classic roadblock.

Even as the village and small industries remained enmeshed in most policy documents, data or discussions, it was during this crucial decade that both the Sixth Plan (1980-85) and Seventh Plan (1985-90) formally delinked modern small scale industries from their cottage-village counterparts. The Seventh Plan identified the following six as constitutiong the village and cottage industries: Khadi, Village Industries, Handlooms, Sericulture, Handicrafts and Coir. The important reference to the overwhelming presence of the so called 'tiny' enterprises was made in the Sixth Plan to underscore the special policy attention village and cottage industries needed badly. As indicated earlier, modernising (at least partially) the village and cottage industries through new technology, use of electricity, etc. had gained importance in the serious debates that marked contributions by policy makers, academics and even the concerned civil society organisations. As an aside, it needs to be mentioned that way back in 1948, the Indian government had sent a team of bureaucrats to Japan to study possibilities of upgrading traditional (artisan-centric) industries through technological inputs. As regards the policy framework it (Vol. 2) observed that "The policy to be pursued during the Seventh Five Year Plan period would aim at rationalisation of fiscal regime to ensure the rapid growth of the village and small industries. Infrastructural facilities would be strengthened at various levels. Adoption of modern management techniques will be encouraged. Development and dissemination of appropriate technology to reduce drudgery, improve productivity and quality and lessen the dependence on

subsidies, would receive due emphasis. It is proposed to further upgrade skills in line with the degree of sophistication of the product in processes. Care would be taken to ensure that the introduction of technological improvements do not damage the distinctive character of products such as those of handicrafts and handlooms. Initiatives would be taken to improve wage levels, enhance earnings and continuity of employment so that artistic skills do not become extinct. Measures would be taken to adopt coherent marketing strategies both for internal and export markets.

Linkages would be forged with marketing organisations so that products of the sector are competitive in the domestic and international markets" (https://niti.gov.in/planningcommission.gov.in/docs/plans/planrel/fiveyr/7th/vol2/7v2ch4.html). It argued for building up reliable and comprehensive statistical database of the village and cottage industries and also improving the working conditions, welfare measures and security of employment for workers and artisans.

Sidestepping Rural Industries in the Era of Reforms

With the economic reforms introduced in 1991, the policy focus had shifted away from the rural industrialisation narrative. One specific challenge village and cottage industries faced was that these were almost entirely tiny-sized (over 86 per cent were OAMEs) and informal units. The absence of a formal/legal status also implied that, unlike the modern small scale enterprises, most of the state support schemes (finance and technology upgradation, in particular) were not being accessed by these. Some of these were: i. district special employment programme (1992-93) for employment generation in 71 backward districts in 24 states; ii. national project on village industries (1994) for promoting hand-made paper industry, leather industry and beekeeping industry; iii. rural employment generation programme (1994-2001) for the development of khadi and village industry; iv. cluster development programmes for bamboo and cane industry (1998-99); v. national programme for rural industrialisation (1999-2000) for promotion of 100 clusters each year; and vi. Prime Minister Rozgar Yojna (2002-03) for promotion of agro rural industries aimed at generating 7.6 lakh employment in two years (IGNOU, undated).

Quite contrary to the various schemes and financial support initiatives by even SIDBI and NABARD, data on Plan outlay for the village and small

industries suggests that the share of Plan funds allocated to this sector had declined till the Tenth Plan (2002-07), with a couple of exceptions (Table 2). Importantly, such information is not available for the subsequent two Plan documents or, in any other form through the NITI Aayog. So far as the RBI data on the share of village industries in gross bank credit is concerned, as shown in Figure 1, between 1995 and 2013 the fall is stark. Even such data are not available from 2014 onwards.

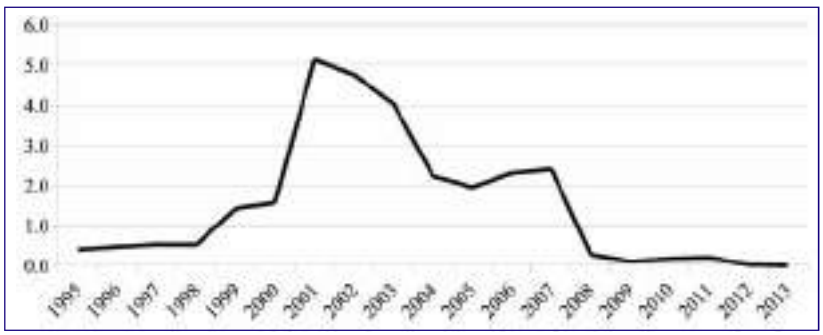
Table 2: Plan Provision for Village and Small Industries in the Total Public-Sector Outlay

Plan Period	Plan Provision for VSIs (Rs Crore)	Share of VSIs in Total Plan Outlay (%)
I(1951-56)	15	0.74
II (1956-61)	173	3.96
III (1961-66)	264	3.08
Annual Plans (1966-69)	126	1.90
IV (1969-74)	288	1.83
V (1974-79)	526	1.82
Annual Plans (1979-80)	289	2.50
VI (1980-85)	1780	1.83
VII (1985-90)	2753	1.53
VIII (1992-97)	6334	1.46
IX (1997-2002)	4508	1.21
X (2002-07)	6601	1.12

Source: Das (2011: 219).

Note: Value figures have been rounded off.

Figure 1: Share (%) of Village Industries in Gross Bank Credit, 1995-2013



Source: RBI

Improving product quality and productivity through a variety of interventions (including access to electricity, partial mechanisation of certain processes, reskilling workers and ensuring raw material availability) has often been missed in the policy initiatives. Linking to wider/newer markets is essential for any business to survive and thrive. Excepting for ad hoc arrangements marketing, little has been noted in policy documents. In case of craft products, for instance, "The challenge therefore is not one of market threat but rather fostering the capacity of artisans to negotiate effectively with the market, and effectively protect their own interests within a situation of constant change and unrelenting competition" (Chatterjee, 2014: 17).

As an indispensable business infrastructure, the potential of broad-basing high-speed internet access holds promise towards enhancing e-commerce for rural and remote producers/entrepreneurs including those engaged in the cultural-creative industry. The remarkable accomplishment of the Taobao villages suggests the possibilities for progress of rural business with the least interference by the exploitative intermediary/middlemen (Wang et al., 2021).

Another aspect of rural industrialization which requires much policy support and innovative management of rural business relates to what we may term as agro-clustering (Martinidis et al., 2021). Unlike the role played by farmer producer organisations as aggregators of raw produce from the rural areas or big capital in procuring an assured produce through contract farming arrangement, agro-clustering hinges upon building sustainable and gainful linkages between farm and non-farm sectors by engaging multiple stakeholders as village level institutions, private sector, small farmers and non-farm workers.

Challenges Facing the Craft Sector

A significantly potential site of non-farm activity relates to rural entrepreneurship as established through craft clusters spread across the country. The craft sector encompasses activities in both handlooms and handicrafts which are mostly found in clusters, which account for an estimated 94 per cent of all clusters in existence. Importantly, these clusters are almost entirely part of the informal sector, characterized by low-end products, infrastructural neglect and absence of innovativeness. This has implied that these enterprise clusters have to deal with limited market access

and suffer distancing from the sources of knowledge and learning. It is no surprise to learn that during the post-Independence period a number of crafts have either vanished or are typified as 'languishing' crafts signaling their end not afar. Table 3 gives an idea of the multiplicity of exclusions faced by the rural craft sector. Policy interventions must address these challenges by sector and region. The efforts as through the government programmes (like SFURTI and AHVY) in providing for common facility centres and/or certain working capital credit remain limited and have failed to consider several constraints emaciating the sector; this is discussed at some length in Das (2015). However, examples of effective interventions made by non-state actors within India (and state and non-state actors in other developing economies) suggest that the rural craft sector can be transformed into dynamic business propositions while retaining their role as sources of employment.

Table 3: Forms of Exclusion in the Rural Craft Sector

Form	Challenge	Manifestations
Spatial	Conditioned by geography	• Poor natural endowments • Long distances • Inadequate/poor quality infrastructure
Sectoral	Disadvantaged by specialization	• Products/ services/ skills no longer in demand • Low earnings • Dwindling raw material sources (mainly, natural) • Absence of innovation
Systemic	Marginalised by institutions	• Dysfunctional/discriminating agencies, policies, practices and norms of the state and/ or society (formal or informal)
Seasonal	Constrained by occasion/ periodicity	• Seasonal availability of raw material (mainly, farm or forest produce) • Demand linked to occasions/ events/ festivals
Statistical	Official neglect of building and sharing comprehensive data	• Non-existence or non-availability of data/ information on the sector

Source: Das (2020: 36).

Note: Conceptualised by the author drawing upon practical field experiences.

Studies based on field surveys of several rural craft clusters have noted that state policies had hardly contributed towards upgradation of these clusters whether in terms of facilitating access to relevant business development

services, addressing the raw material shortage, networking with innovation or knowledge systems and helping reach wider/newer markets. By taking a subsectoral approach to these clusters policy has neglected spatial infirmities within which clusters function. "It is commonplace that in the formal sphere, technology generation remains confined to elite organisations and hardly connect to the users steeped in low-income and low-network spirals as enterprises in rural craft clusters" (Das, 2020: 36).

While there need not be any dispute as regards preserving and encouraging traditional skills and crafts, at a regional or macro-policy plane, enhancing the enterprise's access to a larger - new and existing - market must form an important concern. The highly successful initiatives as the Japanese One Village One Product (OVOP) and Thai One Tambon One Product (OTOP) have shown the strength of symbiotic role played by the state, private agencies and civil society representatives to promote craft and cultural enterprises globally to render the local economy buoyant. Institutional innovations, rather than merely providing finance through the formal banking system, hold the key to rethink governance of rural industrialisation. It needs to be recognized that creative destruction is necessary in the handicrafts sector so that artisans diversify to cater to the contemporary changes in tastes and requirements.

Concluding Observations

From a pragmatic policy perspective, rural industrialisation in India has remained a neglected sector for long. This is not to suggest that this sector has not found mention in several important policy documents, albeit part of the persisting concern in these remained the mixing up of this sector with that of the modern small scale industries. The massive presence of tiny or micro units in the village and cottage industries mostly in the informal domain further confounded strategic intervention. Further, financial support to this sector has waned over the decades.

A particular constraint related to poverty of official statistics on rural enterprises. Moreover, the overwhelming rurality of unorganized manufacturing has been sustained even since the early 1980s and over 90 per cent of these enterprises have been micro/tiny units (OAMEs, typically) with little capital and outdated/primitive technology. The steady decline

of full-time employment in rural OAMEs since 1984-85 is a disturbing pointer to the survival and growth of these ubiquitous rural enterprises.

While strengthening clusters (through building business centric infrastructure) can be an important strategy, policy must address intrinsic challenges facing rural enterprises. These may broadly be classified as i. resource-centric; ii. process-centric; iii. market-centric; and iv. institution-centric. Focusing on the local and provincial stakeholders and leveraging the potential for enhanced interactions between the formal and informal institutions seem to be a workable proposition. An important step in reimagining rural industrialisation remains undertaking substantive research drawing upon the changing dynamics of rural India.

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Article

Disease Burden and Economic Cost of Vision Impairment

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Abstract

Ageing population and changing environment continue to contribute to the rising cases ofvision impairment and blindness. This paper reviews several studies that have been carriedout on the disease burden of vision impairment in India and other economies and analyses theeconomic burden and the costs incurred on private hospitalisation in India due to limitedpublic health support. Most of the eye ailments are preventable, but inadequate careimposes direct as well as indirect burdenson the gross national incomes of economies.Despite the downward trend observed in the disease incidence, the direct and indirect economic cost burden seems to have moved in the opposite direction. The treatment costs in a private hospital are much more than if the same ailment is treated in a public hospital. Hence, the lack of insurance and free health facilities impels greater out-of-pocket expenditure. There is a need for higher allocation of public health expenditure, giventhe rising attendant economic costs of an ailment, which are preventable.

Keywords: Public health, Quality-adjusted life year, Disability, Disease

Introduction

According to the Global Health Expenditure Database of WHO (2023), India's Health Expenditure as a percentage of Gross Domestic Product has dropped from 4.03 per cent in 2000 to 3.01 per cent in 2019. Out of the total expenditure, the percentage contribution of the government is only 32.8. This is a cause for great concern in a developing country such as India, where most people are too poor to afford out-of-pocket expenditure

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on health. Based on the Global Burden of Diseases, Injuries, and Risk Factors Study (Lozano et al, 2020) in which the Universal Health Coverage (UHC) for 204 countries and territories from 1990 to 2019 has been calculated, India's UHC index is 47, which is behind its neighbouring countries such as China (which has UHC index of 70), Sri Lanka (66) Bangladesh (54), Bhutan (51) and Indonesia (49). Japan tops the list with anindex of 96. The UHC index measures the extent of the provision of health services for individuals throughout their lifespans by quantifying adequate coverage of interventions delivered by health systems. It aims to capture the fraction of potential health gains delivered relative to what a health system could have theoretically delivered. The service coverage is defined as a spectrum of services—promotion, prevention, treatment, rehabilitation, and palliation across all health conditions (including communicable diseases with mother, newborn and child health issues and non-communicable diseases) across the life cycle.

Out of all types of disease burdens, vision impairment was chosen for this paper due to the high preventability of eye-related health concerns. Most causes of vision impairment are avoidable, and addressing them would help reduce the associated economic and healthy life loss. We focus on the disease burden in terms of the disability-adjusted life year index, a common index to ascertain the loss of healthy life. The paper reviews research carried out in recent years on the prevalence and economic impact of vision impairment. Section II discusses the most common causes of vision impairment and blindness across several countries, including India. Section III examines various studies that have estimated the economic costs ofvision impairment in different countries. Despite the downward trend observed in the incidence of the disease, the disease burden in terms of economic direct and indirect cost seems to have moved in the opposite direction.

The primarysources of data comprised search results from PubMed.gov, an online archive of biomedical and life science journals for the research carried out on the economic burden of vision impairment, India's National Sample Surveys-Key Indicators of Social Consumption for the expenditure incurred on hospitalisation and overall distribution of health care by public sector and insurance. The disease burden data was collected from the website of the Institute for Health Metrics and Evaluation (IHME). Finally, Section IV discusses the need for the role of the public sector in the face of a high disability index and limited budget allocation tothe health sector.

Global Burden of Visual Impairment and Blindness

The Commission on Intellectual Property Rights, Innovation and Public Health (WHO, 2006) classifies all diseases into three types. Type I diseases havea high incidence in both developed and developing countries. They include diseases involving metabolic disorders like diabetes, cancer, and cardiovascular system disorders. Type II diseases are prevalent in both types of countries but have a higher incidence in low-incomenations. They include tuberculosis and HIV/AIDS. Type III diseases afflictlow-income only. They are called neglected/ tropical diseases like leishmaniasis, leprosy (Hansen's Disease), rabies, dengue and chikungunya, snakebite envenoming, mycetoma, and trachoma, to name a few. Among the Type III diseases, Trachoma continues to be a public health concern for over 40 nations, which causes permanent blindness. It is one of the main reasons for blindness worldwide. Several studies have examined the prevalence of trachoma in various parts of the world (Baayenda et al., 2018; Babalola, 2011; Burton &Mabey, 2009; Gupta et al., 2022). There are 125 million people who live in trachoma-endemic areas and are at risk of trachoma blindness(WHO, 2022a). Trachoma is responsible for blindness or vision impairment inabout 1.9 million people.

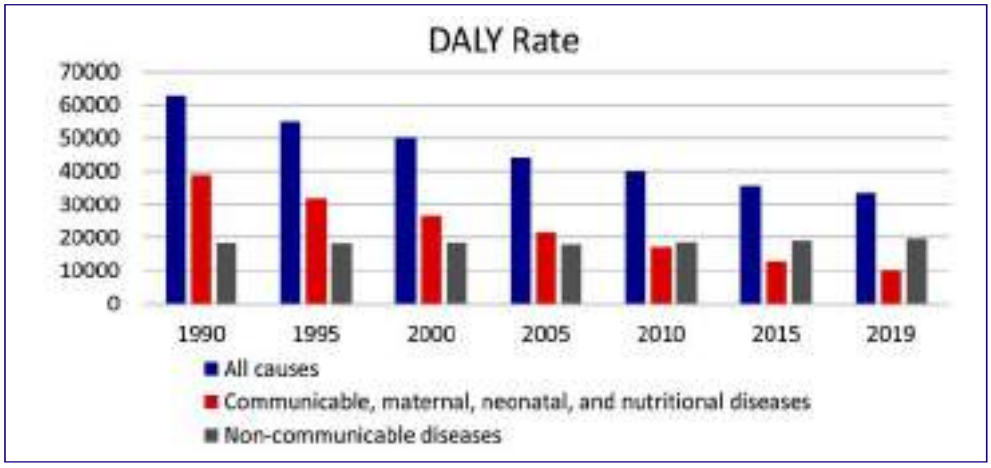
The economic evaluation of health care is distinct from other products, as health care is not like any other good; the consumer (the patient) does not directly determine healthcare choices. The suppliers of the services (primarily doctors, but indirectly the insurance firms which cover their medical costs and other health care providers in hospitals) determine the level of care that the patient requires, and even then, there is no certainty that the outcome of the care would be optimal. The asymmetric information between the patient and the provider is unique to the health and healthcare sector (Arrow,1963,pp. 941-973). The treatment may impact different patients, depending ontheir other medical conditions. The outcome of the success/ failure of a treatment is not guaranteed. If a patient pays the health care expenditure out of their pocket, the incentive to use the most effective and expensive drug would be different than if an insurance company pays it. The loss due to any disease is the sum of medical costsand the loss of productive time or death. To reduce/ mitigate this loss, the individual would prefer the insurance, even if it is unfair.

Insurance is actuarially unfair if the premium rate that the insurance firm

charges is greater than the probability of loss that the buyer expects. Of course, insurance creates a disincentive to take care of (moral hazard problem). Further, the patient would like the optimal treatment for his health condition and would pay if his income permits it. On the other hand, an insurance firm offers health coveragewith a premium rate based on the average incidence of a health condition in the population. This mechanism could result in anadverse selection problem arising from asymmetric information. The premium rate that an insurance firm decides is based on the average incidence of health conditions in the population and not on the average incidence of health conditions of potential buyers (the segment of the population prone to that illness). This could result in net losses to the insurance company as the premium rate may be too high for the healthy and low for the non-healthy. No healthy person would buy it; only people with health conditionswill buy the insurance plan, a phenomenon of adverse selection. One way out is a compulsory purchase plan of health insurance for everyone, which would entail deducting the premium from wages. The low health insurance coverage in most low- and middle-income countriesleaves the government intervention in the health sector as the last option. Government hospitals can provide equitable and efficient services across all population segments. In contrast, private suppliers, like private hospitals, practitioners, and medical device providers, may levy high profit margins on health products.Above all, the medicines may involve huge costs which the patients of even the most developed nations cannot afford.

Calculating a country's disease burden due to various medical ailments is challenging. One frequently used measure is the DALY index. The overall burden of disease is measured using the disability-adjusted life year (DALY) index. This time-based measure combines years of life lost due to premature mortality (YLLs) and years of life lost due to time lived in states of less than totalhealth or years of healthy life lost due to disability (YLDs). One DALY represents the loss of the equivalent of one year of totalhealth. Using DALYs, the burden of diseases that cause premature death but minordisability (such as drowning or measles) can be compared to that of diseases that do not cause death but do cause disability (such as cataractscausing blindness). If a kidney patient lived with a kidney ailment for fiveyears, has a disability weight of 0.6 and dies 20 years before his life expectancy, then his DALY = 0.6*5 YLD + 20 YLL= 3+20=23 healthy years of life lost.India's health statistics show a drop inthe DALY rate from 62,717 in 1990 to 33,643 in 2019 for all diseases (Figure 1).

Figure 1: Disability-Adjusted Life Year Index (India)



Source: Based on data collected from IHME
https://vizhub.healthdata.org/gbd-results/

There is a downward trend in the disability-adjusted life years for communicable diseases and a marginally upward trend for non-communicable diseases, including lifestyle-related diseases. For communicable and maternal, neonatal, and nutritional diseasecare, the rate has dropped from 38887 to 10297(almost a 75 per cent drop). For non-communicable diseases, it has increased from 18299 to 19493 (an increase of 6.5%) over the last 30 years, from 1990 to 2019. Vision impairment, which falls under the non-communicable diseases category, shows an upward trend in DALY rate (an increase of 13%) in some conditions like cataract, glaucoma and macular degeneration. Table 1 refers to the DALY rate for the important conditions of vision impairment and blindness in India and globally.

Table 1: DALY Rate per 100,000 Population, India

	1990	2000	2010	2019
Cataract	119.61(65.28)	129.10(73.33)	139.05(79.63)	146.50(86.29)
Refractive Error	141.01(76.29)	133.37(79.06)	130.09(81.18)	134.16(84.90)
Glaucoma	7.23(8.27)	7.94(8.45)	8.13(8.69)	8.67(9.67)
Macular Degeneration	5.69(5.55)	5.16(5.95)	4.97(6.45)	6.20(7.29)
Trachoma	14.81(5.38)	9.03(4.20)	5.10(2.67)	3.62(2.33)

Source: https://ghdx.healthdata.org/ Accessed on 14th Feb 2023
Note: Global rates in parentheses.

The DALY rate per 100,000 for the eye category has increased from 374 in 1990 to 430 in 2019 (13.4 % increase). To ascertain the economic cost of vision impairment (VI), it is essentialto look at the most prevalent conditions which give rise to it (Factsheets detail on blindness and vision impairment, WHO, 2022b). The important causes of vision impairment include cataracts, age-related macular degeneration, glaucoma, diabetic retinopathy and uncorrected refractive errors. A leading cause of blindness through infection is trachoma, which has affected the poorest and rural areas of Africa, Asia, Central and South America and Australia.

The data shows that cataracts and under-corrected refractive errors constitute a high proportion of the disease burden in vision-related diseases in India and globally. Glaucoma and macular degeneration have also increased, impacting the disability-adjusted life year.

Munoz and West (2002) summarised the available data on VI and blindness in Latin America and the Caribbean, citing the primary causes of visual loss in adults in the Americas to be age-related eye diseases, notably cataract and glaucoma in the African-American and Hispanic populations, and age-related macular degeneration in the white population. Uncorrected refractive error was another significant cause of decreased vision in their study. Flaxman et al. (2017) undertook a metanalysis and systematic study on the Global Burden of Disease in which they identified 288 studies from 98 countries comprising 3983541 participants to find out the leading causes of VI and blindness. Cataractsand under-corrected refractive error were again noted as the two most common causes of moderate or severe VI and, in worse cases, blindness. Globally, cataractsand uncorrected refractive error combined contributed to 55 per cent of blindness and 77 per cent of VI in adults aged 50 and older in 2015. Though vision loss is preventable through cataract surgeryand spectacle correction can reverse the refractive error, they continue to be the leading causes of VI worldwide. Similar observations by Cheng et al. (2020) for East Asia showed that cataract was the leading cause of blindness (43.6%), followed by uncorrected refractive error (12.9%). The other critical cause, a growing culprit of VI, is age-related macular degeneration. Zhang et al. (2021) used data on the incidence of age-related macular degeneration and the disease burden in China and did a comparative analysis with seven neighbouringcountries, including India, Pakistan, North Korea, South Korea, Russia, Singapore and Japan, between 1990 and 2019. They found that the prevalence rate of vision loss was the highest in Pakistan, followed by India and China due to macular

degeneration. The disease burden caused by age-related macular degeneration became higher for India in 2019 as compared to China, whereas in the initial period of study, the incidence was higher in China. Japan saw the lowest prevalence and disease burden.

Vision Impairment and Blindness in India

The Rapid Assessment of Avoidable Blindness Survey Report (RAAB) on India, conducted during 2015-19, representing 31 districts across 24 states, provides recent estimates of blindness and visual impairment (Kumar & Vashist, 2020). There were 4.8 million people with blindness and 29.2 million people with moderate or severe visual impairment (MSVI) in 2017.Out of 93,018 registered people, 85,135 persons were examined. For age groups above 50, the prevalence of blindness was 1.99 per cent, while severe VI was 1.96 per cent, mild VI was 9.81 per cent, early VI was 12.92 per cent, and moderate and severe VI stood at 11.77 per cent. More than 25 per cent of people over the age of 50 have visual impairment.

Approximately 93 per cent of blindness and 97 per cent of vision impairment aredue to avoidable causes (Vashist et al., 2022). Cataract cases contributed the most (66.2%) to total vision impairment cases. The earlier survey conducted in 2006-07 also showed cataracts as the main contributory factor to VI and blindness for 16 districts across 15 states.The survey was undertaken for the 50+ age group on 42722 individuals. The respondents' average age was 61.5 years. The survey reported that women were prone to blindness 1.34 times more than men. Blindness was mainly due to cataracts,contributing 77.5 per cent to it. Uncorrected aphakia (missing lens in the eye) was responsible for 4.6 per centof blind cases, uncorrected refractive errors for 3.4 per cent and glaucoma for 3 per cent. Every district reported that cataractscontributed to more than 50 per cent of blindness. The analysis of poor vision again ascribed the main reason for cataracts, responsible for 58.1 per cent of low vision, while uncorrected refractive errors were responsible for 32.9 per cent.

Economic Cost of Vision Impairment and Blindness

The annual global costs of productivity losses associated with vision impairment areestimated to be US $ 411 billion(WHO,2022b). Owing to rising medical technology costs and the ageing population, eye care delivery services are under tremendouspressure. One of the criticalcauses of eye-related diseases is noncompliance. It was found that for macular

degeneration, almost 50 per cent of the patients in India did not follow up with the treatment due to unaffordability and no improvement in vision (Kelkar et al., 2020). The drug to treat age-related macular degeneration is an anti-vascular endothelial growth factor treatment, which is an expensive treatment. The therapy is a successful treatment for several retinal ailments. Globally, the most profitable drug companies are manufacturing drugs in this segment. For instance, Novartis was declared the most profitable pharmaceutical firm in 2021, garnering $24 billion in net income. It is the manufacturer of Lucentis, a drug for age-related macular degeneration, which is one of its top most expensivedrugs in the segment. Several estimates of the cost associated with the incidence of vision impairment across several economies reveal the substantialeconomic burden. Roberts et al. (2010) calculated the economic cost of VI in Japan in 2007. They estimated that the total cost was 1.7 per cent of the country's GDP, including the direct health cost ($11.1b), other indirect costs of $13.1b, including productivity losses, caretaker's cost, and efficiency cost in terms of welfare payments and taxes. The well-being loss (DALY) amounted to $48.6b.

In another study covering data fromnine countries (Eckert et al., 2015), the cost of blindness was taken as the loss of minimum wage and per capita income for patients above 55 years of age till the retirement age of 65, and the cost of moderate to severe VI was taken as 30 per cent of individual wage and income. An early study on economic costs (Shamanna et al., 1998) for India put the cost/economic burden of blindness equal to Rs. 159 billion (US$ 4.4 billion). Taylor et al. (2006) calculated the economic impact and cost of visual impairment in Australia by measuring the health services utilisation and expenditure for specific diseases and disease groups and estimated the cost of Aus$ 9.85b in 2004. Apart from the direct cost, they calculated the indirect costs comprising carers' costs, low vision aids, lost earnings, and other welfare payments and taxes.Two recent studies in India estimated the economic cost of blindness and VI (mild, moderate, and severe). Mannava et al. (2022)estimated that in India, there are 4.95 million people who are blind and 70 million visually impaired. The associated economic costs of VI and Blindness are enormous. Despite the reduction in the incidence of blindness (from 1% of the population in 1997-98 to 0.36% in 2020) and a 50 per cent drop in VI from 2010 to 2020,the loss in gross national income is estimated to be doubled, and the cumulative loss due to preventable causes increased 1.8 times, inflation-adjusted, since 1997-98! This is unsurprising with the rise in per capita income over time, higher

labour productivity, and increased longevity. A commensurate reduction in economic loss has not accompanied the reduced proportions in blindness and VI.Wong et al. (2022)have also estimated the economic and social costs of mild and severe visual impairment and blindness in India for 2019. The costs associated with loss of employment for the working population and education for children reduced productive employment, productivity loss of unpaid work, and caring costs were estimated. The study suggests 0.57 per cent of GDP as the approximate cost of VI and blindness in India. The costs of poor eye health in India in 2019 were estimated to be INR 1,158 billion (PPP $54.4 billion) aggregated over all loss parameters.

The ageingpopulation and changing environment continue to contribute to the rising cases of VI and blindness. People with VI may quit their jobs before retirement or die early, leading to productivity loss. The healthy life years are cut short depending on the severity of VI. The costs associated with paid and unpaid care at home are overwhelmingly more than the direct costs. Moreover,the direct costs of medical expenditures have been increasing over time. The number of private hospitals has increased much more over time. According to a report by a think tank Institut Montaigne, there are 43486 are private hospitals and only 25778 public hospitals (Jafferlot, C., &Jumle, V. (2020). National Sample Surveys (71st and 75th rounds) also show a bias towards private hospitals for the percentage of hospitalisedcases where the average medical expenditure is exorbitant (see NSS, 2014 and 2019).

Table 2: Average Medical Expenditure during Hospital Stay per Hospitalisation Case for Selected Categories of Ailments All-India (Rs.)

	75th Round			71st Round		
	(1)	(2)		(3)	(4)	
Category of Ailment	Pub Hosp	Pvt Hosp	(2)/(1)	Pub	Pvt	(4)/(3)
Infections	2054	15208	7.40	3007	11810	3.93
Cardiovascular	6635	54970	8.28	11549	43262	3.75
Gastrointestinal	3847	29870	7.76	5281	23933	4.53
Respiratory	3346	24049	7.19	4811	18705	3.89
Genito-Urinary	5345	33409	6.25	9295	29608	3.19
Musculoskeletal	5716	46365	8.11	8165	28396	3.48
Psychiatric and Neurological	7235	41239	5.70	7482	34561	4.62
Eye	2605	18767	7.20	1778	13374	7.52
Cancer	22520	93305	4.14	24526	78050	3.18

Source: Key Indicators of Social Consumption in India: Health, 71stRound, Statement 3.9, p. 19 and 75th Round, p. A-19.

NSS 71st and 75th rounds on Health (Table 2) revealthat the average medical expenditure per hospitalisationcase (most out-of-pocket) in the eye category in a private hospital is much higher. For instance, the average medical expenditure in private hospitals is Rs 18767 in the eye category, more than seven times that of Rs. 2605 in a government hospital! Thus, unless more government hospitals provide health services at the minimum costs, the expenditure will be more and more from out-of-pocket. As far as insurance coverageis concerned, a tiny proportion of the population is covered by government-sponsored insurance for all ailments. 85.9 per cent of the hospitalisedcases in the rural areas and 80.9 per cent in the urban areas are not covered by any insurance, government or non-government (statement 3.14, pp 17, NSS 75th round). Only 1.6 per cent of hospitalisedcases were reimbursed in rural areas for the firstquintile class and 4.5 per cent in the fifthquintile class of household expenditure. The corresponding share in urban hospitalisationwas 1.5 per cent and 21.8 per cent, respectively (NSS 75th Round, pp A26).

Conclusions

A few observations and policy suggestions for India come out of this study. Two epidemiological aspects are covered here: first, the prevalence of VI and blindness and its measurement and second, the assessment of its impact on loss of well-beingnot simply due to treatment costs (direct costs) but also the costs associated in the form of intangible care given and other losses due to employment and consumption loss (indirect costs). More thorough and continuous surveys are needed where larger populations can be tested. The disease burden estimation requires data on and calculating productive days lost, cost of care, and treatment costs, which are not readilyavailable. Even when some surveys are conducted, reaching out to the affected segment entails educating the population about preventable VI, hygiene and providing medicines, surgeries and corrective glasses. The studies on economic costs reveal that even though the proportion of incidence of blindness and VI has declined over time, the economic loss has increased. This is more worrying if the loss is avoidable, as in the case of eye care. According to WHO (2022b), out of 2.2 billion visually impaired cases globally, 1 billion cases are avoidable or yet to be addressed.

There is, therefore, an urgent need to increase the allocation of health care in the government budget and make evidence-based suggestions for

government policies to eliminate preventable ailments on a priority basis. The losses and costs associated with the preventable VI should be a benchmark for the health system to allocate budgetary resources to meet this dire need.

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Article

Evidence Building in COVID-19 Era: Ethical Challenges and New Avenues

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Abstract

The COVID-19 pandemic has considerably impacted and altered the existing and future evidence-generation activities, particularly field-based research. Researchers have increasingly employed various cutting-edge techniques and equipment, primarily digital ones, to conduct field-based research during the COVID-19 epidemic. After speaking with a few chosen field investigators doing ethnographic research, we emphasize the practical challenges researchers faced during the COVID-19 outbreak. After carefully analyzing the respondents' explanations, we highlight that the situation demands field-based research to consider the extent of the methodological and ethical issues, including the reach of technology, accessibility of participants, involvement, and response rates. However, suppose field-based research becomes crucial for policy decisions or future knowledge management. In that case, the time demands a careful examination of which data can and should be collected against designing definite tools and methods.

Keywords: Data issues, COVID-19, Evidence Building

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1. Introduction

The novel coronavirus (COVID-19) epidemic had a cascade effect that led to the world's worst humanitarian health crisis in 2019–20 and 2020–21, and the necessary protective measures had a negative impact on economic activity as well (UNWOMEN & WHO, 2020; IMF, 2020). Several measures were implemented across the globe to fight against the COVID-19 crisis, starting with practising social distancing, promoting hygiene practices, and putting in place stringent lockdowns. During or after humanitarian crises, including epidemic outbreaks, development actors devise their strategies to reach out to the affected groups with support and aid based on rapid contextual assessments. However, in such a complex and nuanced environment, most decision-making processes are continually based on assumptions and immediate feedback rather than producing systemic evidence to confirm the strategy itself. Without it, there remains a risk of missing out, hypothesising the actual conditions on the ground, or even meaningfully understanding the state's efficacy and choice during COVID-19. For example, with methodological robustness, rapid empirical research offers new insights into why pandemics such as COVID-19 can escalate violence against women and girls. Further, it can help identify the risk factors (UNWOMEN, 2020; ILO, 2020) and how the availability of services for survivors is affected. How is women's access to help-seeking and other services from both formal and informal sources compromised? What new needs emerge, or how can we capture the impact of employment and unpaid work? Development actors, including the Government, donor agencies, UN agencies, Civil Society Organizations (CSOs), and Non-Governmental Organizations (NGOs), often measure the progress or barriers in terms of vulnerabilities, gaps, or disasters with a focus on the state's implementation capacity.

A deeper understanding of the situation through research and monitoring could potentially provide insights to influence and inform future planning regarding devising new policies or tailoring existing strategies and interventions. However, during the COVID situation, the risk of transmitting or contracting the infection rendered such research or monitoring using empirical or interpretive approaches difficult, if not impossible. Notably, the urgency of getting results from the research with the volatile situation on the ground, limited capacity in running a questionnaire with a virtual mode, and incessant change of situations at the household level made the research processes complex and challenging. For example, the lockdown

measure and the increasing number of COVID-19 cases affected the course of data collection, mainly those necessitating face-to-face interface and physical presence, including population-based field studies, focus group discussions, or other qualitative approaches. In a situation like this, researchers, primarily field investigators, evade actions or behaviourthat may be interpreted as poor practice or potentially abusive (Laws & Mann, 2004). These aspects have acted as obstacles in most parts of fieldwork. Good ethnographic research requires balancing power relationships between the researcher and the researched (Behar, 1993: cited in Prasad, 1998). It is an equally extremely humanising process (Kikon, 2019), but getting there is not merely a research exercise. It calls for recognisingthe politics of the process as much as the power differentials.

WHO (2020) study highlights that "the global response to the COVID-19 pandemic requires the capacity to conduct an ongoing risk assessment at the global, regional, national, and subnational level. To fully leverage the investments and capacities for data collection and analysis for risk assessment, a new global public health data architecture will be required." The BMC (2020) study emphasised that statistical analysis would play a critical role in "fighting panic with information" to evade or at least lessen the risk of bias. Apart from COVID related research, the field-based regular research work was affected to the same degree, if not more, due to COVID-19. In India, the kind of research that looks at the overall impact of the pandemic and its influence on policy in the longer term is limited. On the other hand, many actors used rapid surveys to adapt existing policies for specific circumstances.

Going through the existing literature and interacting with field investigators, in this article, we have highlighted the real-world issues confronting researchers undertaking field-based research during the COVID-19 pandemic. We[1] have mostly reinforced our arguments with existing literature based on protracted conflict situations wherein researchers have

[1] While professionally '*we*' are engaged with agencies with specific mandate and roles, as authors we got deeply motivated with the subject, particularly while reviewing the situation with partner NGOs and their field investigators. Our open-ended interactions confronted us with questions to think beyond what was planned against what need to be done. While this necessitate larger debate, '*we*' have attempted to present the wealth of information with an expectation to benefit all, who are planning, implementing, leading or monitoring research during COVID-19 era.

faced similar challenges. Our argument in undertaking this analysis aligns with Chetia (2020), "that is in our capacity, to take care of our research, the research population we engage with and ourselves, i.e., self-care of the social, individual human being within the researcher".

2. Methodology

The methodology we followed is a *light-based* approach with convenience sampling, summarising the challenges in undertaking research during COVID-19 through a desk review of the literature and interactions with selected respondents. Owing to limited academic resources available on the subject, some portions of the literature were sourced from public sources, including blogs, to support our argument. We found that the recent discussions in public sources on COVID-19 mostly depict real-life situations enriched with personal experiences or supported with rapid survey data. However, we also observed that some contemporary academic discussions on similar subjects strongly orient towards COVID-19-like situations.

This paper has benefited from discussions with officials and 30 field investigators from two NGOs in Odisha, India, including Bharat Gyan Vigyan Samiti (BGVS) and the Centre for Youth and Social Development (CYSD)[2]. Participation in the discussion was entirely voluntary, although we encouraged and encouraged the participants to share their experiences while facilitating the discussions. There was no incentive involved in the process. We organised four rounds of virtual meetings during July-September 2020, using a virtual meeting (Zoom) platform, two each with these organisations to collect their feedback about undertaking research during COVID-19. Considering the ethical considerations criteria, we did not follow a structured questionnaire with a consent form, although we recorded their version during the discussion for transcriptions, with verbal permissions. Field investigators from the two selected NGOs alerted us to the critical issues they faced during data collection. The investigators also narrated stories of the misery and anguish of respondents who have been affected due to the loss of jobs and a decrease in family incomes.

[2] Both BGVS and CYSD have long history of working in Odisha, particularly in the areas of local level development and governance. In the current COVID-19 situation, these organisations are engaged in undertaking several studies, both independently and with support of donor agencies. They have in turn engaged number of research scholars, field volunteers, who are collecting data from field.

Significantly, they also highlighted their apprehension about the future of research during COVID-19 and their personal stories of chasing respondents for information. By asking these field researchers to rate the various challenges, we zeroed in on three significant issues specific to the COVID-19 situation. These were the ethical considerations, recall challenge, and data collection process.

3. The Research Dilemma, Accountability and Decision Making: Lifting the Lid

It is hard to claim that merely reinforcing or increasing evidence-building initiatives during humanitarian situations can make decision-making transparent and rational. However, development partners engaged and carried out at the local level to understand the unfolding of the situation, its impact on people, and the role of government support in bringing about differences in the lives of people, including gaps and challenges. For example, the ILO (2020)[3] has undertaken a rapid survey to understand the employment and unpaid work patterns amidst COVID-19. Several other organisations, both international and national, are also engaged in evidence-building and, by doing so, promote social accountability. The underlying assumptions of these evidence-building exercises are also to include the voice of affected communities, towards whom most of the development programs and additional relief measures are directed. CSOs are increasingly looking at ways to unlock the voices at the micro level through evidence-building efforts.

The relevance and importance of applying ethical norms are increasing in social research and have notably become more critical in a culturally diverse country like India (Srivastava, 2020). Putting the COVID-19 situation in the forefront, we revisited the historic Belmont Report, 1978, which laid the basis of ethical research by highlighting three basic principles, i.e., respect for Persons, Beneficence, and Justice. It claimed that people's right to make their own decisions must be respected, researchers should seek to increase well-being and avoid conscious harm, and there should be fairness in allocating risks and benefits between different groups of people. ILO (2020)

[3] ILO, 2020, COVID-19 and the world of work. Fourth edition updated estimates and analysis, accessed from web on 2nd September 2020

highlights that rapid surveys in the context of emergencies can be an important source of data in the absence of established large-scale household surveys, when rapidly deteriorating conditions interrupt existing survey operations, or when information is needed on short notice for a targeted local area or population group. However, these surveys have their limitations. The ILO (2020) study on COVID-19: Guidance for Labour Statistics data collection reflects that *"Rapid surveys can face important limitations in coverage and representation. Specifically, telephone and web surveys may exclude groups most vulnerable to the impacts of the COVID-19 outbreak, including persons with low education, informal workers, older persons, migrant workers, and persons in rural areas."* These issues, which place research as a tool for improving people's lives, have become central in the design of research protocols and in determining the research criteria during COVID-19. One must also consider the timing of research during the COVID-19 situation. This form of arrangement was otherwise hard to envisage, and here is where systematic research can offer potential policy-related options.

4. Research Insight

4.1. Ethical Reflections

With COVID-19, organisations have become increasingly cognizant of the safety of research participants and investigators. Existing literature has dwelled on the ethical issues that must be addressed during similar situations (O'Mathuna, 2010; Sumathipala et al., 2007). In the context of pandemics, ethical conduct during evidence-building exercises needs to ensure the well-being of those involved, lessen potential harms, and pursue favourable outcomes for the affected communities during and after the crisis. In this regard, all data collection processes, analysis, and communication during and after COVID-19 require ethical consideration and a strong focus on "doing no harm[4]" (Berman, 2020). Families with poor socioeconomic status facing multiple vulnerabilities are exposed to increased risks during COVID-19. Reaching these households may also be more challenging without a strategic plan. Even after the current social-distancing restrictions are removed, for many of these households, the long-

[4] Do-no-harm principle follows a right based approach and promotes minimizing negative effects due to research not only on researcher and respondents, but also on larger environment.

term social, economic, and psychological threats and effects of COVID-19 may continue. We assume that the scale and nature of the problem may not apply to all geographies since the spread and effects of the virus across locations will differ, as will the act of the state.

Following ethical guidance to limit the spread of COVID-19 and due to stricter lockdown measures, agencies have mostly suspended research activities requiring in-person contact. Alternatively, they have adapted quickly to acclimate to phone and online surveys to minimise disruption to ongoing research. Notably, technology in the form of telephones or mobile phones is now proven to be a primary doorway into the homes of the population groups. However, methodological challenges significantly impacting ethical considerations for online surveys remain. This includes smartphone coverage, access to respondents, actual response or participation rates, reliability of response, and the amount of information that can be feasibly collected. These methods also have serious privacy concerns when sensitive issues are collected. During our interactions, one of the respondents from the NGO highlighted:

"During current lockdowns and with minimum work opportunities outside, most of the time family members are staying together in one place…. this is when they get hesitant to respond or be honest in responding. You can neither triangulate their answers with additional questions, as it takes time when they even disconnect and put us in the blocked list. Many a time, they provide an acceptable justification or construct stories rather than facts. Who would believe a stranger with personal information during such uncertain situations over the phone?"

This highlights that while trust is an issue, the fact that families are under such stress and do not want or cannot afford to participate in research is entirely justified. While it is not entirely a COVID-19 related issue, many members of the family often face these dilemmas when confined within a house with complex relations. The social structure in India characterises a deep-rooted societal and cultural understanding concerning individual family members' positions and obligations, including children, youth, women, men, and the elderly. Affiliations to a group or section of the community or even geographical locations further contribute to the intricate and tangible norms around communications and social behaviours. Gender and age further get interwoven and make a complex social ecology.

Understanding and addressing the socio-cultural context during any field study can ensure that different groups or sections contribute to the research process. In our capacity, we have often experienced that women do not talk openly to male researchers or vice versa. The response rate, quantity and quality of responses also significantly vary based on who is asking questions and who is present during the interviews or data collection. Some studies have shown that if adolescents are girls, their voices are not heard, they do not participate in any decision-making process, and even when they do, there is minimal acceptance of their opinions (Rahman et al., 2007). These age-old issues have further developed during the current situation when families are confined to one place. One of the field investigators with a grassroots science organisation mentioned:

"Based on our experience during cyclone FANI in Odisha, the households that lost major income, as an immediate impact, domestic violence became common. During COVID-19 situation, those women who are already victims within the family, it becomes hazardous to even engage with them face to face in the presence of their family members, asking such questions over phone by a stranger can further aggravate their situation within the household."

This is significant when remote data collection becomes obvious and respondents being women in potentially abusive relationships who are confined at home are interviewed using a smartphone or other virtual means. Remote data collections during COVID-19 do not provide an opportunity to recognise and offer an option for relief as could be possible in data collection exercises in person. We agree with the ongoing ethical debate that the research process could render women and their children vulnerable to further violence if ascertaining that the woman is able to respond without being overheard and offering guarantees of confidentiality are not feasible in remote data collection using technology (National Network to End Domestic Violence, 2020). We have noted that agencies have advocated not to include questions about the respondents' experience of violence when implementing rapid assessments on the socio-economic impact of COVID-19, as it can potentially put survivors at risk (UNWOMEN, 2020). Such research exercises could impact both women and children and result in the erosion of trust (Berman, 2020).

4.2. Recall Bias

In a situation like this, many studies are banking on survey-based self-reported data to get information on issues specific to healthcare, out-of-pocket expenses, hygiene behaviours, or even the receipt of social security benefits. One thing that changes significantly between these surveys is the period over which people are asked to recall prior events. For example, while most of the surveys were based on the COVID-19 situation, the questions were based on before and during the COVID scenario, and therefore, the period for the recall is almost a year[5]. It has been recognised that the longer the recall period, the less accurate the reported estimates (Bhandari & Wagner, 2006). However, even though the likelihood of error increases with more extended recall periods, so does the amount of information provided. Hence, there is a potential trade-off between recall error and information (Kjellsson et al., 2014).

Although emotionally important events are more memorable than ordinary daily life events, the nature of memories for emotionally touching events is widely debated (Van Giezen et al., 2005). Rememorizing emotional events also requires careful handling, as sometimes the highly emotional events become subject to distortion. Victims of assault or war exposure tend to amplify their memories of the event, and that memory for emotional events remains the same or diminishes over time (Van Giezen et al., 2005). Conceivably, after passing through a grim phase of life, when the situation is not normal for a considerable amount of time, respondents usually find it difficult to recollect previous events or practices accurately or omit details. Our interaction particularly highlights that specific questions against knowledge, attitude, and practices towards hygiene were an area where subsequent events and experiences influenced the accuracy and volume of memories. Of course, considering the overall challenge of data collection, it is beyond our reach to justify this or further qualify. Bhandari and Wagner (2006) suggest that the implications of a recall error could be more severe if the results are meant to examine the relationship between the use of services and socio-economic variables, such as demand or supply using regression analysis.

[5] Considering that the initial COVID-19 cases in India started in first week of March and in Odisha, while the first case was reported on 16th March, it started picking from first week of April.

Although the studies we mainly investigated differ based on objectives, nature of questions, methodologies, and the characteristics of the respondents, they had one thing in common: the intention to understand the COVID-19 impact. Looking at the study designs and after interacting with field investigators who administered the questionnaire, it was hard to draw a universal inference about the nature of recall error. While some of the investigators highlighted the issue of being unable to recall, others complained about falsifying the facts without being able to recall. A volunteer from one of the NGOs stated:

"As we are undertaking a study focusing on food consumption diary, before and during the COVID period to understand nutritional patterns at the household level, we observe issues in the form of a recall. Particularly, when we ask more specific questions about the intake of vegetables, fruits, or fish, we are getting contradictory statements from the same households. We are not sure if people are not able to recall or just providing us wrong data sets. Unfortunately, we have no alternate way to triangulate with alternative questions, as telephonic interviews do not allow a longer interview."

Remarkably, the pace of the roll-out of the technologies, without ensuring basic minimum checks and balances, results in data collection that may not be completely reliable or reflect the community's actual viewpoint. There cannot be a dual view that increased dialogue and intense planning could have mitigated these risks. However, most of these research exercises were rapid, and no field testing or course corrections were planned before or during the projects.

4.3. Process of Data Collection

Advances in ICTs offer new prospects for collecting, analysing, and sharing data with a larger audience (Ashar et al., 2010). However, it can also be challenging for researchers to improve data collection techniques with rapidly changing technology because of the need for fast learning and the financial implications of acquiring and learning the required skills. It may also be more challenging to build rapport using online platforms than face-to-face interviewing (Cater, 2011). The current COVID-19 situation has been rendered complex by uncertainty, fear, and socio-economic burdens of both parties engaged in the research exercise. A Senior Programme Manager associated with an NGO working with adolescents mentioned:

"COVID-19 brought some unresolved questions, including how to undertake field-based research without physically visiting the communities and places. With increased demand for virtual data collections, particularly focusing on most vulnerable, we are also trying to measure our internal capacity about whether we are well equipped, and have the technical skill to manage using technologies, what opportunities and challenges they bring, and at the same time, what kinds of biases might these new modes of data collections bring, against how do we mitigate them?"

This reflects that, with limited resources and knowledge about conducting research in the new context and inadequate access to digital data collection methodologies, COVID-19 has brought additional pressure on CSOs to undertake field-based research. They were neither prepared nor agile to face the situation.

During the COVID-19 period, peoples' livelihoods and lives have been intensely disrupted, and there is a need and urgency to assess which policy choices are legitimate. Krumpal (2011) has reflected the social desirability bias in various sensitive surveys. The study by Groves (2011) highlights that response rates are traditionally lower for remote data collection than for face-to-face data collection. However, it is also contextual regarding who is undertaking the survey and who are the respondents. COVID-19 brings new challenges whereby the overall research environment is vitiated. People-centred research needs careful consideration in selecting appropriate technology to design, implement and analyse findings. Planning and use of technology must consider digital inclusion and literacy. The technology may also reach multiple groups, including children, women, people with disabilities, and other disadvantaged groups, in different ways. Differences can occur due to factors such as the characteristics and efficiency of digital technology in relation to individual groups, the specific conditions in which groups live, or the various tools (including technology) that groups may access (UNICEF, 2021a).

4.3.1. Telephonic Survey

A more fundamental problem arises with remote interviews against drawing a representative sample of the target population and interviewing them. Researchers often build into their design an assumption of random selection at the household level after keeping certain flexibility regarding respondents'

non-availability. We also noticed that while the only alternative for data collection is remote data collection, obtaining mobile numbers has become critical and challenging. Each agency has, therefore, roped in local volunteers to get support with mobile numbers. This also poses a severe methodological issue, and therefore, triangulating with the identities becomes the foremost action before the interview starts to ensure nothing regarding the confidentiality of data is being collected.

In India, the percentage of the population with a landline telephone has steadily decreased in the past decade (ET, 2017)[6]. Alternatively, with cheap call rates and ease of handling, mobile penetration has increased significantly. There is inadequate network coverage across states, particularly in those with difficult terrains and conflict-affected areas. In such a situation, a telephone survey becomes even more challenging, rendering it impractical and ineffective. Further, mobile noncoverage is becoming a concern if the study's planned population groups without a mobile phone differ significantly from those with mobile with better coverage regarding the characteristics under consideration. People without a household phone are more likely to be of a minority community, less educated, live in rural areas, and are more likely to have poorer self-rated health than those with a phone (Ford, 1998). For example, in a remote area, if the most impoverished household does not have a mobile phone or has a phone without inadequate coverage, there is a tendency to move to the next household, which is comparatively more prosperous and better off or at least have a different characteristic than the previous. However, in such scenarios, the information collected would not make sense as the actual sample household is not covered. Without physical mobility and limited ability to cross-verify many households, the research managers may find it challenging to cover the sample households, thereby increasing the sampling error. In specific contexts, participatory research may end up being unrepresentative to either a beneficiary or a group viewpoint, which may reflect the majority or elite's perspective, undermining its intended intent.

Keeter et al. (2017) highlighted the persistence of low response and weakness in telephonic surveys. Our interaction highlights that during the COVID-

[6]See for Details, ET (2017), https://economictimes.indiatimes.com/tech/hardware/landline-phone-connections-see-drastic-fall-in-5-years/articleshow/57943752.cms?from=mdr

19 pandemic, without personal motivations or influence, the response rates were low. This is even though the respondents are mostly confined to their houses, without much work. This might be due to a confluence of factors, including changing life patterns, when respondents are going through an anxious situation, witnessing limited value in research, or avoiding sharing information. As we have discussed, research managers and field investigators have made several efforts to improve falling response rates, including personal rapport building.

Further, commissioning a telephone survey to generate evidence about specific research topics, such as attitude, behaviour, or practice, has always remained challenging. Demographic questions and those concerning other risk factors, such as smoking, alcohol intake, height, and weight, are recorded with moderate to high reliability and validity (Nelson et al., 2001). Mr SS[7], a field investigator working in Puri, highlighted that:

"People are conscious nowadays. With an increased number of phone-based frauds, phone surveys seeking information often put them under risk. Several times, the respondents just shout at them and threaten police complaints. Respondents also become restless beyond ten to fifteen minutes of interaction and sometimes just disconnect the phone. It's difficult to bring them back on the phone."

During any specific research, it is often the minimal changes in behaviour or a situation that matters and that need to be documented. In order to understand the context, investigators need to observe the small changes where the 'spirit of change' is visible, who understands the culture and context (Crishna, 2007). Therefore, with limited sample size and faulty data sets, telephonic surveys' quality becomes questionable. Studies derived from such data can have severe flaws in outcomes, adversely impacting effective policymaking.

4.3.2. Online Data Collection

The use of digital technology for remote data collection, though gathering momentum, is relatively new. The process is cumbersome, as one needs to identify the email address or publicly share the questionnaire among a

[7] Names have been modified to provide anonymity to informants

specific group to collect information. COVID-19 further opened the possibility of gathering data using digital platforms. However, during our interactions with a grassroots NGO working on humanitarian issues, we were told that the most significant disadvantage of this data collection method is that many people do not have an email address, and some prefer not to use it. Further, according to NSSO data (2017-18), only 5% of households in Odisha have a computer, and around 11% of households have internet facilities at home. Similarly, at all India levels, only 10% of the households have access to a computer, and 24% have internet facilities at home. This data further significantly varies between rural and urban sectors. For example, in rural Odisha, only two per cent of households have computer facilities, whereas, at the urban level, a significant 20 per cent of households have computers. Further, the use of computers and the Internet is only 8.5% and 11% in Odisha, respectively[8]. Therefore, if the study aims at covering rural households, no reliable data can be collected using this approach.

Further, having a computer or internet at the household level does not mean the respondent is familiar with all the required applications necessary for answering a questionnaire online. Respondents may not answer or even delete the communication that does not interest them. Often, longer questionnaires via email fetch fewer responses. In addition, a significant issue of online surveys can be the participation rate. Roberts and Allen (2015) summarisethe reasons for the inadequate response: faulty email addresses when emails are the primary mode of recruitment, irregular or non-access of emails by potential participants, emails being filtered to the spam folder, and survey fatigue phenomenon common to all surveys. From our experience, we have witnessed that these surveys mainly include middle-class audiences – those with access to a computer or email, where findings often may become biased and depict similar perspectives.These aspects may decrease the response rate and possibly provide biased results.

5. Discussions

As some say,"We're all in the same ocean but in very different boats." For example, while every government has witnessed the same fundamental

[8] See for details, NSSO 2017-18: Social Consumption on Education Survey

economic and public-health challenges due to COVID-19, the impact at the grassroots level has been diverse, and therefore, undertaking deeper analysis will be edifying. Through innovative methods and tools, ethnographic research can help draw actionable recommendations from this experience. However, the unprecedented nature of the crisis also demands innovation.Having discussed the nuances, all these evidence-building methods can support the ethical choices governments and key actors make during this difficult time. Further banking on data in isolation, without carefully considering underlying conditions, can be ineffective. For example, several recent epidemiological projection models highlight how the virus may spread depending on the measures taken by the Government or even how the current economy in India will react against the tax collections. While they are not based on population-based research, they provide a wealth of information for decision-making at the grassroots level.

UNICEF (2021b) claims that balancing the need to collect data to support sound decision-making versus protecting children from harm created through data collection has never been more challenging than in the global COVID-19 pandemic. Therefore, what remains a challenge is the plan for evidence-building. Our interaction with the NGOs reflects that 'not everyone is equipped' and 'equipping needs time and resources'. With the current circumstances, while several organisations are stressed in devising models for regular work, devoting additional time and resources for evidence-building is becoming challenging. The time demandscarefully examining which data can and should be collected that could help in decision-making. With layers of complexities, the demand for resource investments has also increased and therefore, research managers must weigh the moral challenges posed by not undertaking research against doing so. All research must potentially also consider the extent of action and inaction, the complications of postponement and resuming research, and the consequences of termination. The situation has also necessitated studying new areas, where data collection and systematic research have become essential and have immense potential for future policy implications. For example, the study of operationalization and maintenance of Temporary Health Management Centers (or quarantine centers) during COVID-19 in Odisha, which was given to Gram Panchayats to manage, where migrant workers spent the initial two weeks after their return can provide a wealth of knowledge on grassroots management of health facilities during normal times.

With agencies generating data from across the country, an open data-sharing model can help end repetitions. However, it is assumed that as the pandemic advances, there will be the emergence of technologies that will link these datasets, which may bring risk in terms of privacy implications, considering respondents'identities will be disclosed, and bringing additional challenges to ensure accountability, transparency, and transparent governance processes for data management. Our interaction with field investigators revealed that respondents sometimes share data without knowing for what purpose the data is collected or used. This happens when the researcher is known to the respondents or no such consent protocols are in place.

Each method discussed above, including recall bias and the response rate for virtual data collections, has positive and negative aspects and is new to the research world. However, COVID-19 have further layered them with multiple complexities. For example, phone-based research for COVID-19 rapid response surveys may have a low response rate, as precisely some of the people most affected are no longer reachable by phone, including individuals who have lost their jobs or workers who often use the organisation's phone. There are also cases of a substantive number of people who do not have access to a mobile phone, the gender gap in mobile phone ownership or even the disparity between rural and urban areas. Despite that, our discussion with NGO representatives highlights that telephone-based research seems to be the best alternative to face-to-faceinterviews. However, often, the absence of a human face makes it difficult for respondents to judge the reliability of the investigator, ultimately impacting trust-building. Moreover, without initial trust-building, these unplanned calls evoke anxiety. Therefore, helping an informal space and patient listening can benefit in building emotional connections and fetching correct answers from the respondents. For example, in anthropology, researchers are encouraged to engage with and reflect on their emotionality and positionality in research spaces and subjects (Campbell, 2002). We must also recognisethat it is not only the respondents but also the interviewer who faces extreme conditions and uncertainties during the crisis. Our interactions highlight that the researchers who have worked in similar circumstances, including cyclone FANI in Odisha,also felt the emotional strain because their personal lives are now intertwined with their professional lives.In most cases,the professional life outside the home could bring the risk closer to home and vice versa.

Our discussions with investigators reflect that they have often downplayed the mental burden out of anxiety of showing vulnerability or incapability. This can lead to a behaviourthat would promote competitiveness at the cost of personal well-being, which would further be encouraged by the larger institutional framework. As Van Dernootet al. (2009)point out, "the thought that the pain around us can change our own psychological and physiological responses, altering our worldview, may never have occurred to us. We often assume that our very status as helpers grants us immunity from the suffering we witness. We are often wrong".

6. Conclusion

We point to the need to balance research methodology requirements to obtain valid data, optimum use of technology, research ethics, and timeliness of the research outcomes. Further, there is a need to build researchers' skills, which is the key to dealing with situations that involve balancing the risks and benefits of actions.Considering that these are still uncommon times, the benefits of the long-standing techniques of conducting research are no longer apparent. However, we claim that the currently planned research work will continue to adapt to the situation using improved virtual methods,although the research managers will face and address challenges specific to sampling, mode of data collection, and managing everyday research ethics against ensuring the quality of data. It would also be possible that many questionnaires sent through email will remain unanswered or mobile calls will be rejected. Therefore, research managers must weigh the comparative advantage against the potential risk before deciding about any field-based research during the current COVID situation.Considering these complexities, we make our case for only that research which identifies and mitigates the apparent risks of entering a new research world during COVID-19. They can also benefit future research with enhanced methodology. This is in addition to whether we resume with more face-to-face methods or continue remotely remains to be seen. Perhaps there is a need for a stronger collaboration between research managers to put a benchmark in place, which can guide researchers to balance their research agenda and safety protocols.

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Article

Productivity Trends of Paddy in Andhra Pradesh and Telangana: An Analysis of Agro-Climatic Zones

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Abstract

This study has examined the paddy yield trends of the erstwhile state of Andhra Pradesh, and the present-day twin 'rice-bowl' states of Andhra Pradesh and Telangana, from 1997-98 to 2019-20. We see a phenomenal turnaround of rice production in Telangana, which for the first time in 2019-20, has overcome Andhra Pradesh, both in terms of paddy production and acreage.However, there's still some catching up to do for Telangana's paddy yield rates vis-a-vis AndhraPradesh. To further understand the dynamics of yield differences across time and space, wedelve into the agro-climatic zones of both these states to gauge the intra-state variation in paddyproductivity. There has been a steady growth in the yield rates of all the agro-climatic zones ofAndhra Pradesh from 2013-14 and of Telangana after 2016-17, with the latter witnessingreduced volatility as well. These trends have been correlated with expected changes in climaticfactors.

Keywords: Paddy Productivity, Paddy Yield, Andhra Pradesh, Telangana, Agro-Climatic Zones.

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Introduction

Agricultural production in India is largely influenced by climate variables. Since times immemorial, Indian farmers have been subjected to the vagaries of monsoonal winds. Lack of adequate knowledge about the soil and weather conditions, the inadequate reach of weather forecasts, the absence of institutional credit to a large pool of farmers, poor infrastructure and dismal levels of research and development expenditure in agricultural sciences are but a few of the factors that have a drag effect on the productivity of crops. The climate sensitivity of agriculture, in the Indian context, has a significant bearing on the farm-level net revenue (for instance, Kumar & Parikh, 2001). This problem becomes compounding when we place it in the context of depleting levels of groundwater and inadequate irrigation facilities, even when the demand for food products will only increase in the foreseeable future due to a steady rise in population. In toto, this will have serious distributional consequences for the economy (Mendelsohn et al., 2006).

Rice is a global staple for more than half of the world's population and half of the global rice production comes from India and China alone. FAO (2020) estimates that ninety percent of global production and a similar percentage of consumption comes from Asia (Bandumula et al., 2019). In India, one-third of total acreage goes to paddy cultivation and plays a crucial role in its food security as paddy alone comprises two-thirds of total foodgrain production (Pathak et al., 2020). However, India's paddy yield is significantly lower than that of China, Brazil and Vietnam (World Bank, 2012). With the demand for rice in India projected to cross 200 million tonnes by 2050 (ibid), it becomes important to analyse the state of paddy productivity to see whether the demand can be sustained or not. It is in this context that we evaluate the crop productivity trends in two of the largest paddy-producing states in India: erstwhile Andhra Pradesh (now the two Telugu states of the bifurcated Andhra Pradesh and newly created Telangana). Erstwhile Andhra Pradesh has been called a 'rice bowl' due to its distinct economic, historical and geographical position in the production of paddy in the country.

Studying the trends in the yield of paddy across different agro-climatic zones in the erstwhile state and analysing the differences in productivity across time and space is crucial to gauge the extent to which climate change

can impact the mean productivity of this staple crop. In the following section, we briefly present the agro-climatic description of the crop and the two states under consideration. We then illustrate the data used to analyse the differences in paddy productivity across geographies in these two states. Subsequently, we discuss the findings of this study and finally, in the concluding section, we give brief remarks on the way forward.

Background

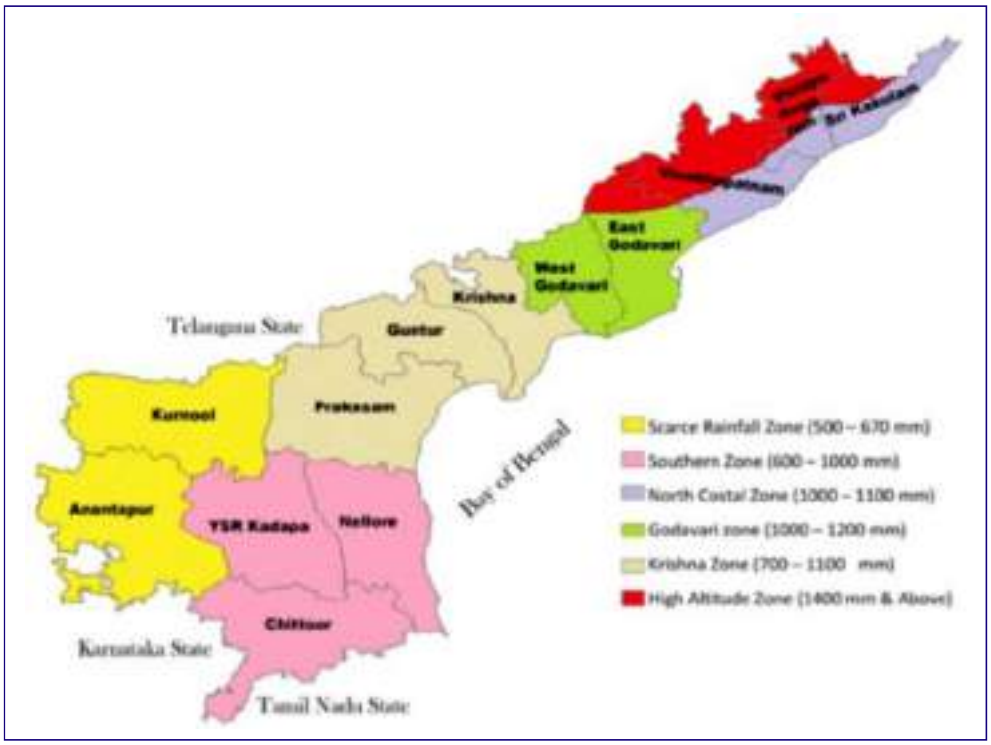
Paddy is a tropical crop and requires an average temperature during the growing season between 20°C and 27°C. Abundant sunshine is vital during its four months of growth. The minimum temperature should not go below 15°C as germination cannot take place below that temperature. Since paddy cultivation requires more water than any other crop, it is typically grown in those areas where minimum rainfall is 1150 mm, though regions having average annual rainfall between 1750—3000 mm are the most suitable. Paddy also needs flooded conditions with the depth of water varying over 25 mm at the time of transplanting to as much as 150 mm for 10 weeks of the growing period. Fertile riverine alluvial soil is best suited for paddy cultivation. Unlike other crops, paddy needs a level surface to enable the fields to be flooded at least during the growing period. Three essential plant nutrients viz. nitrogen, phosphorus and potassium are required by the paddy crop and the entire cultivation process is labour-intensive.

Andhra Pradesh is situated in a tropical region between 120°371′ and 190°541′ N latitudes and 760°46′ and 840°46′ E longitudes and has a 972 km long coastline. Annual precipitation, largely from the southwest monsoon, generally decreases toward the southwestern plateau area. Coastal areas receive about 1,000-1,200 mm per year while the westernmost part of the plateau may receive only half that much. Rainfall totals in portions of the northeastern mountains exceed 1200 mm and can be as high as 1400 mm. The soil profile of the state is dominated by red soils which occupy about 65% of the area, while black soils account for about 25%, and the rest includes alluvial and laterite soils.

Telangana was a region within Andhra Pradesh for almost six decades, but in 2014, it got statehood after bifurcation from Andhra Pradesh. At present, Andhra Pradesh is divided into 26 districts and these are grouped into two broad administrative regions- Andhra and Rayalaseema. In this

context, Bhavani et al. (2017) note that Andhra Pradesh has witnessed a quantum leap in food productivity and production through agro-climate-based, location-specific research strategies for multi-faceted crops. Therefore, for a meaningful study of crop productivities with an interface of agro-climate dynamics, a zonation of regions based on distinctive climatic features becomes the foremost step. Note that till 2019-20, the latest year under consideration for the present study, the number of districts in Andhra Pradesh was 13 and hence, we only consider the erstwhile division.

Figure 1: Agro-Climatic Zones of Andhra Pradesh



Source: Directorate of Economics and Statistics, Planning Department, Government of Andhra Pradesh (2020)

Andhra Pradesh has been divided into six agro-climatic zones viz. Scarce Rainfall Zone (500-670 mm), Southern Zone (600-1000 mm), North Coastal Zone (1000-1100 mm), Godavari Zone (1000-1200 mm), Krishna Zone (700-1100 mm) and High Altitude Zone (1400 mm and above). The districts falling into each agro-climatic zone are shown in Figure 1. Table 1 provides a brief description of each of the agro-climatic zones of the state.

Table 1: Details of the Agro-Climatic Zones of Andhra Pradesh

Agro-Climatic Zone	Type of the Soil	Important Crops Grown	Normal Rainfall (in mm)	Maximum temperatures during S-W Monsoon	Minimum temperatures during S-W Monsoon
North Coastal Zone	Deltaic Alluvium, Red soils with clay, Black Cotton (BC) soils, Red loams, coastal sands, saline soils.	Rice, cashew-nut, groundnut, coconut, mango, mesta, ragi, sugarcane	1000-1100	33-35°C	26-27°C
Godavari Zone	Red soils with clay base, pockets of acidic soils, laterite soils, soils with pH 4 5.	Rice, coconut, cashew nut, mango, sugarcane	1000-1200	32-36°C	23-24°C
Krishna Zone	Red loamy soils, black cotton soils and saline soils.	Rice, mango, cotton, sugarcane, chillies, redgram, sesamum	700-1100	32-36°C	21-23°C
Southern Zone	Chalks, Red sandy soils, Dubbas, Deep Red loamy soils and very deep BC soils.	Rice, lemon, sesamum, mango, groundnut, sugarcane, redgram	600-1000	36-40°C	23-25°C
Scarce Rainfall Zone	Red earths, BC Soils and chalks	Groundnut, redgram, rice, Batavia, castor	500-670	32-36°C	24-30°C
High Altitude and Tribal Areas Zone	Red sandy loams and patches of all Arial soils.	Coffee, pepper, chillies, rice and horticulture crops.	1400 and above	29-34°C	13-27°C

Source: Compiled from Agricultural Statistics at a Glance Report 2019-20, Government of Andhra Pradesh.

Telangana, the youngest state in the country, stands twelfth in terms of both geographical area and population. It is located in south-central India between 15°55'N to 19°55'N latitude and 77°10'E to 81°50'E longitude and is a fully landlocked state. With 1120.8 million hectares of land, Telangana lies in the semi-arid zone with a predominantly hot and dry climate. In its north flows Godavari river while Krishna river flows in its south, both having drastic seasonal variations in water flow and are the two largest non-perennial rivers in India. Note that these two rivers, along with their tributaries, flow through Andhra Pradesh subsequently and discharge into the Bay of Bengal in the Krishna-Godavari belt, which is one of the most fertile regions of the country. However, two-thirds of Telangana's cultivated area is rain-fed and more than three-fourths of irrigated area is via dug wells and bore wells. Therefore, Telangana, which lies in the Deccan rainshadow region, is a critically rain-dependent state and is prone to climate vulnerabilities. Also, around 85 per cent of its farmers are small and marginal. Parida et al. (2018) confirm that Telangana has witnessed intensive droughts and has a high incidence of farmer suicides. Therefore, it is the combination of drought-like conditions, low rainfall and groundwater levels which bear an adverse impact on the food security of the state.

Telangana, at the eve of the reorganization of erstwhile Andhra Pradesh, had ten districts. In 2016, the state government has created twenty-one more districts and again, in 2018, two more districts have been created, taking the total to thirty-three at present. These districts have been broadly classified into three agro-climatic zones based on rainfall, nature of soil and climate: North Telangana zone (11 districts), Central Telangana zone (10 districts) and South Telangana Zone (12 districts). While the average rainfall in the North Telangana zone ranges from 950 to 1150 mm., it ranges from 800-1300 mm. in the Central Telangana zone and between 560-800 mm. in the South Telangana zone.

Figure 2: Agro-Climatic Zones of Telangana

Source: Directorate of Economics & Statistics, Planning Department, Government of Telangana (January 2021)

In addition to the above three zones, the state also has a fourth agro-climatic zone, although minor and insignificant, in the extreme northern and eastern borders. For all practical purposes, this zone is quite similar to its contiguous zones in North and Central Telangana, and therefore, not independently analysed for research purposes. Figure 2 contains the geographical classification of Telangana's agro-climatic zones. Table 2 below provides a brief snapshot of the characteristics of Telangana's agro-climatic zones.

Table 2: Characteristics of Agro-Climatic Zones of Telangana

Agro-Climatic Zone	Total Area (million hectares)	Districts	Range of Average Annual Rainfall	Type of the Soil	Important Crops	Mean Temperature (Summer)		Mean Temperature (Winter)	
						Min.	Max.	Min.	Max.
North Telangana Zone	3.55	Adilabad, Kumuram Bheem, Mancherial, Peddapalli, Jagtial, Nirmal, Rajanna Sircilla, Kamareddy, Karimnagar & Nizamabad.	950 to 1150 mm	Red soils, chalks (loamy soil), red sands and deep red loams along with very deep black cotton soils.	Rice, Maize, Cotton, Jowar, Groundnut, Redgram, Turmeric.	32°C	40°C	15°C	25°C
Central Telangana Zone	3.06	Siddipet, Jangaon, Medak, Sangareddy, Warangal Urban, Warangal Rural, Mahabubabad, Khammam, Jayashankar, Mulugu & Bhadradri Kothagudem.	800 to 1300 mm	Red soils, chalks, red sands and deep red loams along with very deep black cotton 2 soils.	Rice, Cotton, Maize, Groundnut, Greengram, Jowar, Chili, Mango.	32°C	38°C	18°C	25°C
South Telangana Zone	3.93	Medchal-Malkajgiri, Wanaparthy, Yadadri Bhuvanagiri, Jogulamba Gadwal, Mahabubnagar, Nagarkurnool, Nalgonda, Suryapet, Narayanpet, Rangareddy, Hyderabad & Vikarabad.	560 to 800 mm	Red soil and Chalks.	Cotton, Rice, Redgram, Maize, Groundnut and Greengram, Jowar.	32°C	38°C	20°C	26°C

Source: Compiled from Weather & Climatology of Telangana Report, January 2021.

Erstwhile Andhra Pradesh was a major paddy producer with its production witnessing a massive increase of 200 percent in the past six decades, as a result of green revolution. Due to its geographical advantages, the state has most of its districts under high productivity in paddy (more than 5 tonnes/hectare) that account of more than three-fourths of its production (Sunandini et al., 2020).

Paddy continues to dominate the agricultural landscape of Telangana and has seen a significant increase in production in recent years. Since 2014-15, the share of paddy cultivation in total gross cropped area in the state has more than doubled to fifty percent in 2019-20 (Akula et al., 2022). This marked the rise of Telangana as a national leader in paddy production. As there is limited scope to increase the area under paddy cultivation, the focus should be on improving its yield to meet the future demand for rice.

Both Andhra Pradesh and Telangana exhibit the potential to improve their position to the top three states of India in terms of rice yield. While multiple schemes in both the states target improving irrigation, production and access to farm inputs through subsidies, crop insurance, lift and canal irrigation schemes, information dissemination centres etc., it is worthwhile mentioning the recently introduced scheme of 'Rythu Bandhu' in Telangana along with restoration and construction of many irrigation projects undertaken under the umbrella schemes of 'Mission Kakatiya' and 'Kaleswaram Lift Irrigation Project' (KLIP). Telangana's phenomenal rise in the production of paddy coincides with the establishment of 'Rythu Vedikas' at cluster level and 'seed hubs' along with the above programmes. The state's initiatives via the KLIP, which is the world's largest multi-stage lift irrigation project, aims to produce 169 TMC of water for irrigation purposes (thereby, also recharging the groundwater levels) in the Central Telangana zone and other interiors, has a direct bearing on the quantum jump in rice production by this state post 2018-19.

Data and Observations

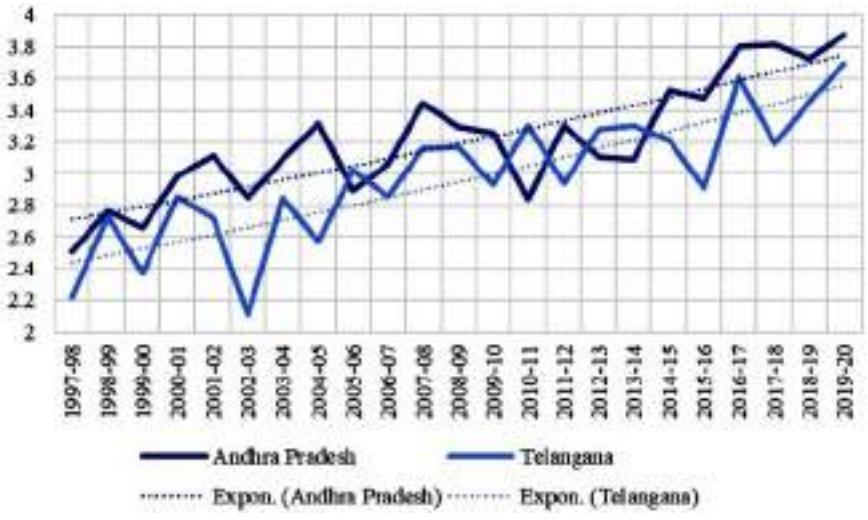
This study analyses the yield of paddy across the various agro-climatic zones of the two Telugu states of Andhra Pradesh and Telangana from 1997 to 2020, and attempts to study the factors behind its differentials. Until 2014, Telangana was a constituent region in the hitherto larger state of Andhra Pradesh, and therefore, from 1997 to 2014, we study the paddy productivity in erstwhile Andhra Pradesh. From 2014 to 2020, we study the same regions

in the two states separately. However, since the administrative regions of Telangana and Andhra Pradesh remained the same until 2015-16, our analysis remains the same as before. Post a major reorganisation of the districts of Telangana in 2016 and again in 2018, whose number increased from ten to thirty-one and finally to thirty-three, due to lack of comparable data for the ex-ante regions, this study takes a simplified overall view of the reorganised districts as part of the constituent agro-climatic zone.

Though Andhra Pradesh has been divided into six agro-climatic zones, four of its districts viz. East Godavari, Visakhapatnam, Vizianagaram, and Srikakulam partially also come under the 'High Altitude and Tribal Areas' zone (see Figure 1). Due to the unavailability of data and the lack of suitability of this region for paddy cultivation (since paddy requires flat land and hilly tracts can only produce subsistence level of paddy), we ignore this zone and consider these districts only under one agro-climatic zone. Figure 3 depicts the annual paddy yield of Andhra Pradesh and Telangana from 1997-98 to 2019-20.

Hereafter in this study, we consider the districts which were earlier a part of Andhra Pradesh but are now a part of Telangana as constituting the Telangana "region" from 1997-2014. From Figure 3, we see that there has been an upward trend in the yield of paddy for both Andhra Pradesh and Telangana since 1997-98, although there is great volatility. In general, it is seen that the yield of the former, for most years in the last two decades, has been higher than that of the latter (Figure 3).

Figure 3: Paddy Yield Trend of Andhra Pradesh and Telangana, 1997-2020



Post-bifurcation of Andhra Pradesh, Telangana's paddy yield has consistently registered less than Andhra Pradesh. Upon closer scrutiny, we see that Andhra Pradesh has always performed better than Telangana in both paddy acreage and paddy production until we see not just signs of convergence but the first instance of reversal of this trend post-2018-19 (Figures 4 and 5). A two-third increase in paddy acreage coupled with a near doubling of paddy production in Telangana in 2019-20 has resulted in a higher acreage and production of paddy in Telangana than in Andhra Pradesh for the first time in at least 2 decades (Table 3). In the later part of the paper, we survey the possible factors behind such a trend.

Table 3: Annual Paddy Production, Area and Yield in Andhra Pradesh and Telangana, 1997-2020

Year	Andhra Pradesh			Telangana		
	Production*	Area**	Yield***	Production*	Area**	Yield***
1997-98	64.36	25.65	2.51	20.74	9.35	2.22
1998-99	76.88	27.80	2.77	41.90	15.36	2.73
1999-00	70.13	26.34	2.66	32.75	13.80	2.37
2000-01	80.41	26.95	2.98	44.17	15.48	2.85
2001-02	78.24	25.15	3.11	35.66	13.09	2.72
2002-03	53.15	18.67	2.85	20.11	9.55	2.11
2003-04	60.54	19.57	3.09	28.99	10.17	2.85
2004-05	73.93	22.28	3.32	22.08	8.59	2.57
2005-06	72.89	25.21	2.89	44.15	14.61	3.02
2006-07	76.16	24.89	3.06	42.56	14.89	2.86
2007-08	88.80	25.76	3.45	44.44	14.08	3.16
2008-09	88.81	26.96	3.29	53.61	16.91	3.17
2009-10	75.69	23.26	3.25	32.69	11.15	2.93
2010-11	78.83	27.72	2.84	65.36	19.79	3.30
2011-12	77.44	23.46	3.30	51.48	17.50	2.94
2012-13	68.63	22.10	3.11	46.48	14.18	3.28
2013-14	79.93	25.83	3.09	65.81	19.94	3.30
2014-15	84.56	23.94	3.53	45.45	14.15	3.21
2015-16	75.18	21.61	3.48	30.47	10.46	2.91
2016-17	80.02	21.05	3.80	65.99	18.29	3.61
2017-18	84.61	22.18	3.81	62.63	19.62	3.19
2018-19	82.35	22.08	3.73	66.69	19.32	3.45
2019-20	91.40	23.56	3.88	118.86	32.16	3.70

**in Lakh Metric Tonnes (LMT), **in Lakh Hectares, ***in Tonnes/Hectares*
Source: Area and Production Statistics, Min. of Agriculture and Farmers Welfare, Govt. of India

Figure 4: Paddy Acreage of Andhra Pradesh and Telangana, 1997-2020 (Actual in lakh hectares)

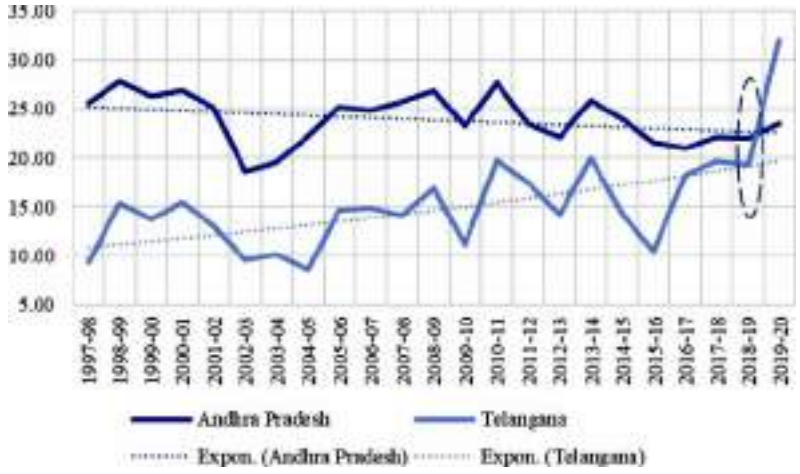
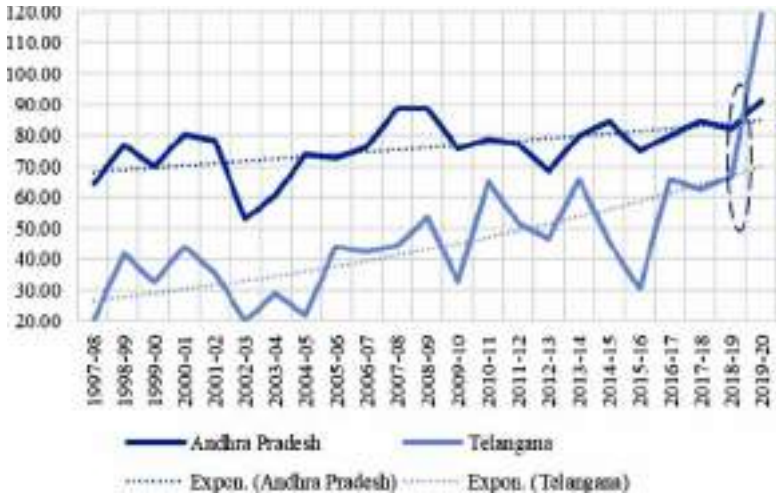


Figure 5: Paddy Production in LMT of Andhra Pradesh and Telangana from 1997-2020.



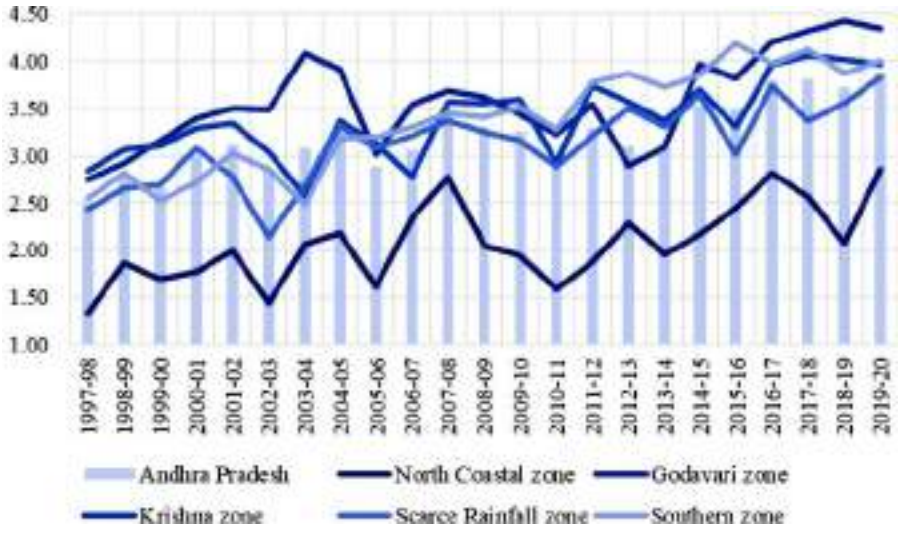
Also, we see that Telangana has seen greater volatility in paddy acreage, production and consequently in yield for the time period in consideration, vis-a-vis Andhra Pradesh. We now perform a sub-state level analysis of paddy productivity in both states. As mentioned above, the sub-state analysis is in terms of the agro-climatic zones.

In the North Coastal zone, the paddy yield fluctuates more since 2004-05 than during the period 1997-2004 (Figure 6). Here, we note that 2003-04 was the first year after many successive years of deficit rainfall for Srikakulam (when the deficit reached a high of (-)25% in 2002-03 as per the District Survey Report of Srikakulam District by the Director of Mines

and Geology, Government of Andhra Pradesh). The rainfall departure in 2011-12 is (+)57% in this zone and this partly explains the spike in the yield rate for the next couple of years. However, this rise has not been drastic and this can be traced to the unfavourable temperature conditions in this region. Since 2014-15, we see a general increase in the moving average of yield rates in this region and can be correlated with the excess rainfall, in general, in Visakhapatnam and Vizianagaram districts, increase in net irrigated area in the districts of Srikakulam and Vizianagaram and favourable temperature conditions. Note that the devastating cyclone 'Hudhud' that traversed this region and caused excessive destruction of lives and livelihood in October 2014, had a minimal effect on the rice yields.

The zones of Godavari and Krishna are the most fertile regions of Andhra Pradesh and these two zones alone account for more than three-fourths of the entire paddy production and acreage of the state of Andhra Pradesh. Not surprisingly, these zones have seen a rising trend in their paddy yields due to the most favourable conditions for Paddy cultivation (including soil type, temperature, flooding conditions, and rainfall). Godavari zone, owing to marginally higher production and acreage vis-a-vis Krishna zone, has slightly higher yields than the Krishna zone across the years under consideration. Again, observe that this region is the deltaic belt of peninsular India's two longest rivers. This wide fertile plain has rich alluvial fans and deposits of other minerals, and together with sufficient temperature and rainfall conditions, this region becomes the nerve centre of Andhra Pradesh's 'rice bowl' status.

Figure 6: Paddy Yield Trend Across Agro-Climatic zones of Andhra Pradesh from 1997-2020



In West Godavari district, the month of February 2012 saw (-)98% rainfall (as per the Annual Administration Report 2011-12, Directorate of Economics and Statistics, Government of Andhra Pradesh). Since the rest of the year was not able to make up for February's deficit, the paddy yield fell drastically in 2012-13 from 3.55 previously to 2.90. From a macro perspective, we see that the acreage in Godavari zone improved significantly even while the production remained near-constant as compared to the previous years, in 2011-12. From 2012-13 through 2018-19, while the acreage remained constant at a high average of around eight lakh hectares per annum, the production continued to increase at a steady pace, thereby inflating the yield rates. In recent times, it seems that the yield rates have been stabilizing at around 4.3 to 4.4 LMT per annum in Godavari zone (Table 4).

Table 4: Annual Paddy Yield (in Tonnes/Ha) in the Agro-Climatic Zones of Andhra Pradesh, 1997-2020

Year	North Coastal	Godavari	Krishna	Scarce Rainfall	Southern	Andhra Pradesh
1997-98	1.34	2.75	2.85	2.43	2.55	2.51
1998-99	1.87	2.92	3.07	2.65	2.82	2.77
1999-00	1.70	3.16	3.10	2.70	2.52	2.66
2000-01	1.77	3.40	3.29	3.08	2.72	2.98
2001-02	1.99	3.50	3.35	2.78	3.02	3.11
2002-03	1.44	3.49	3.04	2.14	2.85	2.85
2003-04	2.07	4.09	2.58	2.68	2.48	3.09
2004-05	2.18	3.91	3.37	3.31	3.19	3.32
2005-06	1.61	3.02	3.13	3.09	3.20	2.89
2006-07	2.35	3.55	2.78	3.22	3.31	3.06
2007-08	2.77	3.68	3.57	3.37	3.45	3.45
2008-09	2.05	3.62	3.56	3.26	3.42	3.29
2009-10	1.94	3.45	3.60	3.16	3.52	3.25
2010-11	1.58	3.23	2.93	2.89	3.28	2.84
2011-12	1.88	3.55	3.74	3.22	3.78	3.30
2012-13	2.28	2.90	3.57	3.50	3.87	3.11
2013-14	1.95	3.09	3.38	3.31	3.73	3.09
2014-15	2.17	3.97	3.71	3.66	3.87	3.53
2015-16	2.45	3.82	3.31	3.02	4.19	3.48
2016-17	2.81	4.20	3.97	3.74	3.98	3.80
2017-18	2.56	4.32	4.06	3.37	4.13	3.81
2018-19	2.07	4.43	4.02	3.56	3.87	3.73
2019-20	2.85	4.35	3.97	3.84	4.01	3.88

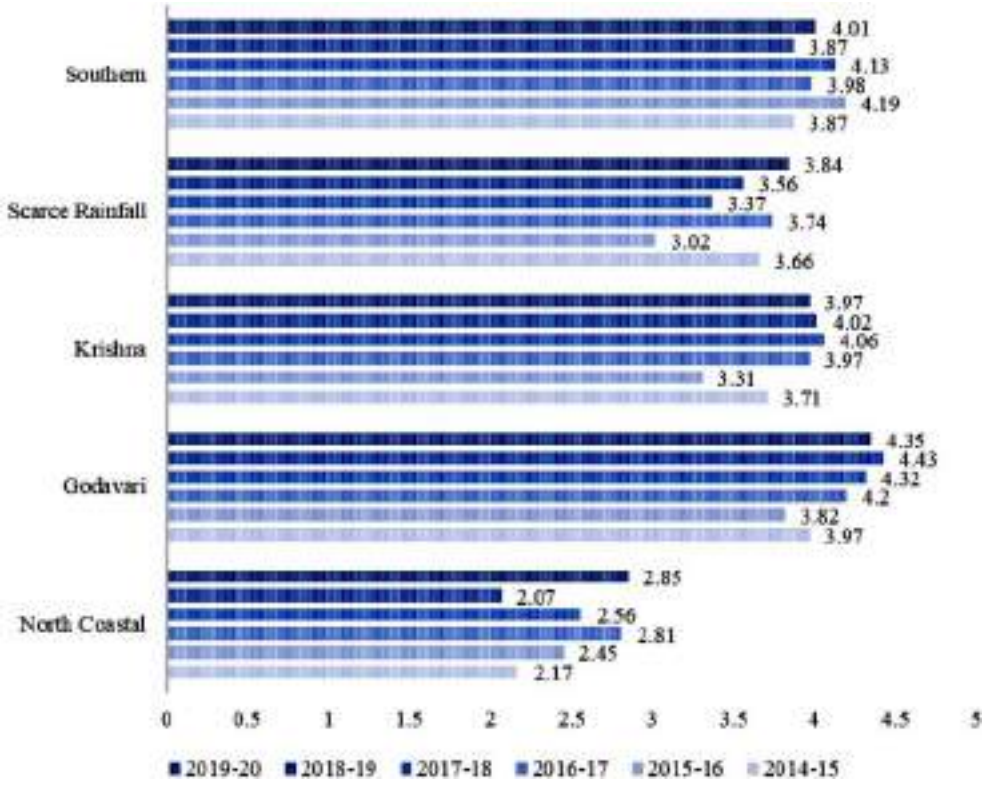
Source: Authors' own calculations from available secondary data.

In the Krishna zone, the net irrigated area fell drastically from 437000 hectares to 286000 hectares in Guntur and from 224000 hectares to 148000 hectares in Prakasam from 2014-15 to 2015-16 respectively. This has to be seen in conjunction with less rainfall, despite favourable temperature conditions, and possibly offer an explanation for the fall in paddy yield from 2014-15 to 2015-16 in this zone. In fact, since 2012-13, Krishna zone has witnessed extreme volatility in the paddy yield, due to huge annual variations in both paddy production and acreage in this area. Despite conditions similar to Godavari zone, Krishna zone witnessed wide fluctuations in paddy production, although the net irrigated area remained fairly constant. This could imply the seasonal shift in the selection of crops due to various economic considerations.

In the Scarce Rainfall zone, the production of paddy has constantly hovered around 4-5 LMT over an acreage of around 1.5 lakh hectares, in the last two decades. The Scarce Rainfall zone, albeit having less rainfall than the North Coastal zone and having a sub-optimal soil type ideal for paddy, has seen better paddy yields. This is corroborated by the higher net irrigated area as a percentage of the total cropped area for this zone. Mention is warranted for Kurnool district which, in 2014-15, had a net irrigated area as high as 246000 hectares and a yield of 3.87 tonnes per hectare. In 2014-15, the differential of this ratio across the two zones was high and explains the drastic difference between the paddy yield which was a paltry 2.17 tonnes per hectare in the North Coastal zone in comparison to 3.66 tonnes per hectare in the Scarce Rainfall zone.

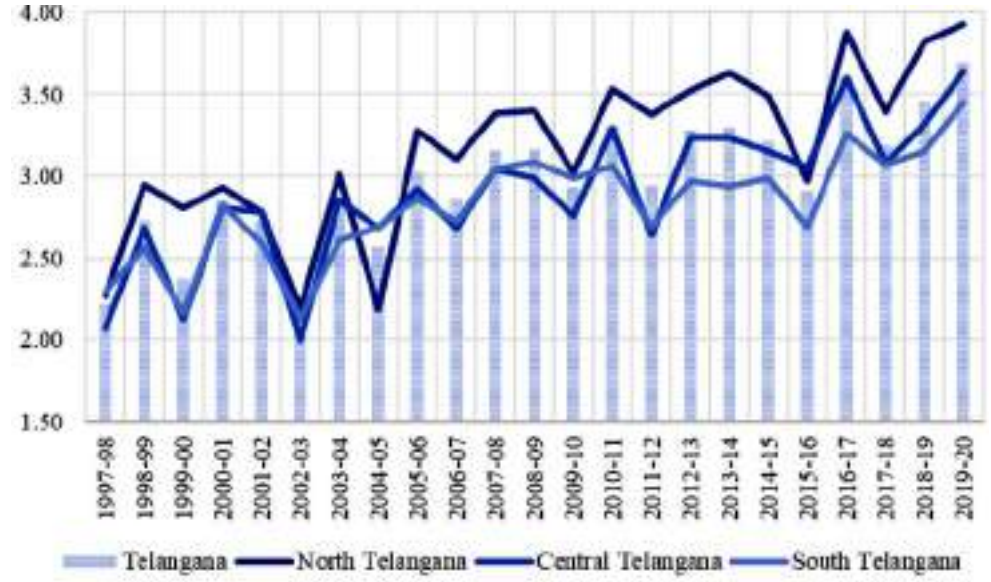
Finally, the Southern zone of Andhra Pradesh, which comprises the three districts of Chittoor, Kadapa and Nellore, has witnessed a rising trend in paddy yields since 1997, although this is due to a marginal rise in production over the years coupled with a marginal decline in average annual acreage. The Southern zone too, despite being at a backfoot vis-a-vis the North Coastal zone when it comes to rainfall, performs much better than the North Coastal zone in terms of paddy yield. This zone has witnessed the highest yield in 2015-16 across the five zones (Figure 7) and also the highest for this zone from 1997-2020, with a major contribution coming from Nellore district which took its net irrigated area to a peak of 308000 hectares in this year that coincided with a surplus rainfall.

Figure 7: Paddy Yield Trend Across the Agro-climatic Zonesof Andhra Pradesh, 2014-20



We next consider the newly formed state of Telangana, although this has been a distinctive administrative region in the erstwhile Andhra Pradesh. Out of the three agro-climatic zones of Telangana, The North Telangana zone does much better when compared to the other two zones in almost all the years. This can be attributed to the performance of Karimnagar and Nizamabad which have seen higher yields, mostly in the range of 3-4 due to high rainfall. Adilabad, Karimnagar and Nizamabad, all of which showed a drastic improvement in paddy yield from 2002-03 to 2003-04, and especially Nizamabad (1.59 to 2.48, 2.74 to 3.21, 1.68 to 3.09 respectively) helped improve the paddy yield sharply in the North Telangana zone to 3.02 in 2003-04 from 2.19 in the previous year.

Figure 8: Paddy Yield trend across theAgro-Climatic Zones of Telangana, 1997-2020



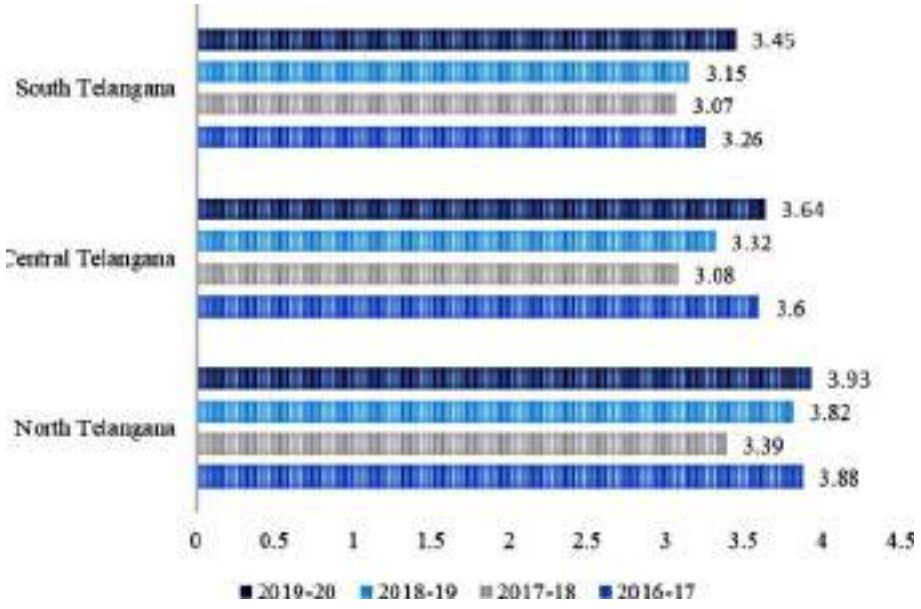
We note that since 2015-16, there has been an exponential rise in the production and acreage of paddy in the North Telangana zone, largely accounting for the huge increase in the net irrigated area owing to better facilities and targeted production (Table 5). Owing to these factors, Telangana, as a whole, has become the second-largest supplier of rice to the public distribution system pool in the country, only behind Punjab, thereby contributing hugely to the national food security scenario.

Table 5: Annual Paddy Yield (in Tonnes/Ha) in the Agro-Climatic Zones of Telangana, 1997-2020

Year	North Telangana	Central Telangana	South Telangana	Telangana
1997-98	2.27	2.07	2.30	2.22
1998-99	2.94	2.68	2.57	2.73
1999-00	2.80	2.13	2.16	2.37
2000-01	2.93	2.80	2.83	2.85
2001-02	2.78	2.78	2.59	2.72
2002-03	2.19	1.99	2.13	2.11
2003-04	3.02	2.86	2.61	2.85
2004-05	2.19	2.69	2.69	2.57
2005-06	3.27	2.92	2.86	3.02
2006-07	3.11	2.68	2.72	2.86
2007-08	3.38	3.05	3.04	3.16
2008-09	3.40	2.99	3.09	3.17
2009-10	3.02	2.75	2.99	2.93
2010-11	3.53	3.30	3.06	3.30
2011-12	3.37	2.64	2.69	2.94
2012-13	3.53	3.24	2.97	3.28
2013-14	3.63	3.24	2.94	3.30
2014-15	3.49	3.15	2.99	3.21
2015-16	2.97	3.05	2.69	2.91
2016-17	3.88	3.60	3.26	3.61
2017-18	3.39	3.08	3.07	3.19
2018-19	3.82	3.32	3.15	3.45
2019-20	3.93	3.64	3.45	3.70

Source: Authors' own calculations from available secondary data.

Figure 9: Paddy Yield Trend across Agro-climatic Zones of Telangana, 2016-20



In the Central Telangana zone, the yield fell drastically from 2001-02 to 2002-03 (Figure 8). Though all the districts falling in this zone saw a decline in yield from 2001-02 to 2002-03, the sharpest decline was in Khammam from 2.84 to 1.74. A severe drought in Khammam district in that year has resulted in such a drastic fall in the yield. Later, the yield increased significantly in 2007-08 because of an increase in the yields of the constituent units of this zone, especially Khammam which improved from 2.51 in 2006-07 to 3.11 in 2007-08. For a decade from 2005 onwards, this zone has witnessed high volatility in the production, area sown and yield of paddy. From 2015-16, the volatility seems to be reducing, even as the trends have seen a sharp upward rise.

The South Telangana zone, though almost at par with the Central Telangana zone in the earlier years, started to lag behind it from 2012 onwards. This is due to severe drought in this zone with extremely high temperatures which were unfavourable for paddy production. With Telangana being hit with its worst-ever drought in 2016, the yield of the South Telangana zone stooped down. With the cooling of the drought conditions, the yields have been picking up lately in this zone. Both acreage-wise and production-

wise in paddy, the South Telangana zone overtook the Central Telangana zone and is now catching up with the North Telangana zone, although the yield rates are still low vis-a-vis the Central Telangana zone (Figure 9).

It is a known fact that the yield rate depends on, apart from the climatic factors, input quantities and quality, crop cultivation practices adopted, technologies utilized, soil profile, seed varieties chosen etc. Changes in any of these factors translate into changes in crop yields. Amidst this non-linear relationship, it is difficult to pinpoint the causes behind differences in yield over time, as the factors in question require micro-level data, that's hardly available, to analyze their impact on a macro-indicator of crop productivity. Of course, there are economic factors that influence the quantities of crop produce. Andhra Pradesh and Telangana rank among the top states not only in paddy cultivation but also in terms of rice consumption.

Conclusion

This study has surveyed the productivity trends of paddy in two of the top rice-producing states of India: Andhra Pradesh and Telangana, which together in recent times account for one-fifth to a quarter of the country's rice production annually. Rightly so, this region has been dubbed as a 'rice bowl' and given that these two states are among the top states in per-capita rice consumption, a 'rice sink' tag also bodes well. In this study, we have obtained meaningful insights into the fluctuations in the overall yield levels of these states' single most important crop and attempted to provide possible factors behind such overall trends. Such an analysis warranted a dissection of trends district-wise but due to obvious non-comparability and the frequent reorganization of the territorial extent of districts, we undertook a detailed analysis of productivity trends of paddy in both states according to their agro-climatic zones. An understanding of how yields have changed post the bifurcation of Andhra Pradesh has also been made.

There has been a steady growth in the yield rates of all the five agro-climatic zones of Andhra Pradesh after 2013-14, although Krishna district's volatility in paddy yield rates has been high during this period. However, in recent times, the Krishna-Godavari belt's yield rates have been stabilizing in a constant range. The Scarce-Rainfall zone, covering a major part of the Rayalaseema region, has outperformed vis-a-vis other zones, given its deficient rainfall, high temperatures and aridity. On the other hand, in

Telangana, after 2016-17, it is seen that there is a sharp rise in the yield rates, production and acreage of all the three agro-climatic zones in tandem, accompanied by reduced volatility.

Finally, we see that the net irrigated area of these states has had high variability in the past. Further improvements in irrigation facilities will have an ameliorating effect on the yield of this heavily water-dependent crop. Since the Indian monsoon is unpredictable and can lead to droughts at one moment and floods at another, mechanisms should be put in place for handling these extreme events, especially flooding. An overwhelming majority of the farmers in these states are small and marginal, with fragmented landholdings and heavy dependence on monsoon, which calls for interventions that, for instance, improve the water-use efficiency. An important first step is to ensure farmers choose the right seed variety and empower them in adopting correct seed management practices. State facilitation in the provision of inputs, information, incentives and infrastructure will go a long way in ensuring agriculture as a commercially remunerative endeavourfor farmers. Telangana's foray into the provision of timely insights to farmers about market intelligence is a case in point.

The extent of the impact of reforms on crop productivity in Telangana like 'Rythu Bandhu' needs to be analyzed and appropriate interventions need to be made, as necessary. Rythu Bandhu is an investment support cum insurance scheme that provides an input credit to farmers, and is also linked to the digitisation of land tile records. A reasonable prior expectation is that these possibly have a considerable impact on the phenomenal turnaround in the rice production of Telangana, which for the first time in 2019-20 has overcome Andhra Pradesh, both in terms of paddy production and acreage. Yet, there remains some way to go before Telangana's paddy yield rates also 'catch-up' with Andhra Pradesh.

In our study, we have only undertaken an exploratory analysis of yield differences and fluctuations of paddy for the two Telugu states. Further, regression analysis can be done to analyse the factors significantly affecting the paddy yield in these states and their various agro-climatic zones. This will help in furthering policy implications and designing the right policy interventions to provide the shot in the arm of the definitive factors that impact the paddy yield.

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Article

Bauxite Mining and Food Security: A Microanalysis in Koraput District, Odisha

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Abstract

Mining and quarrying activities are essential for economic growth and developmentgenerating employment opportunities, infrastructural facilities and significantly contributing towards the country's net domestic product and revenue receipts. They are also associated with a lot of problems of environmental pollution, health hazards, displacement of people andaffect the livelihood and food security of the people in the nearby region. This paper attempted to study the effect of bauxite mining in the Koraput district of Odisha. The studyrelied on with and without approach i.e., sample households belonged to the mining region (located withing the 5km from the active bauxite mining zone) and non-mining region (located beyond 5km from active bauxite mining zone) having similar characteristics exceptthat in the later there is no mining activity. To assess the food security of the households of both the regions, foodsecurity indicators Household Dietary Diversity Score (HDDS) and Household FoodInsecurity Access Scale (HFIAS) developed by Food and Nutrition on Technical Assistance (FANTA) were used. The larger proportion of the households of the mining region werefound to be highly food insecure in the form of dietary diversity as well as food accessibility.

Keywords: mining, food security, food accessibility, dietary diversity

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1. Introduction

The basic needs of human life are food, water, air and shelter. People have been in search for food always to survive. It is therefore a great concern for all the policy makers and countries to focus on developing strategies to maintain food security and eradicate scarcity of food. Food security represent the availability of food and the ability of the individuals to access, afford and utilize it. The first World Food Summit, held in 1996, stated food security "exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". The Food and Agricultural Organization of the United Nations (FAO), identified four pillars of food security as availability, accessibility, utilization and stability. The food availability represents the availability of sufficient amount of food for the people which indicates the food production, distribution, import capacity, and food stocks. The food accessibility represents the physical and economic access to food i.e., people should have food available nearby so that they can reach and get it whenever needed along with the resources to purchase it. The food accessibility represents the purchasing power, income of household, transport and market infrastructure. The food utilization includes adequate intake of food and ability to use nutrients in the body. It represents the diet quality and diversity meeting the nutritional needs of the body. The stability factor represents the stability of supply of food and its accessibility and also a stability in a variety of factors like weather variability, price fluctuations, stability in political and economic factors. Therefore, it could be observed that there are a lot of factors which ultimately affects the food security of the people like per capita income, agricultural production, farm size, land use pattern, social discrimination, market infrastructure, climate change price instability, natural disasters, so on and so forth.

Mining and quarrying activities are essential for economic development. Mineral extraction makes a remarkable contribution to State's net domestic product and increase in the state's total revenue receipts. The increase in number of mining and metallurgical companies have resulted in huge employment opportunities. The mining activities have been leading to economic development and increase in the standard of living of people (Sahoo, 2013). The mining activities have led to environmental degradation and pollution which had led to the loss of biodiversity and microbial

properties of natural fragile soil ecosystem (Lad and Samant, 2015). People had to lose their farm lands to the minus who had their farm lands in the close proximity to the mines. This led to reduction of the area of the farm lands and also the transfer of people from the agricultural sector to mining sector. All of these situations resulted into reduction of farming activities, fall in agriculture production and rise in food shortages and hence food insecurity. In this way, mining sector play an important role in determining the food security of the people in the mining region (Assan and Muhammed, 2018; Juma, 2015). On the other hand, mining activities also strengthens the standard of living of people through infrastructure development, agribusiness development, employment opportunities etc.

Odisha is the leading producer of bauxite in the country and occupies rank 1 in bauxite production. Koraput is one of the largest bauxite reserves belonging to the East Coast reserve of the county. The Panchpatmali bauxite reserve is endowed with large amount of bauxite capacity of 310million tonnes. Therefore, this study attempts to assess the impact of bauxite mining on the food security of the people in the context of accessibility and dietary diversity in the mining region.

2. Review of literature

A brief review of past studies is presented in this section.

Mining sector has been significantly contributing towards the economic development of the state through the increasein the state's net domestic product, production and value of minerals, extraction of minerals and exports, and mining royalty revenue receipts and huge employment opportunities (Sahoo,2013). Solid minerals tend to contribute towards the economic development to a greater extent (David et al, 2016). Since the mineral exports had a significant role in the economic growth and industrial production, it is necessary to have sustainable policies and programmes to promote mineral exports as well as national welfare (Sahoo et al, 2014). The foreign direct investment into the mining sector and increase in private sector credit, capital stock, government spending, and labour participation rate have led to economic growth in the short run (Ennin and Wiafe,2023). Mining activities had positive effect on food security in a way that infrastructure development occurred due to mining had helped in providing facilities which lead to transportation of inputs, output, food, etc. reducing

the cost and distance for agricultural activities and marketing, hence, improving agribusiness development (Juma, 2015).

On the other hand, mining activities have led to environmental degradation and pollution which had led to the loss of biodiversity and microbial properties of natural fragile soil ecosystem (Lad and Samant, 2015). Environmental changes in the mining areas led to contamination of the surrounding and use of plant species of such areas led to negative health effects. The lack of information regarding these led to the risk of food security of people living in the nearby mining region (Blanco et al,2020).

It was also observed that agricultural productivity of the mining region was less than the non-mining region. People from the mining region shifted from agriculture towards mining related activities leading to lower agricultural production (Mishra and Pujari,2008; Sahoo and Samal, 2022). Mining also had a negative impact on the agricultural sector because of the decrease in nutrient contents of the soil making it infertile and less productive (Ghose,2004). The reduction in the fertility of soil had resulted into lower growth of fast-growing tree species (Prematuri et al, 2020). The lowered crop production led to rise in prices and hence people faced difficulties in accessing the food as a result of which food as donations and gifts from relatives and friends also reduced (Frimpong, 2016). Evidence was also seen regarding the illegal small-scale gold mining affecting the agricultural productivity due to destruction of arable land which ultimately resulted into higher consumer price indices and rise in food imports and hence, the need of land reclamation was felt to reduce the food insecurity (Gilbert and Albert,2016).

Besides, mining sector also faced different challenges like women involvement, conflict over land use, physical hazards, land ownership, poor access to financial services, lack of market information and technology, exclusion of certain demographic groups, poor productivity, environmental damage, child labour, communicable diseases and lack of education which also affected the food production, availability, and access (Nabaasa, 2016). It was also observed that households in non-mines affected villages were at a high risk of food shortage than the mine affected village. Although the people of non-mine affected villages spent a greater share of their household income on food items, they could not eliminate the problem of food shortage (Yadav et al., 2019).

It could be evinced from the above literature review that mining of natural resources is really important for economic development. But along with development, it simultaneously brings a lot of problems such as environmental degradation, reduction in agricultural production, displacement of people, health hazards and food insecurity. Since there has been a smaller number of studies on the impact of bauxite mining on the food security of people in Koraput district of Odisha, this study makes an attempt to bridge this gap in the literature.

3. Objective of the study

To study the effect of bauxite mining on food security in the context of dietary diversity and food accessibility of people in Koraput district of Odisha.

4. Research Methodology and Data

The data for present study was collected during November 2022 and December 2022 in the Koraput district of Odisha. Since bauxite mining in the Panchpatmali bauxite mines has started more than 35yeara ago, it was inappropriate to use a 'before and after' approach because people might find it difficult to recall information on matters that happened 35years ago. Therefore, the study was carried out using the 'with and without' approach. Two sample villages were randomly selected from the mining region located within 5km from active bauxite mining zone (mining villages) and two villages from non-mining region located beyond 5km from active bauxite zone (control villages) having similar characteristics except that in the later there is no mining. A sample of 25households from each village were selected randomly. Thus, a total of 100 households were randomly selected for the study consisting of 50households from mining region and 50households from the non-mining region. Primary data was collected using structured schedules and focused group discussion method. Descriptive statistics and independent sample t-test were used for the analysis of data and study the effect of mining on the food security of the households in the Koraput district of Odisha.

To assess the impact of mining on food security of the people in the region, the standard indicators Household Food Insecurity Access Scale (HFIAS) and Household Dietary Diversity Score (HDDS) developed by Food and

Nutrition on Technical Assistance (FANTA) was used. The HFIAS has been used to distinguish the food secure from the food insecure households and hence can be used to assess the prevalence of food insecurity situation of a population. A set of questions in this scale help to assign the households and population along a continuum of severity, from food secure to severely food insecure. It is constructed from a short questionnaire that captures household behavioural and psychological manifestations of insecure food access, such as having to reduce the number of meals consumed or cut back on the quantity and quality of the food due to lack of resources. Each of the questions was asked with a 30days recall period. If the respondent answered "yes" to an occurrence question, then a frequency of occurrence was asked to determine whether the condition happened rarely (once or twice), sometimes (3 to 10times) or often (more than 10times) in the past 4 weeks (Coates, Swindle and Bilinsky,2007).

Household Dietary Diversity Score (HDDS) has been used to describe the number of food groups consumed by a household over a given reference period and is considered to be an important indicator of food security. This indicator provides a glimpse of a household's ability to access good as well as its socio-economic status based on the previous 24hours.A set of 12 food groups is used to calculate the HDDS. The 12 food groups are cereals; roots and tubers; vegetables; fruits; meat, poultry, offal; eggs; fish and seafood; pulses/legumes/nuts; milk and milk products; oil/fats; sugar/honey; and miscellaneous. A higher HDDS is an indicator of increased economic access to carried diet for household members. It reflects a better socio-economic condition and greater household food security. The household dietary diversity represents the number of different food groups consumed over a reference period which is a proxy indicator since a more diversified diet is an important outcome in and of itself. A more diversified diet result in different better outcomes in areas such as birth weight, child anthropometric status and improved haemoglobin concentration. It is also highly correlated with the factors such as calorie and protein adequacy, percentage of protein from animal sources and household income. Therefore, to reflect a quality diet, the number of different food groups is calculated rather than the number of different foods consumed. When households consume different food groups, it offers them with variety of both macro and micro-nutrients.This is a highly meaningful indicator than knowing that households consume different food groups which might belong to the same group. (Swindle and Bilinsky, 2006)

5. Results and Discussion

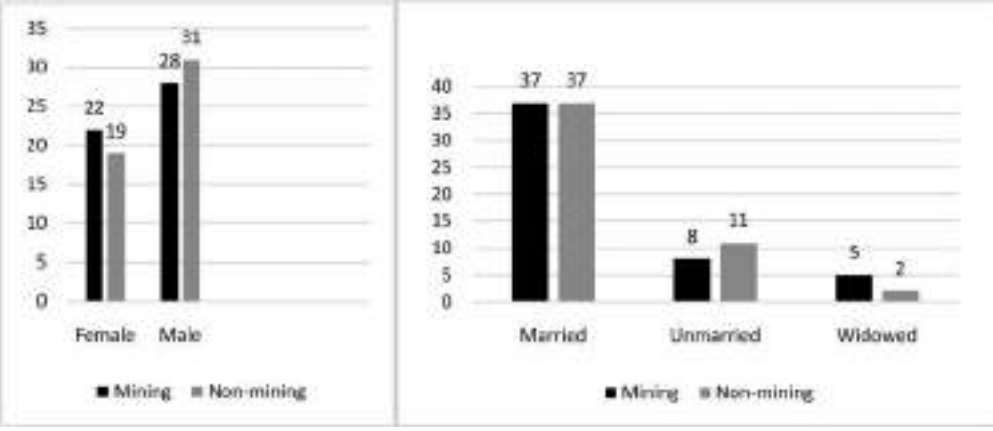
5.1. Socio-economic condition of the households in the mining and non-mining region

The socio-economic condition of the respondents could be studied in the following manner:

It could be observed from Figure 1 that the female respondents constituted 41 per cent whereas there were 59 per cent of male respondents out of the total respondents. There were larger number of male respondents in the non-mining villages as compared to the number of male respondents in the mining villages, whereas female respondents were large in number in the mining villages as compared to their number in non-mining villages.

Figure 2 represent the marital status of the respondents. It could be evinced that a greater proportion of respondents around 74 per cent of the total respondents were married, 19 per cent of the respondents were unmarried and 7 per cent of them were widowed. There were equal number of married respondents in both the mining and non-mining region, i.e. 37 respondents each from both the regions.

Figure 1: Gender Distribution **Figure 2: Marital Status**



Source: Primary data

Table 1 shows the age group of the respondents of both the mining villages and non-mining villages. It could be seen that half of the total respondents belonged to the age group of 20-40 years and there were only 6percent of the respondents with 60-80 years of age.

Table 2 represent the category of the households in the study area. It could be observed that equal number of respondents were from Other Backward Classes and Scheduled Tribes i.e., 31 respondents in the mining villages. The number of respondents with ST category was significantly high in the mining region as compared to the non-mining region. There were only two respondents with General category in the mining region with no respondent in the non-mining region. It could also be seen that the non-mining region was dominated with respondents who belonged to OBC category i.e., 44 respondents and three respondents each from Scheduled Caste and Scheduled Tribe category.

Table 1: Age Group of Respondents

Age Group (in years)	Mining region	Non-mining region
0-20	6 (12%)	8 (16%)
20-40	20 (40%)	30 (60%)
40-60	20 (40%)	10 (20%)
60-80	4 (8%)	2 (4%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table 2: Category of the Respondents

Category of the household	Mining region	Non-mining region
General	2 (4%)	0 (0%)
OBC	21 (42%)	44 (88%)
SC	6 (12%)	3(6%)
ST	21(42%)	3 (6%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table 3 represents the religion followed by respondents of the study area. A clear picture is seen that entire mining region as well as non-mining region is dominated by Hinduism religion followers with only 1respondent from Christianity in the non-mining region.

Table 3: Religion of the Respondents

Religion	Mining region	Non-mining region
Christianity	0 (0%)	1 (2%)
Hinduism	50 (100%)	49 (98%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table 4 represent the educational status of the respondents. In the mining region, the highest number of respondents were illiterate, i.e., 17 respondents whereas the lowest number of respondents were graduates, i.e., only 3 per cent. As contrast to the mining region, in non-mining region highest number of respondents had completed their secondary level of education (i.e., class 9 to class 10).

Table 4: Educational Status of Respondents

Education level	Mining region	Non-mining region
Illiterate	17 (34%)	12 (24%)
Primary (class 1 to 5)	3 (6%)	7 (14%)
Upper primary (class 6 to 8)	7(14%)	7 (14%)
Secondary (class 9 and 10)	12 (24%)	14 (28%)
Higher secondary (class 11 and 12)	8(16%)	5 (10%)
Graduation	3 (6%)	5 (10%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table 5: Occupational Status of the Respondents

Main occupation	Mining region	Non-mining region
Agricultural labour	3 (6%)	1 (2%)
Business	2 (4%)	6 (12%)
Casual labour	2 (4%)	1 (2%)
Daily wage earner	2 (4%)	1 (2%)
Dependent	9 (18%)	6 (12%)
Farmer	19 (38%)	21 (42%)
Government employee	3 (6%)	4 (8%)
House-wife	6 (12%)	7 (14%)
Mine worker	1 (2%)	1 (2%)
Other	2 (4%)	2 (4%)
Private employee	1 (2%)	0 (0%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table-5 represent the occupational status of the respondents. It could be seen that both in the mining and non-mining region, the respondents are mainly occupied in farming activities. Although they were residing near the largest bauxite mine of Odisha, they were hesitant to work in the mines and followed their traditional occupation of agricultural activities and were highly dependent on agriculture. The respondents complained of the pollution and health hazards associated with the mining environment and hence were reluctant to work in mines. Majority respondents were reluctant to leave agricultural activity which were carried out since ages and therefore continued it at present time. Although they earned less income, they themselves had made up their mind to continue in low standard of living and no more efforts were made by them to switch jobs and have higher income. 15 per cent of the total respondents were dependent who were continuing their education and some belonged to the older age groups and incapable to work and 13 per cent of the total respondents were housewives who took care of their home and children. Only two respondents reported of working as mine workers in the bauxite mines. Other activities in which

some respondents were engaged as their main occupation were of agricultural labour, government employee, daily wage earner, casual labour in construction sector and others such as coolie, business, tailor and driver.

Table 6: Annual Income of Households of Respondents

Annual income (in Rs.)	Mining region	Non-mining region
Less than 1 Lakh	20 (40%)	6 (12%)
1 Lakh to 2 Lakh	11 (22%)	29 (58%)
2 Lakh to 3 Lakh	9 (18%)	9 (18%)
3 Lakh to 4 Lakh	5 (10%)	1 (2%)
4 Lakh to 5 Lakh	1 (2%)	2 (4%)
5 Lakh to 6 Lakh	3 (6%)	1 (2%)
6 Lakhs and above	1 (2%)	2 (4%)
Total	50 (100%)	50 (100%)

Source: Primary data

Table 6 shows the income status of the households of the respondents of the mining as well as non-mining region. It could be seen that 40 per cent of the households of the mining region had an annual income less than 1 lakh rupees and only two per cent of the households of the mining region had an annual income of 6 lakhs and above. But there were a smaller number of households below 1 lakh annual income in the non-mining region as compared to the mining region. Majority of the households of the non-mining region had an annual income between 1 lakh to 2 lakh rupees.

5.2 Food security status of the mining and non-mining region

In order to study the effect of bauxite mining on food security of the households, household dietary diversity score (HDDS) was calculated for each of the households. The respondent was asked about the 12 different food groups consumed by the respondent or any household member in the past 24 hours. The positive response to the food groups consumed were given a value 1 and negative responses to the food groups consumed were given value 0. Thus, the total number of food groups consumed was calculated which represented the HDDS for that particular household. The value of HDDS for each household lies between 0 to 12. In order to check

whether the household dietary diversity scores of the households in the mining region were different from the household dietary diversity scores of the households in the non-mining region, an independent sample t-test was carried out at 95% of confidence interval. The results of which is given below in Table 7a and Table 7b.

It could be seen from Table 7b, since the p-value is less than 0.05, the HDDS of the households in the mining region is significantly different from the HDDS of the households in the non-mining region. Since the average HDDS of mining region is 7.22 and average HDDS of non-mining region is 9.12, it could be concluded that the households of the mining region consumed a smaller number of food groups as compared to the food groups consumed by the households of the non-mining region. Therefore, households of mining region are less food secure than the households of the non-mining region.

Table 7a: Average Statistics of HDDS in Mining and Non-mining Region

	Group	N	Mean	Std. Deviation	Std. Error Mean
HDDS	Mining region	50	7.22	1.844	.261
	Non-mining region	50	9.12	1.380	.195

Source: Compiled by Authors

Table 7b: t-test for Equality of Means of HDDS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HDDS	Equal variances assumed	1.499	.224	-5.834	98	.000	-1.900	.326	-2.546	-1.254
	Equal variances not assumed			-5.834	90.777	.000	-1.900	.326	-2.547	-1.253

Source: Compiled by Authors

Similarly, in order to check if the HFIAS score of households of mining region were statistically different from the HFIAS score of households of non-mining region, the independent sample t-test was carried out at 95% of confidence interval. The results of which is given in Table 8a and Table 8b.

Table 8a: Average Statistics of HFIAS in Mining and Non-mining Region

	Group	N	Mean	Std. Deviation	Std. Error Mean
HFIAS	Mining region	50	8.10	6.299	.891
	Non-mining region	50	4.82	3.735	.528

Source: Compiled by Authors

Table 8b: t-test for Equality of Means of HFIAS

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
HFIAS	Equal variances assumed	13.070	.000	3.167	98	.002	3.280	1.036	1.225	5.335
	Equal variances not assumed			3.167	79.655	.002	3.280	1.036	1.219	5.341

Source: Compiled by Authors

It could be observed that, since the p-value is less than 0.05, the HFIAS score of the households of the mining region is statistically different from the HFIAS score of the households of the non-mining regions. It represents that the households of the mining region are highly food insecure as compared to the food security of the households of the non-mining region. Another indicator of food insecurity status is Household Food Insecurity Access Prevalence (HFIAP) Status indicator which is used to report household food insecurity (access) prevalence and make geographic targets decisions. The HFIAP indicator categorizes household into four levels of

household food insecurity (access) as food secure, mild food insecure, moderately food insecure and severely food insecure. Households are categorised as increasingly food insecure as they respond affirmatively to more severe conditions and/or experience those conditions more frequently. The HFIA category of a household is assigned value 1,2,3 and 4 representing food secure, mildly food insecure access, moderately food insecure access and severely food insecure access respectively depending on the frequency of occurrence to the corresponding occurrence question.

By referring to Table 9, the HFIA categorization of households for the mining and non-mining region was done. Table 10, represent the number of households with their HFIA category, the percentage of households in four different HFIA categories and the corresponding Z-value computed to check the significance of difference between the number of households of the mining region and the number of households of the non-mining region of the same category.

Table 9: HFIA Categorisation

HFIA Category	Frequency of occurrence
HFIA category = 1 (Food secure)	if [(Q1a=0 or Q1a=1) and Q2=0 and Q3=0 and Q4=0 and Q5=0 and Q6=0 and Q7=0 and Q8=0 and Q9=0]
HFIA category = 2 (Mildly Food Insecure Access)	if [(Q1a=2 or Q1a=3 or Q2a=1 or Q2a=2 or Q2a=3 or Q3a=1 or Q4a=1) and Q5=0 and Q6=0 and Q7=0 and Q8=0 and Q9=0]
HFIA category = 3 (Moderately Food Insecure Access)	if [(Q3a=2 or Q3a=3 or Q4a=2 or Q4a=3 or Q5a=1 or Q5a=2 or Q6a=1 or Q6a=2) and Q7=0 and Q8=0 and Q9=0]
HFIA category = 4 (Severely Food Insecure Access)	if [Q5a=3 or Q6a=3 or Q7a=1 or Q7a=2 or Q7a=3 or Q8a=1 or Q8a=2 or Q8a=3 or Q9a=1 or Q9a=2 or Q9a=3]

Source: Household Food Insecurity Access Scale Indicator Guide

From Table 10, it could be observed that 32 per cent of the households in the mining region are in HFIA category 4 whereas the percentage of households with HFIA category 4 in the non-mining region is only 6 per cent. The z-value computed for checking the significance of difference between the number of households of the mining region with HFIA category

4 and the number of households of the non-mining region with HFIA category 4 was found to be 2.98 which is greater than the critical value of Z i.e., 1.96 at the 95% of level of significance. This shows that there exists a significant difference between the severely food insecure households of the mining region and the severely food insecure households of the non-mining region.

Table 10: HFIA Category of the Households in the Mining and Non-Mining Region

	Mining region		Non-mining region		Total		Z-value[1]
	No. of households	Percent	No. of households	Percent	Total no. of households	Percent	
Category 1	6	12	10	20	16	16	-1
Category 2	2	4	2	4	4	4	0
Category 3	26	52	35	70	61	61	1.153
Category 4	16	32	3	6	19	19	2.98*
Total	50	100	50	100	100	100	

Source: Compiled by Authors

It showed that these households were severely food insecure who had to cut back on meal size or number of meals often, and /or experienced running out of food, went to bed hungry, or had not eaten a whole day and night even as infrequently or rarely. It could be seen majority of the sample households were categorised as moderately food insecure with 52 per cent of the households in the mining region and 70 per cent of the households in the non-mining region were categorised into moderately food insecure households. These households had sacrificed the quality of food more frequently, by eating a monotonous diet or undesirable food sometimes or often and/or also had to cut back on quality by reducing the size of the meals or number of meals, rarely or sometimes. There were 4 per cent of the total households categorised as mildly food insecure who worried about not having enough food sometimes or often, and/or were unable to eat preferred foods, and/or ate a more monotonous diet than desired and/or

[1]Z-test for comparing two counts:
$Z= (R_1 -R_2)/ (R_1/t_1 + R_1/t_2)^{1/2}$; where n_1 and n_2 are two counts, t_1 and t_2 represent the total number of households of mining and non-mining region respectively. R_1 and R_2 represent the average frequencies with $R_1= n_1/t_1$ and $R_2= n_2/t_2$(Kanji,2006)

some foods considered undesirable but only rarely. There were 12 per cent of the respondents and 20 per cent of the respondents from the mining and non-mining region respectively who belonged to the food secure households and experienced no food insecurity condition or just experiences of worry but rarely. Although the z-value is found to be insignificant for the food secured households of the mining region and the food secured households of the non-mining region, 66.66 per cent of more households were found to be food secured in the non-mining region than the number of food-secured in households in the mining region.

6. Conclusion

The households of the mining region were found to be food insecure as compared to the food insecurity status of the households of the mining region. The number of food groups consumed by the households of the mining region were found to be smaller than the number of food groups consumed by the households of the non-mining region. The larger proportion of the households of the mining region were found to be highly food insecure in the form of dietary diversity and food accessibility. Though the people of mining region were engaged in the agricultural activity, the agricultural production is found to be low which led to lower income of the households. Therefore, people in this region should be provided with employment opportunities, healthcare facilities, educational facilities and irrigation facility which could raise their household income and standard for living, thereby improving the food security condition of the people in the mining region.

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Article

Tribal Women Entrepreneurs as Drivers of Local Development: Pointers from Rural Ranchi, India

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Abstract

This article investigates the life-changing experiences of tribal women business owners as well as their role as drivers of socio-economic progress in Ranchi district, Jharkhand, India. These women, who have historically held the position of guardians of cultural values, are reframing their roles by embracing entrepreneurship as a means of achieving economic independence while maintaining their cultural traditions. The essay focuses on the social and economic effect of their businesses, highlighting how they bridge the gap between tradition and modernity, challenge gender conventions, and contribute to overall community improvement. In spite of obstacles such as a lack of resources, the article emphasises the significance of ongoing support in the form of education, financial help, and coordinated efforts from a variety of stakeholders. The paper suggests that the potential of economic transformation in a disadvantaged community could be realized provided the state plays a proactive role in it recognizing and supporting the entrepreneurial endeavours of women in the tribal areas.

Keywords: Tribal, Entrepreneurship, Economic development, Role of the state, Ranchi.

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Introduction

The proactive endeavour towards creating surplus value is what we mean when we talk about entrepreneurship. The people who put their time, efforts, and resources into producing something of value are the ones who contribute towards creating an enterprising ecosystem while creating prosperity. Beyond popular perception, it has long been argued that entrepreneurship is not typically associated with hereditary attributes, rather shaped by opportunities available, facilitative resource endowments, favourable policy environment and the perseverance of the individual to create and manage an enterprise (Sebastian and Thakur, 1994). In case of women entrepreneurs in particular, often the challenges are manifold even as their contribution to economic growth has been acknowledged as significant and essential. They are faced with both economic and social constraints as to restrict their capabilities to function effectively. These include little or no basic education, absence of both technical skills and soft skills in managing business, inability to connect to business or technology networks, lack of information about potential markets and market agents. These constraints have been exacerbated by the diffidence of aspiring women entrepreneurs due to the major roadblock in accessing entrepreneurial skills (Shah and Saurabh, 2015).

In the Indian context, traditionally, majority of women entrepreneurs could be found engaged in the low-end activities in the informal sector with low levels of technology and market reach. However, during the recent couple of decades there has been diversification of sectors and exploring new activities including both in manufacturing and services. Of the 63.4 million micro, small, and medium enterprises (MSMEs)around one-fifth are women-owned, employing up to 27 million people. "Estimates suggest that by accelerating women's entrepreneurship, India could create more than 30 million women-owned enterprises, potentially creating 150 to 170 million jobs" (Jaitly and Thangallapally, 2022: 10). Going by a couple of global indicators India's position in terms of women entrepreneurship has been unimpressive. For instance, the Mastercard Index of Women Entrepreneurs for the year 2022 assigned 57th rank to India from among 65 countries. As per the Global Entrepreneurship Monitor (GEM) 2021 India's average total early-stage entrepreneurial activity (TEA) rate for women has been a low of 2.6 per cent, whereas, typically, the TEA rates are high for low-income countries (Ibid).

According to the Government of India, a woman entrepreneur is the one who owns and controls an enterprise having a minimum financial interest of 51 per cent of the capital and providing at least 51 per cent employment generated to women. Despite this definition, official statistics on women entrepreneurs and their enterprises on an annual basis is unavailable. However, as per the latest *Economic Census* conducted in 2013 an idea about a few broad variables may be presented (Government of India, 2016). Of the total number of establishments, those owned by women entrepreneurs was 8.05 million accounting for 13.8 per cent. While these establishments generated employment for 13.45 million persons (10.2 per cent) 83.2 per cent of these had not engaged a single hired worker. Of the women entrepreneur owned establishments about 34.3 per cent engaged in agricultural activities, dominated by livestock (31.6 per cent). Considering non-agricultural activities pursued by women entrepreneurs, manufacturing (29.8 per cent) and retail trade (17.8 per cent) were the major ones. In terms of social and religious groups, women entrepreneurs could be classified as follows: Other Backward Classes (40.6 per cent); Scheduled Castes (12.2 per cent); Scheduled Tribes (7.0 per cent); Others (40.3 per cent); Hindus (65.6 per cent); Muslims (12.8 per cent); and Christians (5.2 per cent). The average employment per women owned establishment was a low of 1.7.

The current study focuses on tribal entrepreneurship in the rural areas of Ranchi district, the capital of the eastern Indian state of Jharkhand that was carved out as a separate state in 2000.Ranchi is located in the middle of Jharkhand, is a notable example of the way in which tradition and modernity coexist harmoniously. Rich in natural resources – minerals, forests and rivers – the state ranks as the second most poor as per the NITI Aayog's Multidimensional Poverty Index of 2021. The percentage of such rural poor was as high as 50.9 per cent. However, as the *Jharkhand Economic Survey 2022-23* observes, there has been a reduction in poverty in recent years. As it states "the 'Multidimensional Poverty Index Report' based on the data of NFHS-V, has shown reduction in multi-dimensional poverty of the state in the last four years. The head count ratio of poverty in Jharkhand decreased by about 13 per cent (5.6 percentage points) between the years 2015-16 and 2019-21, i.e., between the fourth and fifth rounds of NFHS. The head count ratio of poverty in the rural areas decreased by about 17 per cent (8.7 percentage points)… The intensity of poverty in the state has also decreased by 8.6 per cent (4.1 percentage points). In the rural areas of the state, it decreased by 10.2 per cent (4.9 percentage points)…during this

period" (GoJ, 2023: 24). With this the unemployment rate for rural women has seen a decline from 3.7 per cent in 2017-18 to 0.1 per cent in 2020-21, going by the respective PLFS data. This suggests an increase in the participation in economic activities by rural women in recent years (GoJ, 2023: 310). It may be attributed to an extent to a range of state government initiatives in terms of special schemes or incentives planned in recent years to promote women entrepreneurship. These include Jharkhand State Livelihood Promotion Society (JSLPS) & Sakhi Mandals; Jharkhand Start-up Policy 2016; Jharkhand State Industrial Policy 2012; Tejaswini Rural Women Empowerment Programme; and Udyogini. The DWACRA programme also had played an important role in creating income generating activities for women. Additionally, the MSME Development Institute in Ranchi offers a variety of technical assistance and capacity building training to improve skills in enterprise management and accessing better markets (SheAtWork, 2022). Other skill-focused schemes such as Pradhan Mantri Kaushal Vikas Yojna (PMKVY), Deen Dayal Upadhyay Grameen Kaushalya Yojana (DDUGKY), Saksham Jharkhand Kaushal Vikas Yojna (SJKVY) and Craftsman Training Scheme have also contributed towards boosting women entrepreneurship in the state.

The state has over one fourth of its population (26 per cent) belonging to 32 Scheduled Tribes (STs); of these nine belong to the Particularly Vulnerable Tribal Groups (PVTGs). Over 90 per cent of these reside in rural areas. The indigenous communities are not just economically disadvantaged but also geographically and culturally distinct. The agricultural and forest resources upon which indigenous tribes depended significantly included things like honey, wood, gum, bamboo, and adda leaves, amongst others. With a rising trend in industrialisation, urbanisation and migration, women living in traditional villages are increasingly striking out on their own.

Not only does the district commemorate the rich tribal legacy of its people, but it is also a witness to a remarkable change that has been driven by the enterprising spirit of the area's tribal women. These women, who throughout history have been responsible for preserving the cultural values and customs of their communities, have now emerged as pioneers of socioeconomic progress as a result of the projects that they have undertaken. It is a phenomenon that denotes empowerment, gender parity, and a catalyst for the holistic progress of the whole community that has been given birth as a result of the convergence of their ancient knowledge and contemporary

commercial acumen. This phenomenon has given life to a phenomenon that stretches beyond economic wealth.

The cultural tapestry of Ranchi district is woven with a wide variety of tribal groups, each of which has its own distinctive cultural tradition. These communities have historically been involved in sustainable farming practices, artisanship, and crafts. However, there has been a shift towards modernization by which these communities have been experiencing a transition towards contemporary ways of making a living. As such transformation is underway in the district, women of the tribal communities are leading the charge towards change by embracing entrepreneurship as a means of achieving personal and community development. This article explores the changing terrain of tribal women's entrepreneurship in Ranchi district towards understanding its multi-dimensional influence on the society, economy, and culture. Further, an attempt has been made to identify challenges faced by these otherwise industrious women so as to appreciate what policy inputs could address their business encounters. The analysis draws upon a primary survey conducted in the tribal areas of Ranchi.

Key Issues and Review of Literature

Tribal women entrepreneurs stand at the forefront of a transformative movement that extends beyond business ventures. Their endeavors wield the power to shape the socio-economic landscape of their communities, catalyzing positive change and fostering holistic development. In the intricate tapestry of socio-economic progress, these enterprising women play a pivotal and multifaceted role.

The emergence of tribal women entrepreneurship in Ranchi district represents a confluence of tradition, empowerment, and economic development. Given the paucity of literature on these issues, an attempt has been made to highlight pointers from the available studies from which it is evident that these ventures have far-reaching implications for both individuals and the broader community.

At the core of tribal women's entrepreneurship lies the narrative of empowerment. By embarking on entrepreneurial journeys, these women transcend traditional roles and boundaries. Through their businesses, they acquire financial independence and decision-making power, not only

altering the dynamics within their households but also challenging age-old gender norms. Their enterprises become platforms for asserting agency, enabling them to break free from the shackles of gender-based limitations. The very act of becoming entrepreneurs ignites a process of empowerment that ripples through families, communities, and generations. Kabeer (2005) and Mohanty (2018), in their research, these initiatives provide women with agency, enabling them to contribute financially to their households. Furthermore, their newfound economic status often leads to a shift in household power dynamics, as they gain decision-making influence within their families.

In contributing to economic resilience and poverty reduction, tribal women entrepreneurs have been acting as engines of economic growth within their communities. Their ventures infuse fresh vigor into local economies by generating income, creating job opportunities, and facilitating resource circulation. As they succeed, the economic vibrancy of the entire community improves. These enterprises also contribute to poverty alleviation by providing alternative livelihoods, reducing dependence on traditional, and often vulnerable, income sources. The sustained income from their businesses acts as a buffer against economic uncertainties, enhancing the overall resilience of their communities. Singh and Prakash (2016) observe that these ventures generate income, improve livelihoods, and contribute to poverty alleviation. Additionally, they create employment opportunities for local communities, as highlighted by Jhunjhunwala and Shekhawat (2019). This not only bolsters the district's economy but also reinforces a sense of shared progress among community members.

In their pursuit of entrepreneurship, tribal women bridge the chasm between tradition and modernity by preserving cultural practices and introducing elements of innovation. They harness the essence of their cultural heritage, transforming age-old practices into contemporary products and services. This duality not only safeguards their ancestral wisdom but also fosters innovation. Their businesses often encapsulate traditional craftsmanship, ecological knowledge, and community values, which resonate with conscious consumers seeking authenticity and sustainability. This fusion of tradition and innovation amplifies the cultural identity of their communities on a global stage. Chatterjee (2017) and Kumar (2019) discuss these practices as encompassing a range of activities such as organic farming, handicrafts, and forest-based livelihoods. However, in a rapidly

changing world, the preservation of these traditions has become intertwined with the need for sustainable economic growth.

As tribal women entrepreneurs thrive, they assume positions of leadership within their communities ensuring social cohesion is not compromised. Their success becomes an inspiration, motivating others to break barriers and explore their potential. Beyond financial gains, their enterprises act as hubs for social interaction, knitting communities closer together. Collaborations, partnerships, and shared resources foster a sense of unity, transcending socio-economic disparities. Through their entrepreneurial journey, these women become torchbearers of social cohesion, nurturing a spirit of collective progress. Kumar and Gopinath (2018) underscore the importance of policy frameworks that promote inclusivity, accessibility, and gender sensitivity. Additionally, collaborations between non-governmental organizations, private enterprises, and local communities.

Many tribal women entrepreneurs champion eco-friendly practices and sustainable development. Their deep-rooted connection to the land fosters a sense of responsibility for environmental preservation. The environmental stewardship and commensurate sustainable practices distinguish tribal women from a mere profit-seeking business person. Enterprises rooted in organic farming, handicrafts, and ethically sourced products reflect their commitment to ecological sustainability. By promoting sustainable consumption and production practices, they set an example for responsible business practices, aligning economic progress with environmental stewardship. Gupta et al. (2020) elaborate on how tribal women entrepreneurs are redefining their ancestral skills to create contemporary products with market appeal. This bridging of tradition and modernity serves as a foundation for socio-economic development.

The role of tribal women entrepreneurs in the socio-economic development extends far beyond profit margins. These women play the role of catalysts of empowerment fostering gender equality, and enhancing their contributions to the communities. Their endeavors drive economic growth, ignite cultural revival, and instill environmental consciousness. As they navigate the intricate landscape of entrepreneurship, they carve pathways for a brighter, more inclusive, and sustainable future. The evolution of tribal women from marginalized voices to empowered entrepreneurs exemplifies the transformative power of human agency in shaping the destiny of communities and nations alike.

Scope and Objectives

The Ranchi district in Jharkhand is a region characterized by its rich tribal heritage and the profound impact of socio-economic transitions. Within this context, there exists a compelling need to delve deeper into the role of tribal women entrepreneurs in driving socio-economic development. The significance of this study arises from several key factors that underscore the urgency and relevance of exploring this subject matter.

Gender Parity and Empowerment: With gender equality remaining a paramount concern in both national and international development agenda, investigating the role of tribal women entrepreneurs aligns with the pursuit of empowering women within marginalized communities. By shedding light on their experiences, challenges, and successes, this study aims to contribute to the broader discourse on women's agency and participation in economic activities.

Socio-Economic Transformations: The Ranchi district's socio-economic landscape has undergone significant shifts due to urbanization, changing livelihood patterns, and globalization. Examining how tribal women entrepreneurs navigate these transformations provides valuable insights into the district's socio-economic fabric. Understanding their contributions to employment, income generation, and community development is pivotal for crafting informed policies that foster sustainable progress.

Cultural Preservation and Innovation: Indigenous cultures and traditions are integral to the identity of tribal communities. The entrepreneurial activities of tribal women offer a unique lens through which to explore how cultural heritage is both preserved and innovatively adapted to contemporary contexts. This study has the potential to highlight the synergies between cultural preservation and economic growth.

Knowledge Gap: While anecdotal evidence suggests that tribal women are increasingly engaging in entrepreneurial endeavors, there remains a dearth of comprehensive research that systematically examines their contributions, challenges, and the broader impact of their initiatives. Bridging this knowledge gap can provide actionable insights for concerned policymakers, practitioners and researchers.

Policy Relevance: With the Indian government's emphasis on fostering entrepreneurship, especially among the marginalized groups, there is a growing need for evidence-based policy interventions. This study can inform policy formulation by identifying areas where support mechanisms can be strengthened and tailored to the unique needs of tribal women entrepreneurs in Ranchi district.

Holistic Community Development: The success of tribal women entrepreneurs extends beyond individual prosperity. By generating income, creating employment opportunities, and contributing to economic growth, these entrepreneurs play an essential role in uplifting their entire communities. Understanding the wider ramifications of their initiatives is crucial for designing interventions that promote holistic development.

Keeping these aforesaid issues in the fore, it is important to undertake a comprehensive study that explores the role of tribal women entrepreneurs in socio-economic development within the district. This study aims to uncover nuanced insights that can contribute to a deeper understanding of the dynamics at play, inform policy decisions, and inspire further research in the field of entrepreneurship, gender empowerment and community development.

The specific objectives of the study are twofold. First, to investigate the employment generation potential of tribal women entrepreneurs in the tribal areas of Ranchi district. Second, to explore the socio-economic transformation among tribal women subsequent to their engagement as entrepreneurs.

Research Approach

This research centers on women entrepreneurs within the tribal communities of Ranchi district. The primary objective of this study is to delve into the role of indigenous women entrepreneurs in driving socio-economic development in the district. For the purpose of analysis both primary and secondary data have been collected. While primary data is obtained through in-depth interviews, surveys, and field observations, secondary data has been collected from official documents and published reports. A survey was conducted involving 75 women entrepreneurs from the Ranchi district's tribal communities, chosen through random selection.

Data Analysis and Interpretation

As presented in a summary format in Table 1, the socioeconomic profile of the respondents indicates over three-fifths of them are relatively young between 24 and 36 years of age. In terms of education, while about 45 per cent have not studied beyond higher secondary about one-third of the women entrepreneurs were found to be graduates. A large share (47 per cent) of units engaged less than 2 persons in their units suggesting very small size and operation of these enterprises. Going by the products of these enterprises a clear dependence on locally available natural resources is seen.

Table 1: Socioeconomic Profile of the Sample Tribal Women Entrepreneurs

Socioeconomic Profile		Frequency (%)
Age at entry	Below 24 Year	20 (26.67)
	24 -30 Year	28 (37.33)
	30-36 Year	20 (26.67)
	Above 36 Year	7 (9.33)
Educational Qualification	Till Higher Secondary	34 (45.33)
	Graduation	24 (32.00)
	Post Graduation	8 (10.67)
	Technical/ Professionals	9 (12.00)
Community of Employees	Tribes	54 (72.00)
	Non-tribes	21 (28.00)
Number of people employed	Less than 2	35 (46.67)
	2-5	25 (33.33)
	More than 5	15 (20.00)
Typeof business	Medicinal Plant	9 (12.00)
	Service	19 (25.33)
	Bamboo baskets	29 (38.67)
	Leaf utensils	18 (24.00)
Total	75 ()	

Sources: Field Survey

In response questions regarding the nature of effect of different socioeconomic factors on the development of entrepreneurship in tribal women it appears that non-economic variables family support and social life have been major facilitators as over half of respondents pointed to these as having positive effect on their entrepreneurial pursuits (Table 2). Road connectivity as a crucial physical infrastructure was also recognized as having contributed to engaging in business activities.

Interestingly, the responses highlight the varying nature of effects of these factors, ranging from positive to neutral and even negative. In terms of family support, 38 respondents (51 per cent) expressed a positive impact, indicating that their entrepreneurial pursuits had garnered encouragement and backing from their families. However, about one-third of respondents, numbering 23, had neutral views, suggesting that family support might not be universally uniform. Additionally, 14 respondents reported a negative impact on family support, underscoring potential challenges faced by some entrepreneurs in this regard.

Table 2: Effect of Various Factors in the Development of Tribal Women Entrepreneurships

Response	Positive	Neutral	Negative
Family support	38 (50.67)	23 (30.67)	14 (18.67)
Sufficient income	32 (42.67)	28 (37.33)	15 (20.00)
Road connectivity	38 (50.67)	23 (30.67)	14 (18.67)
Financial literacy	30 (40.00)	28 (37.33)	17 (22.67)
Social life	39 (52.00)	19 (25.33)	17 (22.67)

Source: Field Survey

Note: Figures in parentheses are row percentages.

Regarding the generation of sufficient income, 32 respondents (43 per cent) perceived a positive outcome, reflecting the economic benefits that enterprises can provide. At the same time, 28 (37 per cent) respondents had neutral views, hinting at the variability in income outcomes across different enterprises. On the other hand, 15 respondents indicated a negative impact on income generation, suggesting the presence of challenges that hinder income sustainability.

The factor of road connectivity demonstrated a pattern similar to that of family support. With 38 respondents acknowledging a positive impact, it is evident that improved road connectivity facilitated business activities for many entrepreneurs. However, about one-third of respondents (23) had neutral perceptions, indicating that road connectivity might not have universally influenced business operations. Similarly, 14 respondents cited a negative impact, indicating that road connectivity issues might persist for certain entrepreneurs.

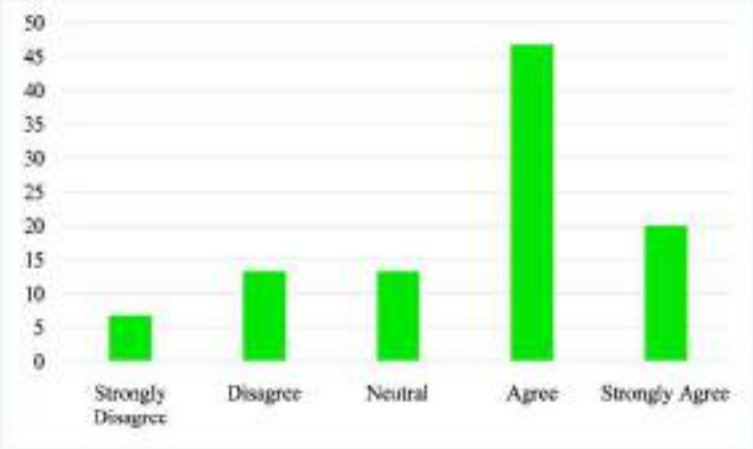
Financial literacy showed diverse responses as well. While two-fifths of respondents were convinced that enterprises positively influenced their financial literacy, indicating an increase in financial knowledge and management skills, as high as 37 per cent of respondents held neutral views. This suggests that the link between entrepreneurship and financial literacy might not be universally experienced. Moreover, 17 respondents expressed a negative impact on financial literacy, revealing potential challenges in acquiring and applying financial knowledge within entrepreneurial contexts.

In terms of social life, 39 or above half of respondents noted a positive impact, suggesting that their entrepreneurial ventures positively influenced their social interactions and networks. However, a slightly lower number, 19 respondents, reported a neutral impact, implying that not all entrepreneurs experienced a significant change in their social lives due to their enterprises. Additionally, 17 respondents cited a negative impact on social life, pointing to potential trade-offs that some entrepreneurs might face between business commitments and personal relationships.

In brief, data from Table 2 underscores the nuanced nature of the effects of various factors on tribal women's entrepreneurship. The responses reveal a diversity of experiences among entrepreneurs in the Ranchi district, highlighting the need for tailored approaches to support and address the challenges faced by women in tribal communities venturing into the world of business. Further, a significant majority of respondents (69.33 per cent) agreed that promoting entrepreneurship contributes towards generating new job prospects for the rural communities. These findings underscore the commonly held notion in the region about the salubrious role that entrepreneurship plays to create opportunities for local income and livelihood options.

Figure 1 illustrates the engagement of tribal women entrepreneurs in socio-economic development initiatives as gauged through the survey of the 75 sample respondents. Analysis of the data reveals that as many as 35 respondent (about 47 per cent) expressed a positive disposition by agreeing with the notion of participating in socio-economic development efforts. Moreover, one-fifth (15 respondents) of the sample individuals showed an even greater inclination by strongly agreeing with the idea. On the contrary, around 13 per cent of respondents either disagreed or maintained a neutral stance hinting at skepticism and uncertainty that still remained. A smaller proportion of 7 per cent (5 individuals) respondents strongly disagreed with the proposition suggesting a clear divergence from the notion of participating in socio-economic development initiatives.

Figure 1: Participation of Tribal Women Entrepreneurs in Socio-economic Development



Source: Field Survey

Policies for Empowering Tribal Women Entrepreneurs

Empowering tribal women entrepreneurs in regions like Ranchi district requires a strategic and comprehensive approach that acknowledges their unique challenges, aspirations, and potential. Crafting effective policies is essential to provide them with the necessary tools and support to overcome barriers so as to thrive in the entrepreneurial ecosystem. Here are some key policy suggestions towards promoting entrepreneurship amongst tribal women as drawn upon both the relevant literature and discussions held as part of the field primary surveys.

Table 3: Policy Suggestions towards Strengthening Tribal Women Entrepreneurship

Steps	Actionable Points
Accessible Education and Skill Development	i. Establish skill development programs tailored to the needs of tribal women, focusing on both traditional crafts and modern business skills.
	ii. Ensure accessible education and vocational training that equip women with essential literacy and numeracy skills, as also digital technology literacy.
Financial Inclusion and Support	i. Introduce microfinance initiatives specifically designed for tribal women entrepreneurs to overcome financial barriers.
	ii. Collaborate with financial institutions to provide tailored credit facilities, loans, and grants to help them start and scale up their businesses.
Market Linkages and Training	i. Organize entrepreneurship training programs that cover business planning, marketing, branding and financial management.
	ii. Facilitate exposure to markets, trade fairs, and e-commerce platforms to enhance their business visibility and access to customers.
Infrastructure Development	i. Invest in improving basic infrastructure such as road connectivity, electricity, and internet access to create an enabling environment for businesses.
	ii. Establish business incubation centres or hubs in tribal areas to provide workspace, mentoring and networking opportunities.
Tailored Mentorship and Guidance	i. Develop mentorship programs where successful women entrepreneurs from similar background can guide and advise aspiring tribal women entrepreneurs.
	ii. Collaborate with experienced entrepreneurs, industry experts, and organizations to provide ongoing guidance.
Legal and Regulatory Support	i. Simplify and streamline regulatory processes, licenses, and permits to reduce bureaucratic hurdles for starting and operating businesses.
	ii. Create awareness campaigns to educate tribal women entrepreneurs about their legal rights and protections.

Promoting Sustainable Practices	i. Encourage the adoption of sustainable and eco-friendly business practices, aligning with the traditional values of tribal communities.
	ii. Provide incentives for ventures that contribute to environmental conservation and social development.
Networking and Collaboration	i. Establish networks and forums where tribal women entrepreneurs can connect, share experiences, and collaborate on business initiatives.
	ii. Organize regular events, workshops, and conferences to facilitate knowledge exchange and capacity building.
Data Collection and Research	i. Conduct regular surveys and research to gather data on the challenges, successes, and evolving needs of tribal women entrepreneurs.
	ii. Use this data to inform policy decisions and adjust support mechanisms based on real-time insights.
Monitoring and Evaluation	i. Implement mechanisms to monitor the effectiveness of policies, assessing their impact on the socio-economic conditionstribal women entrepreneurs.
	ii. Periodically evaluate and adapt policies to address emerging challenges and opportunities.

By implementing these policies stakeholders can create an ecosystem that not only fosters the growth of tribal women entrepreneurs but also drives holistic socio-economic development in regions like Ranchi district. It is essential note that such policy measuresneed to be implemented with sensitivity to cultural nuances and involvement of the local community to ensure their effectiveness.

Concluding Observations

Promoting entrepreneurship for tribal women mostly based in rural regions remains a major policy option towards enhancing local income opportunities as well as generating possibilities for employment. This needs closer attention as such intervention requires a clear and sensitive understanding of nuances of tribal culture and value systems as they

continue to remain custodians of local nature. The present study in the rural areas of Ranchi district illustrates how business and community are linked. The complex nature of responses to apparently typical factors influencing tribal women entrepreneurship has been an important aspect of findings of primary surveys done for this study. For instance, while family support is considered essential for women entrepreneurs, quite a few respondents indicated indifferent and unpleasant experiences. Similarly, even as financial literacy and road infrastructure are seen as favourable conditions for entrepreneurship to foster in the survey here many proffered neutral and negative responses revealing that tribal women entrepreneurs might be faced with discrete realities and, hence, react differently.

The study has underscored the need for thoughtfully tailored initiatives to address challenges facing tribal women entrepreneurs and raise their potential in conducting business ensuring competitiveness and sustainability. Policies and support systems for tribal women entrepreneurs must address their specific demands to create an ecosystem that contributes to socio-economic development, gender empowerment and community involvement.

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Article

Surat or Kerala: Exploring Caste Dynamics in Labour Migration Across Two Key Interstate Labour Migration Corridors from Odisha's Ganjam District

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Abstract

The article maps the emergence of a new migration corridor from Ganjam district, on India's east coast, to Kerala, in southern India, since the late 1990s. It marks a significant shift from the decades-old, well-established Ganjam-Surat corridor. The article traces the trajectory of Odiya migrants, particularly from the historically marginalised SC and ST communities, suggesting that caste is a structural force shaping migration and contributing to the emergent corridor from Ganjam to Kerala. It describes how caste and migration mutually influence and shape each other. Caste is not only an identity marker of the migrant workers but has a bearing on all aspects of migrants' work and lives as a social structure. The article illustrates how caste continues to be reproduced through the referral-based recruitment that takes place in urban India. The findings from this study affirm findings from earlier studies that attest to caste continuing to be a crucial factor in migration decision making. Migrants tend to cluster around in areas where there is a large presence of people from their communities. While doing so,

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the social stratification that prevails at the source tends to be replicated at the destination too, limiting the scope of social emancipation that migration could potentially offer to the marginalised communities. This can compel migrants from the marginalised communities to explore newer destinations that are more egalitarian, where the caste hierarchies do not curtail their human development and where they have the potential to accelerate the social mobility.

Keywords: Caste and Migration, Migration Corridors, Interstate Labour Migration, Ganjam to Surat Migration.

Introduction

The development trajectory of India in the last few decades has been led by a neo-liberal capitalist growth model. This urban-centric model focused on attracting foreign capital for technological and infrastructural growth has led to uneven regional development, creating islands of prosperity on the one hand and dwindling rural economies and livelihoods on the other (Srivastava & Jha, 2016; Lerche & Shah, 2018; Srivastava, 2019). Labour migration, especially of 'footloose' labour from the hinterland to the centre, is also growing in tandem with the changing nature of globalised capitalism (Breman, 1996).

The geographical contours of migration, whether internal or international, play a significant role in shaping the prospects of the migrating individuals (Borjas, 1987; De Haan, 2002; Fafchamps & Shilpi, 2013). For historical reasons, that also have to do with optimising search costs, migrants who move out from a specific 'source' location tend to migrate to a particular 'destination' (Ghate, 2005). The continuous movement of people from the source to the destination and vice versa, leads to the emergence of a migration corridor in the long run. The emergence of such corridors is also determined by the economic geography of cities and the political economy of various interests that govern urbanisation (Mata-Codesal & Schmidt, 2020). The Economic Survey of 2016-17 highlighted some of the emerging migration corridors and patterns in age-specific mobility, that could be attributed to the shifts in the country's economic landscape. Tumbe's book "India Moving: A History of Migration, explores how historical events shaped migration patterns in India (Tumbe, 2018). He uses case studies, including one on Ganjam in Eastern India, to shed light on the phenomenon of migration corridors.

A common fallacy about caste in labour studies is the notion that caste-based hierarchies and practices are a rural phenomenon that do not feature in the more 'modern' process of urbanisation. However, recent literature on caste across disciplines establishes that it is still a major determinant of economic and social outcomes in the current times (Thorat & Newman, 2009; Desai & Dubey, 2011). Recent quantitative and qualitative studies have thrown up compelling evidence that establish caste as a major factor in influencing migration decisions (Deshingkar and Akter, 2009; Vartak & Tumbe, 2019). Studies related to social network theory highlight the importance of caste in migration and its subsequent outcomes (Munshi & Rosenzweig, 2016). It is also well established that a marked demographic feature of internal migration in India is the overwhelming representation of lower castes and tribes in circular migration, especially among the informal sector workers who perform low-skilled work in the urban peripheries (Breman, 1996; Mosse et al., 2002; Rogaly, 2003; Keshri & Bhagat, 2012).

In his studies, De Haan (1999) argues that migration as an enterprise is also characterised by a significant element of cost that is a function of the identity of the individual and their mode of migration. Upper caste migrants have an asset base and sufficient reserves back home because of which they can afford to take more risks and migrate to longer distances in search of better opportunities. On the other hand, migrants from the lower castes are largely able to undertake short distance and circular migration as the routine health and income shocks in rural households require them to frequently return to the source. Post-migration outcomes are a function of the distances and the cost involved (De Haan, 1999; Deshingkar & Start, 2003). The social position before migration also provides an important reference point for migrants to judge their post-migration outcomes (Engzell & Ichou, 2020).

The triggers of migration are numerous. Besides the obvious reason of finding better work opportunities in the absence of local ones, migration also becomes a tool to escape caste and class-based discriminations and the unfair labour market present in rural areas. Migration is, thus, used as a device to exercise everyday resistance against exploitative systems (Scott, 1985; Vartak & Tumbe, 2019). Deshingkar and Akter (2009) term such vulnerable migration as the 'exit choice' of lower castes against the exploitative caste structure.

This paper qualitatively examines inter-state migration from Surada block of Ganjam district in Odisha and explores how the institution of caste influences the decision to migrate along with the choice of destination. The findings from Surada allude to the larger trends in outmigration from the district as they highlight the changing character and underlying issues associated with migration out of Ganjam, a major sending region in the state of Odisha.

Methodology

The Ganjam district of Odisha is historically known for its out-migration. To understand the caste dynamics in migration decision making for the study, the Surada block was selected. Surada is one of the largest blocks in the district in terms of its area and population. It was specifically selected for two reasons. First, the population of Surada is the most diverse, on both social and economic dimensions. Second, Surada is one of the largest recipients of remittances from other states. Qualitative research was undertaken between 16 October 2021 to 19 November 2021 by the lead author, who is a trained migration researcher, a native Odia speaker and is currently pursuing their PhD. As part of the study, 43 key informant interviews (KIIs), 16 focus group discussions (FGDs) and 10 case studies were conducted in Surada. Participant observation was also undertaken. Additionally, discussions and consultations with experts such as grassroots organisations and local labour activists were also held to triangulate the findings. These were also presented in December 2021 at a knowledge sharing workshop jointly organised by ILO, CMID and Aajeevika Bureau in Mumbai.

Ganjam: Geographical and Demographic Features

Ganjam district is broadly divided into coastal plains in the east and hilly lands in the west. The southeast region that is closer to the Bay of Bengal has fertile land with irrigation facilities while the Chilika lake in the northeast provides livelihoods in fishery and salt production. The north-western region is covered with the mountain ranges of the Eastern Ghats and is less developed than the coastal plains in the northeast. While the proximity of the hills to the sea makes the district prone to floods and cyclones, the west zone faces frequent droughts. Administratively, the Ganjam district has 22 blocks, with a majority of its population living in rural areas. Although

ranked first by population and fifth by area among the districts of Odisha, Ganjam has a dearth of labour-intensive industries. The Ganjam District Gazetteer (2017) notes that 75% of the workforce is engaged in agriculture.[1]

Surada Block

The Surada block is located in the northwestern region of Ganjam district. According to the Census of India (2011), the total literacy rate of Surada stands at 55.1% which is well below the overall literacy rate of Ganjam. The block has one of the largest percentage of Scheduled Tribe (ST) and Scheduled Caste (SC) population in the district, with 7.6% of the population being STs (3.4% in Ganjam) and 24.1 % being SCs (19.15% in Ganjam) (Census of India, 2011). Although a Hindu dominated block, it shares borders with districts such as Kandhamal and Gajapati which have a sizeable Christian and tribal population.

The villages and streets in Surada block are stratified based on the traditional *jati*(caste) groups, which are further internally stratified into sub-castes. For instance, there are eight subcastes within the Brahmin caste according to the state or place from which they originally migrated. The Odia Brahmins are categorised as Danua, Padhia, Bhodri, Sahu, Sarua, Guharia, Halua, Chasa, Strotriya or Vedic Brahmins.Khandayat and Kumuti are some of the other upper castes. Chasa, Paik, Goud, Mali/Raula, Teli Kumuti and Pano Christian castes fall under the Other Backward Classes, i.e., OBC category. The Pano, Hadi, Dhoba, Dom, Bauri and Dandasi majorly constitute the SC population in the district. Among the STs, Surada is home to the Kandha, Koli, Malahar and Jatapu tribes. Some sub-castes such as the Christian Pano, though counted as OBC in official records, are still considered lower caste in practice and are equivalent to the Pano Harijan (Hindu SC) in caste hierarchy (Ganjam District Gazetteer, 2017).

Ganjam as a Major Sending Region

Based on the history and magnitude of out-migration, the Government of Odisha has officially identified Ganjam as one of its eleven migration-prone districts (Telegraph, 2018).[2] Migration from Ganjam has been well documented. For instance, the Royal Commission on Labour (1929-31) reports that Ganjam district had migrants traveling to Rangoon, Assam, Bengal and Bombay from 1803 to undertake earth work or to work in

plantations, construction of dams, roads, rail lines, jute mills, textile mills, brick-kilns among others. Studies in the context of Ganjam demonstrate that temporary migration from the region is structural and rooted in the historical processes of exploitation and marginalisation (Tripathy & Dash, 1997; Mishra, 1998). Persistent poverty and minimal levels of labour absorption in agriculture, with a near absence of 'non-farm' employment, have been the most prominent triggers of migration (Tripathy & Dash, 1997; Sahu & Das, 2008; Das & Sahu, 2019). This has been accentuated by the vagaries of weather, in the form of frequent droughts and floods that the region experiences, which affect the sustainability of livelihoods in the agricultural sector. In contrast, destination-based migration studies have highlighted the harsh conditions of work and living that characterises the life of a migrant (Sarangi, 2001; Sharma et al., 2014; Varma & Sharma, 2019).

Interestingly, the Ganjam District Gazetteer (2017) claims the following: '*Migration from Ganjam District is not attributed to distress. It is rather attributed to the quality of expertise people possess. Ganjam traditionally sends more than half a million people to Gujarat to work in textile Industries, diamond cutting and polishing Industries and ship breaking yards. Such huge migration to Gujarat is not due to distress conditions but due to the demand of such labourers in these Industries. Such migration is mostly suo-moto through peer-connection'.* However, this does not truly reflect the history and trends underlying migration from the region. While the Ganjam-Surat corridor is a widely studied historic labour migration corridor, emerging corridors that connect Ganjam to the rest of the country have not been the subject of research. Existing studies also do not explore the caste dynamics in this migration corridor, nor do they explain why lower castes and other marginalised groups do not feature so prominently in this corridor. This paper, thus, aims to explore Ganjam as a sending region with particular reference to the role of caste in the choice of destination.

Key Findings

Evolution and Growth of the Ganjam-Surat Corridor

Ganjam emerges as a key internal migration corridor, featuring among the 17 districts with the highest male out-migration across state borders in India, according to the Working Group on Migration (2017, p. 21). A salient facet

of this migration panorama is the Ganjam-Gujarat migration corridor, which constitute a substantive 78% share of the aggregate out-migration cohort (ibid, p. 22). The industrial city of Surat in Gujarat has been one of the major destinations for migrant workers from Ganjam. Migration from Ganjam to Surat picked up during the late 1970s or early 1980s (Mishra, 1998; Ghate, 2005; Sahu & Das, 2008). The growth of the export processing zones and many small industries in Gujarat created abundant opportunities for employment. Meanwhile, agriculture in Ganjam was severely hit due to frequent natural disasters (Das, 1993). The workers from Ganjam were initially engaged in gardening and construction work in Surat. Eventually, they found work in the textile industry, slowly replacing labour from Maharashtra, Madhya Pradesh and Rajasthan. The workers also found their way into the diamond industry in Surat. Thus, Ganjam-Surat became one of the major labour migration corridors in the country. It is estimated that there were 6-8 lakh migrants from Ganjam in Surat in 2018 (Das, 2020).[3] The cultural presence of migrants from Ganjam in Surat is quite visible. 'Odia Mess' eateries run by the Odias providing native cuisines can be widely found in Surat. The Odias also observe the 'Rath Yatra' (Car Festival) in Surat.

Caste Dynamics along the Ganjam-Surat Corridor

In Ganjam, historically, the Brahmins, Khandayat, Kurmi and the OBCs were primarily the landowners and thus, constituted the dominant caste groups (Government of Odisha, 2013). Those from the lower castes were dependent on them for their livelihoods. This was the case for most of the SCs, STs and for some from the OBCs. The workers from lower castes were engaged by the upper castes through the '*Halia-Mulia*' system. The *Halias* were primarily the OBCs, while the SCs and STs were employed intermittently as the *Mulias*. Those who were considered as lower castes or 'untouchables' were treated harshly. These caste dynamics also reflect in migration decision making. For those from the lower castes, migration was not just a matter of survival, but it was also liberation from caste oppression. Hence, the youth from the SC communities such as the Hadis and Panos, who were treated as untouchables in the village, preferred working outside the village. With natural disasters diminishing the opportunities for work in agriculture, the *Halia-Mulia* system weakened and workers from the lower castes were desperate for work. Such workers were taken to many places including Surat by contractors as '*Dadan*' labour (Tripathy & Das, 1997).

The upper castes considered migrating outside the village for work to be beneath their social status. Taking up any work in the village or nearby areas had, hence, been socially undesirable for the land-owning OBCs. However, they soon moved far away from the villages to seek work and found Surat to be an ideal destination. Migration of the OBCs to Surat was strengthened as initial migrants helped others from their kin groups to move to Surat. To put it in the words of 65-year-old Lakshman (name changed) from the Goud caste (OBC) who moved to Surat during the 1970s, "We had land but we were a large family. Migration to other states was not a good option for our people. We thought migrating to another place meant losing respect as a landowning family. However, farming became a loss in the 1970s. There was a shortage of labour in the sugarcane and paddy fields. Landless labourers preferred to work in places other than their villages. People from Hadi and Pano castes always preferred to work outside Ganjam. Later, people from our caste also went to Surat. My brother and I went to Surat with our relatives."

When Lakshman went to Surat, he did not face much difficulty because people from his caste and village were already working there. They helped him and his brothers find a job and accommodation. While he has returned home, his son and one grandson currently work in Surat. With relatively better agency and advantage in accessing education compared to the SC/ ST communities, the OBCs were able to leverage migration and the remittances contributed to the household economy significantly. This changed the old perception among OBCs and other dominant castes that migration for work outside the village meant losing social status.

Resourceful migrants from the OBC community in Gujarat were able to quickly climb the social ladder, graduating from an unskilled worker to skilled worker and even becoming entrepreneurs. Gopinath Sahu (name changed), an OBC, had migrated to Surat in 1985 when he was 17 years old along with his elder brother. Although his family had land and he was able to access education up to higher secondary, he had to migrate to Surat due to the lack of job opportunities in Ganjam. Besides, frequent crop failures made life miserable at the village. Learning about their desperation, Gopinath Sahu's cousin who worked in Surat asked them to come over. His first job was as a helper to the cook in an Odia mess. After one month, he managed to get a job in a textile factory. After three years in Surat, because of his experience and education, he became a *Tapawala*.[4] He

continued this work for almost eight years. With the improvement in banking facilities in Ganjam, he became banking agent.Gopinath Sahu has been living in Surat since 1985, for almost four decades now. He visits Ganjam during festivals and family functions to spend time with his relatives back home. He claims that he is one of the more famous and relatively wealthy among the Ganjami migrants in Surat. All his family members speak Gujarati and Hindi, but his children speak Gujarati better than him.

Exclusion of Odia SCs and STs from Ganjam in Surat

While there were a substantial number of migrant workers from the SC/ ST communities from Ganjam who came to Surat as '*Dadan'* labour initially, this number gradually decreased. As the number of migrants from the dominant castes in Surat increased significantly, they treated the SC workers from Ganjam just the way they had ill-treated them back in their villages in Surada. Such 'unwelcoming' treatment in the city by fellow OBC Odia migrants towards the SC migrants kept the latter on the margins and they slowly withdrew from Surat. Consequently, the OBCs and other castes constituted the dominant ethnic group in the Ganjam-Surat migration corridor, whereas the SCs from Ganjam had minimal presence. According to Gopinath Sahu, "In Surat, you will find people from all castes and villages of Ganjam. When I first went to Surat in 1985, there were people from lower castes who worked as daily labour and sometimes in the textile factory. Nevertheless, their proportion in Surat has diminished now. The people from these castes mostly go to Tamil Nadu and Kerala."

Tilak Naik (name changed), a 50 year-old from the Pano SC community and a former migrant to Surat, confirms this. He had migrated to Surat in 1991 when he was 19 years old. Tilak Naik worked in Surat from 1991 to 1995 in different textile industries. He had travelled to Surat with the help of a person of his caste but from a different village. Some intermediary helped him with finding work in the handloom industry. According to him, "At that time, there were many upper caste people of our region working in Surat. I worked in a cloth factory where no upper caste people from Odisha worked. I shared the accommodation with friends from my caste. During my stay in Surat, I had to change factories several times due to the caste discrimination by my fellow Odia workers. We (Scheduled Castes) were asked to sit separately during lunchtime and were not allowed to use the common water facilities. All the workers at the workplace knew

our caste and backgrounds. So even the workers from Gujarat, Rajasthan and Maharashtra behaved the same way as the upper caste Odia. In order to avoid confrontation, I used to change workplaces frequently once the number of Odia labour in that factory increased."

During those days when banking was not so easy, the main challenge for the migrants from lower castes was to send money back home to Ganjam. It was expensive to return to Ganjam every month. The *Tapawalas* mainly belonged to the higher castes and generally refused to take any parcel from the SCs. If at all they did, they charged extra for going to the SC hamlets in the village.

In Tilak Naik's words, "People from our caste in Surat were few and we felt isolated in Ganjam. On the other hand, they (the OBCs) went to Surat with their family members or relatives. Given their large numbers, the OBCs stayed in Surat like they did in their villages. I stopped going to Surat when I got information about work in Andhra Pradesh's Vijayawada.". After working in Andhra Pradesh and Tamil Nadu for a year, Tilak Naik had stopped migrating for work. However, when the 1999 cyclone hit Ganjam, his family's financial conditions worsened and he had to migrate again. He did not want to go to Surat again since not many people from his caste worked there. Instead, he found out about another destination from other migrants of his caste. He said,"Some of my distant relatives asked me to join them in going to Kerala. There were five people; all belonging to our caste. They told me that one contractor from Kerala they knew while working in Chennai had given the work address. Wages were much better compared to Surat and the contractor's behaviour was good."

Emergence of the Ganjam-Kerala Corridor

Experiencing discrimination and harassment by the upper caste migrants from Ganjam in Surat during the 1970s and 1980s, similar to what they faced in their villages in Surada, the SCs and STs eventually tended to avoid Surat as a destination of choice and explored places where they felt more comfortable. Beyond the '*Dadan*' system, social networks started to play a key role in migration. Although the situation in Surat was not as discriminatory as it used to be, the SC workers found it difficult to get decent work in Surat even after going there. The youngsters from the SC communities preferred to go to Kerala, Tamil Nadu or Delhi instead of

Surat. During the late 1990s, Kerala became a promising destination for migrants from Surada. From the FGDs in Surada, Kerala emerged as the most favoured destination among youngsters. Large shares of the initial migrants from Ganjam to Kerala were SCs, STs and those from the Christian communities. However, now people from all castes go to Kerala.

Raghunath Nayak (name changed), a Hindu Pano (SC), is a 62 year-old construction worker from Surada working in the Thrissur district of Kerala. Raghunath Nayak has had the experience of migrating to Surat, Maharashtra, Tamil Nadu, Karnataka and Kerala. His first move was to Surat during the late 1970s, where he went to work in the construction sector along with his uncle and cousins. He later worked in a loom unit in Surat as a helper. He narrated, "I have been going to other states for work for almost 45 years now. We worked in Surat for nearly two years. At that time, so many Odias were there in Surat. One day, when we had returned from work, we saw that the room was unlocked and all our belongings were thrown around. Later an Odia from Nayagarh district informed us that people from Ganjam had done the damage. We got angry and complained to the house owner. However, he did not respond. On another occasion, when we went to an Odia mess for lunch, a confrontation occurred, and we were insulted and beaten up. They (the upper caste Ganjami) informed our co-workers from Madhya Pradesh and Maharashtra about our caste background after which they stopped cooperating at work. In another incident, I had sent money home through a Teli person (OBC) and later came to know that he did not deliver the full amount to my family. I got angry and picked up a big fight in which they (the OBC) were injured. Fearing repercussions, I had to run away from Surat that night. My cousin, uncle and friends also came with me as they feared that they may also be targeted because they were from my caste and village. We came to Mumbai by train without food and money. After two days, a few of us got to work in Maharashtra, but I do not remember the name of the exact location. I worked as a hamal (loader) in a rice mill."

After returning from Maharashtra, Raghunath Nayak worked for eight years in Tamil Nadu and Andhra Pradesh in different sectors. In 1997/ 8, a labour contractor took him from Tamil Nadu to work in the pineapple fields of Kerala. When he first went to Thrissur, they were nine people from Ganjam and all belonged to the Scheduled Castes. At the time of the interview, twenty people from his caste and surrounding villages worked

in Thrissur. People from the Goud, Chasa, Kuruma communities and other upper castes also started migrating to Kerala. The accommodations were separate, based on family networks and caste groups. However, they maintained good relationships. According to Raghunath Nayak, sometimes labourers from the upper and lower castes ate each other's food in Kerala, but the same people would not even dare to take water from the lower castes when they were in Ganjam. He felt that situations were improving.

People like Tilak Naik also found Kerala to be a much safer place compared to the gruelling treatment by OBC migrants from Ganjam in Surat. According to him, "Working in Kerala is more peaceful. People do not bother about our caste even after they come to know. Now even upper caste people from Ganjam work in Kerala. But they are less in number and not in the position to misbehave with the SCs. Besides, the younger kids are not like their fathers or grandfathers who mistreated our people in Ganjam."His two sons currently work in Kerala. One of them joined him in 2004 and the other joined him in 2011. His elder son works as a mason and the younger one as his helper. During the COVID-19 pandemic, Tilak Naik's elder son returned home, but the younger son continued his work in Kerala. He came home after the regular train services resumed. He experienced no difficulties in staying and getting food in Kerala during the lockdown. On the contrary, in the same village, some people who worked in Tamil Nadu and Surat had suffered. They rushed back by paying a hefty sum for transportation.

Hailing from the Hadi caste, 27 year-old Banshi Hadi (name changed) is a first-generation migrant in Kerala. Having studied up to Class 6, he was the first in his family to go to other states for work. His father was a *Halia* in a Goud family. He has not gone to any other place for work except Kerala. Banshi Hadi first went to Kerala in 2010 with people from the Pano caste, who were the initial migrants to Kerala. He used to work in cow-buffalo care and is now a construction worker. He felt Kerala is the right place for him because the owner gives "respect". At present, there are many from his village working in the same area. When asked why he had not gone to Surat, he said "From my family or even from the Sahi (colony), no one works in Surat. Most of them go to Kerala, and others work in Tamil Nadu, Karnataka, Andhra Pradesh and Bhubaneswar. Therefore, I had no scope to even think about going to Surat."

The Christians from Surada also preferred to move to Kerala as they found it difficult to obtain accommodation in Surat and faced harassment from the upper caste Odias. The Christians not only went to Kerala but also to Tamil Nadu and Karnataka. The Surada Christians arrived in Kerala through their relatives living in the neighbouring Kandhamal district. Here, a significant number of Christian families have migrated to southern Indian states. This was particularly after the Kandhamal riots in 2008, a conflict between the Hindus and the Christians that displaced the latter. With a considerable Christian population in Kerala, the Odia Christians who migrated to the state had better jobs, higher wages and they also felt less threatened. As the Surada block shares a border with Kandhamal, the riots also impacted the Christian communities of Surada. According to a key informant, "Christian people of our region do not go to Surat. Some people have gone there, but their experience was not good because in Surat a person will get a good job only if he knows the people or if any of the relatives work there".

The field visits in the villages of Surada confirmed the migration patterns based on the caste dynamics. Those villages with a large share of the SC population had people migrating mainly to Kerala or any other destinations but not to Surat. In villages dominated by the OBCs, the migration was primarily to Surat with fewer people going to Kerala and other states.

Conclusion

This paper qualitatively examines the dynamics of inter-state migration from Ganjam district of Odisha with a focus on Surada, one of the largest blocks in Ganjam. It explores how the institution of caste influences not just the decision to migrate, but also the choice of destinations. Historically, the OBC Hindus and many upper caste Hindus, were dominant in Surada and owned most of the land. The SCs, the STs and the Christians of Surada have been dependent on the upper castes for their livelihoods. The villages and streets in Surada are stratified based on traditional caste hierarchies where caste practices such as untouchability prevailed even till now.

With the fall of agriculture in Ganjam during the 1970s due to frequent natural disasters, people from all castes in Surada were forced to look for jobs outside the state. Surat, an industrial hub in Gujarat, offered abundant opportunities for work and emerged as a major destination for all caste

groups from Surada during the early stages of such migration. With the textile industry in Surat thriving, Ganjam-Surat emerged as a major labour migration corridor in India for the SCs, STs and the Christians whose livelihoods were severely impacted. The large presence of Odias in the city added to its attraction as a favourable destination. They took up work provided by the contractors, primarily unskilled jobs in construction and gardening. For the upper castes from Surada who perceived working outside the village as 'socially undesirable', Surat provided sufficient anonymity for them to take up odd jobs since it was far from their native place. With better agency and resources acquired, given the historical advantages of being upper castes, the OBCs thrived in Surat - learning skills, finding better opportunities with jobs in the textile and diamond industries or as entrepreneurs. They helped their next of kin in Surada to migrate to Surat.

With their strong presence in Surat, the upper castes began enforcing caste hierarchies in Surat just like the ones prevailing in their villages back in Ganjam. For the SCs, STs and Christians who viewed migration as not only a means for livelihood but also liberation from caste discrimination, the gruelling treatment by the fellow OBC migrants deterred migration to Surat and eventually they started to withdraw. As a result, their numbers as migrants to Surat dwindled over time whereas the number of migrant OBCs leveraging kinship ties swelled. For the past five decades, Ganjam-Surat has continued to be a major labour migration corridor in India. The quest for a safer destination among the SCs, STs and the Christian migrants from Surada attracted them to Kerala where work was abundant, wages for unskilled work were higher compared to Surat and the employers were less harsh. For the OBCs and the Brahmins, who did not prefer to undertake arduous physical labour but were interested to work in the looms or other factories, Surat continued to be their preferred destination. The presence of the upper caste migrants from Surada/Ganjam was negligible in Kerala. As a receiving society, the caste of migrant workers was not of any consideration. With social networks as the dominant driver, from the late 1990s, Ganjam-Kerala emerged as a second labour migration corridor, particularly for the SC, ST and Christian migrants from Surada. The large presence of Christians in Kerala also acted as an additional pull factor in the case of the Christian migrants, particularly after the Kandhamal riots in 2008.

The findings from the study affirm findings from earlier studies of caste continuing to be a crucial factor in migration decision making. This is especially for communities of certain regions in India that substantially depend on migration for survival. Migrants tend to cluster around in areas where there is a large presence of people from their communities. While doing so, the social stratifications that prevail at the source tend to get replicated at the destinations too, limiting the scope of social emancipation that migration could potentially offer to the marginalised communities. This can compel migrants from the marginalised populations to explore newer destinations that are more egalitarian, more secure and have the potential to accelerate the social mobility of their current and future generations compared to the traditional destinations.

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Research Note/ Commentary

Aggravated Deindustrialization: Shadow of 'Make in India' on Indian Manufacturing

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Abstract

Contraction in the output of a wide spectrum of industries in the past several years, ironically, appears to be the manifestation of the adverse consequences of policy actions taken under the Make in India Initiative to improve the performance of manufacturing. Unpleasant developments in other policy areas, viz., education, innovation and government spending also abetted.

Keywords: Premature deindustrialization, Structural change, Industrial policy, Tariff.

1. Introduction

A decline in the relative significance of manufacturing in some of the middle-income countries observed since the 1990s has been construed as premature deindustrialization (Rodrik, 2016).The share of manufacturing in India's GDP declined during the last decade from 17 per cent in 2010 to 13.5 per cent in 2019 and its employment share fell from 12.6 per cent in 2011 to 11.2 per cent in 2019. While it is easy to term this premature deindustrialization understanding the drivers is crucial. India being a notable exception to the stylized patterns of structural change, deindustrialization here is likely to have country-specific drivers: the general propositions may not hold good. This research note probes this aspect.
This analysis has a policy relevance. Declines in the output of a wide

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spectrum of industries in the past several years(Figure 1) indicate the enormity of the problem, but these are difficult to interpret. The problem in manufacturing does not receive the attention it deserves in the euphoria that India is the fastest growing major economy in the world (Himanshu, 2023).

2. Literature

A brief overview of the relevant literature is in order.

Industrialisation/ Deindustrialization/ Structural Change

Discussions on industrialisation/deindustrialization revolve around the observed rise/fall in the relative significance of manufacturing in national economies in terms of its contribution to aggregate output and employment, stemming from Kaldor's proposition that manufacturing is the "main engine of fast growth". Deindustrialization in advanced economies occurs with technological progress displacing unskilled labour from manufacturing. The notion of "premature deindustrialization" relates to developing countries as they turn into service economies without having gone through an adequate experience of industrialisation. The stylized relationship between economic growth and structural change in the economy entails a rapid increase in the share of industry along with a decline in the share of agriculture, driving the economy into a higher growth path. This is attributable to the higher scale economies in manufacturing, higher income elasticity of demand for manufactured goods and greater potential of productivity catch-up. India is seen as a notable exception to this pattern where the services sector has played a key role in economic growth (Dasgupta and Singh, 2006; Ocampo et al., 2009; Amirapu and Subramanian, 2015; Felipe et al, 2014; Haraguchi, 2015; Chaudhuri, 2015; Rodrik, 2016; Haraguchi et al, 2016; Sumner, 2020; Chakraborty and Nagaraj, 2020).

Drivers of Deindustrialization

Different policy perspectives emerge from the debate on what drives deindustrialization– technology or trade. While both technological progress in manufacturing and globalization have been behind these developments, technology played a major role in deindustrialization in advanced economies and trade (globalization) better explains premature deindustrialization in

the developing world (Rodrik, 2016). The 'trade as driver' explanation essentially relates to the entry of China and other countries into the low-tech end of global value chains (GVCs). Hence, stalled industrialisation and premature deindustrialization are phenomena of lower-tech manufacturing subsectors, notably, textiles and wearing apparel. This argument stems from the ideas on stages of manufacturing development. In the first stage, at lower income levels, low-tech manufacturing such as food/beverages, textiles, and wearing apparel develop as these relate to basic human needs and are labour intensive. As countries move through middle income towards high income, the capital-intensive resource-processing industries (such as basic and fabricated metals) evolve as dominant subsectors. Thereafter, countries move towards more technology-intensive manufactures, such as electrical machinery and apparatus (Haraguchi, 2015; Sumner, 2020).

Among the studies dealing with the issue of deindustrialization in India, Chaudhuri (2015), Amirapu and Subramanian (2015), and Chakraborty and Nagaraj (2020) are exclusively on India, while others have done it as part of cross-country analyses.Though these three studies are mostly for the same period, 1990-2011 being common ~~to a~~ll (Amirapu and Subramanian: 1980-2011; Chaudhury:1977-2014; and Chakraborty and Nagaraj:1990-2011), ~~the~~ conclusions about deindustrialization and ~~the~~ policy perspectives vary.

Chaudhury (2015) reports that the employment share of manufacturing increased from 10.4 per cent in 1977-78 to 12.6 per cent in 2011-12 (albeit with minor fluctuations in the intervening years), while its GDP share, which too increased from 13.7 per cent in 1977-78 to 16.3 per cent in 2011-12, fell to 14.9 per cent in 2013-14.Chaudhury notes that "India has started experiencing premature deindustrialization". Amirapu and Subramanian(2015) observe that "if globally, there is deindustrialization, India is deindustrializing big time". The perception about premature deindustrialization in India in this study is based on state-level data, although divergent trends have been reported. The disaggregated analysis by Chakraborty and Nagaraj (2020) bear out a mixed trend that most states had deindustrialised by the output measure, but not by the employment measure. Close to 50 per cent of districts gained manufacturing employment share between 1991 and 2011, while about 20 per cent were deindustrialised.

At the all-India industry level data, the employment share (within manufacturing)of consumer goods increased while that of metals and machinery declined.

As regards policy perspectives, Amirapu and Subramanian (2015) reflect on the choice between un-skill intensive versus skill intensive development, and put emphasis on education for sustaining the skill intensive pattern. The policy perspectives of other two papers appear to be aligned with the received wisdom that trade is the main driver of deindustrialization in developing countries. Chaudhury (2015) observes that import liberalisation has damaged domestic manufacturing and advocates a policy of denying Indian market to foreign companies (unless they manufacture locally) and earmarking a part of the market for domestic manufacturers. Chakraborty and Nagaraj (2020) notethat the relative decline in domestic machinery manufacturing and growing import dependence after economic liberalisation since 1991was in line with Rodrik's argument on deindustrialization. The paper, however, concludes that there is no deindustrialization but there is stagnation. It observes that India seemed to be "at the crossroads of successful Asian industrialisation path and the Latin American trajectory of deindustrialization" (p. 46), adding that it faced the real threat of falling into the latter unless concerted efforts are made for state-led industrialisation.

In short, earlier studies on 'deindustrialization' in India mostly covered 1991-2011 period and observed temporal and spatial variations in the GDP share of manufacturing. With a mention that the period after 2011 was witness to a reversal of trade policy reforms in India (Mallik, 2023), the present research covers the period from 2011-12 to 2022-23.

Policy Options

Developing countries face a choice between three alternative development strategies that would yield economic growth and employment. One option is the promotion of higher-value-added services such as finance, insurance, real estate and business services that are internationally tradeable. While this could generate the value-added, its employment growth potential is weak, especially for low and medium skilled workers. This is likely to worsen the problem of income inequality as only a small proportion of the population will work in these services segments. Governments could

redistribute the income through taxation, transfers, and public goods: the politics may proved aunting if it entails major redistributive programmes. The second option is to expand low value-added services (such as, trade/ restaurants/ hotels, transport/ storage/ communication, government services, and community/ social/ personal services) having greater potential for employment growth for low or medium skill workers. The third option is re-industrialisation, implicitly neglecting services. This would require state activism to help domestic companies enter global value chains (GVCs) and/ or upgrade in GVCs to higher value-added activities through subsidised or directed credit, protection, and/or upskilling labour forces and/or international companies as foreign direct investors through fiscal subsidies, tax breaks, or other incentives (Sumner, 2020).

3. Case for Industrial Policy

Global Practices

Use of industrial policy – defined as those government policies that explicitly target the transformation of the structure of economic activity in pursuit of some public goal, the goal typically being to stimulate innovation, and economic growth; it could also be to promote climate transition, good jobs, lagging regions, exports, or import substitution – is on the rise, with major accelerations in 2018 and 2021. While industrial policy is practiced the world over, it seems to be more prevalent in higher income countries. G20 countries are major users. Trade financing is pervasive. Local value-added incentives (a trade related investment measure) are the second most used tool in low-income countries. Developing countries seem to be trying to harness FDI in ways that would increase local linkages within the domestic country. These patterns highlight the fact the that industrial policy can often be outward oriented. Import tariffs are not a prominent industrial policy tool (Juhász et al, 2023).

The Indian Case

Past research finds that the growth of Indian economy has been accompanied by a change in the sectoral distribution of GDP towards services, and is not characterized by a shift in labour force towards manufacturing. Within manufacturing, the resource- and labour-intensive low-tech sectors remain the largest employers. Though there has been

movement of labour out of agriculture, the labour force is not absorbed into manufacturing; instead, workers move into informal employment or low productivity services, where the scope for sustained growth in productivity and income is limited. The mismatch between sectoral patterns of value added and employment has led to wide wage differentials across sectors. While growth has been accompanied by important reductions in poverty levels, sizable population still remains in poverty. Job creation by industrial expansion is the way forward along with redistributive policies to solve the problem. It is crucial that the development trajectory allows for employment-intensive growth, that would necessitate targeted or focused industrial policy to promote manufacturing. The policy recommendations include: strategic import substitution and leveraging the large domestic market, public investment in infrastructure and in human development, and improving access to formal credit markets in rural areas to 'crowd in' private investment (Aggarwal and Kumar, 2012).

Industrial Policy Toolkit under Make in India

The Make in India Initiative (MII) was launched in September 2014 with an aim at raising the contribution of the manufacturing sector to GDP to 25% by 2020 (from about 15% at that time).Initially, the MII relied on programmes/campaigns for attracting foreign investment, and support mainly in the form higher import tariff. Hike in tariffs, which began in select sectors from 2014-15, became sharp and widespread in 2018-19, with an increase of42.3% for all tariff lines, rise in the average of customs duties on all products from 13.7% to 17.7%, and the proportion of tariff lines bearing 15% or higher duty rates moving up from 28.7% to 51.0% (Panagariya, 2022). Among the non-tariff measures, anti-dumping actions have gained much significance. India's share in total number of anti-dumping measures initiated (ADPINI) by all countries was 27% in 2020, up from 3% in 1994.More recently (i.e., from 2020), corporate subsidy in the form of production linked incentive (PLI)has emerged as a major constituent of the MII toolkit.The government is also focussing on public investment through increase in capital expenditure to 'crowd in' private investment.

Past Research on MII

The MII had proactive measures to boost investment that may have a

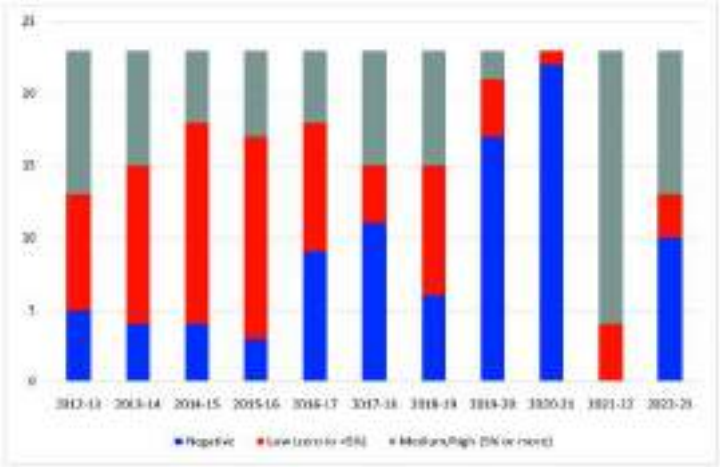
favourable impact on the industries at large in terms of output and employment, while its protectionist measures involving tariff barriers may have an ambiguous effect on the same. Applied general equilibrium analysis, exploring the impact of MII and the global trade war in a combined way, suggests that the MII policies, while beneficial for the Indian economy, has negative ramifications for exports, jobs, and investment growth (Badri Narayan et al, 2020).

4. Unintended Consequences of MII Policies

The discussion here and in the following section draws on and is a sequel to Mallik (2023).While the MII has a sound rationale, the policies under its ambit–in particular, re-adoption of the abandoned import-substitution based strategy of industrialisation– proved to be counter-productive. Most of India's imports being industrial inputs in some form or the other, the import curbs meant costlier inputs and the loss of competition in domestic product market, hurting manufacturing.

At the macro level, defying the policy intention of raising the contribution of manufacturing, the GDP share of manufacturing fell to 13.3% in 2022-23 from about 15% when the MII was launched. At the sectoral level, the incidence of the decline in manufacturing output increased in the period from 2016-17. The position in 2022-23 was comparable to that of the 2016-20 phase, the period 2020-22 being witness to pandemic-related oscillations (Figures1 and 2).

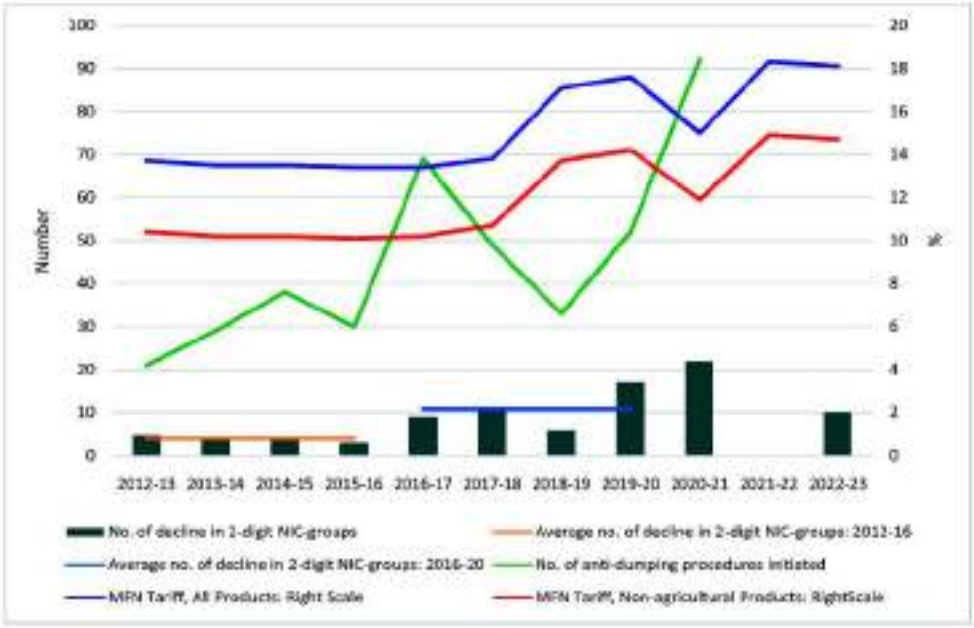
Figure 1: Distribution of the 23 Two-digit Manufacturing Industries by Growth Rate Categories, India



The 'calibrated departure' from the underlying policy in the past two decades that was proposed in the Union Budget for 2018-19, it seems, was a monumental policy error: manufacturing value added as well as output contracted in 2019-20 with the IIP of 17 out of the 23 NIC-groups recording declines. Admittedly, this is being said with the benefit of hindsight: the policy decision then was probably based on an*ex-ante* assessment of the potential for value addition and a belief that this could be incentivised by anincrease in custom duties.

How does one attribute the developments in manufacturing to government policy alone when the activity would be impacted by various factors? Evidence from autoregressive distributed lag (ARDL) models and sectoral data show that the economic slowdown during 2017-20 had mainly to do with the import curbs, invalidating the received wisdom (Mallik, 2023). An attempt is made here to decipher the role of tariff in the structural changes within manufacturing. Theoretically, the structural changes would depend on three sets of factors: (i) the normal effect of universal factors that are related to the levels of income; (ii) the effect of other general factors such as country size or natural resources over which the government has little or no control; (iii) the effects of the country's individual history, its political and social objectives, and the specific policies the government has followed to achieve these (Chenery and Syrquin, 1975; Haraguchi, 2015). All these factors (except government policies) will not change dramatically in a relatively short period of time, and hence it should be possible to get a sense of the role of government policy. While the emphasis in the literature on structural transformation is traditionally on the shift of resources/ workforce from agriculture towards manufacturing, structural transformation more recently is being considered to involve not only shifts between sectors, but also within sectors, towards knowledge intensive activities that generate higher value added. In this wider sense of structural transformation, new technologies and innovation are key drivers of the development of new products, processes, organizational methods and markets, and structural change is essential for developing and developed countries alike, to catch up in the case of the former and to stay at the technological frontier in the latter (Lall, 2000; UNCTAD, 2019).Table 1 presents information on the relative shares of product groups in total value of manufacturing output along with the changes in custom tariffs. To get a sense of the structural transformation in terms of technology, products have been classified under two broad groups according to technology intensity. Supplementary information on technology-intensity of exports is also given.

Figure 2: Import Curbs and Incidence of Decline in Manufacturing Output, India



With no significant changes in the tariffs between 2011-12 and 2015-16, the structure of manufacturing output exhibited a shift towards the technology-intensive products and away from resource-based, low/medium technology manufactures. Tariff hikes in the later period appear to have halted this process. Interestingly, the relative shares of product groups that had sharp increase in tariffs (textile, wearing apparel, furniture, and transport equipment) had shrunk. The product groups that recorded improvement in relative shares (metal &products, rubber & plastic products, other non-metallic mineral products; and pharmaceuticals) are the ones that had low tariff/very small changes. Structural changes in manufacturing output in terms of technology intensity are consistent with the patterns noticed in manufactured exports

A policy implication of the observed patterns is that tariff hikes defeat the structural transformation normally associated with technological progress, without assisting the performance of domestic manufacturing. For analytical purposes, the observed declines in manufacturing output (Figure 1), perhaps, cannot be explained without the information on import curbs (Figure 2).

Table 1: Customs Tariff, Technology Intensity and Structure of Manufacturing, India

Product group	Simple average MFN tariff (ad valorem; %)					Structure (% of value of output at current prices)				
	2011 - 12	2015 - 16	2019 - 20	2021	2021 - 22 over 2015 - 16	2011 - 12	2015 - 16	2019 - 20	2021 - 22	2021 - 22 over 2015 - 16
A: Resource-based, low/medium tech.	**10.8**	**10.8**	**14.5**	**15.3**	**4.5**	**71.2**	**68.5**	**68.3**	**69.2**	**0.7**
Food products, beverages & tobacco	35.5	37.3	41.9	42.1	4.9	13.9	14.7	15.7	15.5	0.9
Textiles and apparel	10.0	10.1	24.1	24.2	14.1	8.2	10.9	9.2	9.6	-1.3
Leather and related products	6.1	6.5	10.6	10.8	4.3	0.9	1.2	1.0	0.7	-0.5
Metal & metal products	6.8	7.0	8.7	9.2	2.2	16.5	14.9	15.9	17.6	2.7
Coke & refined petroleum products	8.0	6.2	9.9	9.9	3.7	18.8	10.9	10.7	10.3	-0.6
Rubber & plastic products	9.6	9.7	11.0	11.2	1.5	3.0	3.5	3.8	3.7	0.2
Other non-metallic mineral products	9.6	9.6	12.0	12.9	3.3	4.0	4.2	4.6	4.3	0.1
Wood & its products, except furniture	8.8	8.8	8.7	8.7	-0.1	0.9	1.1	0.9	1.0	-0.1
Paper and paper products	10.0	10.0	9.9	10.0	0.0	1.3	1.4	1.5	1.6	0.2
Printing and reprod. of recorded media	4.7	4.3	6.8	6.8	2.5	0.8	0.8	0.7	0.4	-0.3
Furniture	10.0	10.0	19.0	23.6	13.6	0.9	2.2	1.6	1.7	-0.5
Other manufacturing*	10.0	10.0	11.4	13.9	3.9	2.0	2.7	2.6	2.7	0.1
B: Medium-high and high tech.	**11.0**	**10.9**	**13.7**	**13.7**	**2.9**	**28.8**	**31.5**	**31.7**	**30.8**	**-0.7**
Machinery	10.7	10.7	14.0	14.2	3.5	10.2	10.0	10.6	10.2	0.1
Transport equipment	13.4	13.4	18.1	18.1	4.7	8.5	9.9	9.2	9.1	-0.7
Chemical and chemical products	9.7	9.6	12.9	12.9	3.3	7.1	8.0	8.2	7.8	-0.2
Pharmaceutical products	10.0	9.7	9.8	9.8	0.1	3.0	3.6	3.7	3.7	0.1
Total	**10.9**	**10.8**	**14.1**	**14.5**	**3.7**	**100.0**	**100.0**	**100.0**	**100.0**	**0.0**
Memo: Medium and high-tech exports (% manufactured exports)	NA	NA	NA	NA	NA	27.7	33.9	36.7	NA	NA

Source: Computed from WTO, NAS and World Bank (WDI).
Notes: * Includes repair and installation of machinery and equipment.
NA: Not available.

Efficacy of the Tariff-Cum-Subsidy Strategy

The PLI is devised to monetise a host of deficiencies in the system. While it is too early to assess its role, data for two sectors show some patterns. In mobile phones, the PLI seems to have aided its recent exports, but the low value addition raises a question about the sustainability of domestic manufacturing/assembling. In the vehicles segment, higher tariffs appear to have abetted the weak exports of passenger cars, which is reinforced by the recent decline in India's share in world exports of automotive products (Mallik, 2023); this is consistent with the decline in the relative share of transport equipments in the value of manufacturing output in the domestic economy (Table 1).

5. Other Factors

Adverse developments in other vital policy areas also hindered economic activity in recent years. Research and development (R&D) expenditure relative to GDP declined after 2008. Business R&D, which had grown from 0.14% in 2000 to 0.32% in 2008, fell to 0.26% in 2018 as sheltered domestic market reduced the incentive for innovation. Government R&D regularly fell during 2000-2018, reflecting their revenues and priorities. The current priority of the central government is CAPEX, which grows 37.5% in 2023-24 (budget) on top of 30.9% (on average) during 2021-23. Revenue expenditure grows only 1.2% in 2023-24 (budget) over 5.9% during 2021-23. During 1997-2018, central government's revenue receipts rarely exceeded 10.0% of GDP and the proportion was falling. Within this budget constraint, the CAPEX push years were witness to a dip in government R&D. Schools are running with acute shortages of teachers and various other problems, resulting in erosion of the learning outcome. These forces throttled productivity growth. In 2019-20, the conventional measure of total factor productivity (TFP) taking capital and labour as inputs grew by 0.1% while TFP in the KLEMS framework that takes capital, labour, energy, materials and services as inputs declined by 2.1% with manufacturing TFP falling 8.0%. Empirically, government final consumption expenditure (GFCE) has a significant positive impact on GDP: the drop in its growth rate from 2019-20 (3.4% in 2019-20 and average of 2.4% during 2019-23, compared with 8% during 2015-19)also reduced GDP growth (Mallik 2023).Contextually, the output of capital and infrastructure/construction goods staged an improvement in growth performance during 2022-23 and

2023-24 (April-November) enabled by government CAPEX, while the squeeze in revenue expenditure translating to subdued GFCE was not helpful to the activity elsewhere.

6. Conclusions

The inward-looking import-restriction centric re-industrialisation being attempted under the ambit of MII is not viable: it increases the pain, instead of healing. Tariff hikes defeat the structural transformation normally associated with technological progress, while there is no evidence from macro- or industry-level data to say that they assisted the growth of domestic manufacturing. The drop in productivity growth due to import curbs and adverse developments in other vital policy areas is the main source of the misfortune of Indian manufacturing. This is premature deindustrialization, and the underlying drivers are different from that in the received wisdom. There is urgent need to boost productivity in the Indian economy for improving the performance of manufacturing both in domestic- and export markets. The route to improving competition in domestic product market lies in easing the import curbs: they might be benefiting certain interest groups, there are adverse consequences elsewhere. Government R&D, where they are the sole or main spenders, would need to leap big. The private sector would hopefully increase its R&D, if policies require it to 'make in India in a competitive market', not in a sheltered market. There is a need to deploy adequate number of teachers and address other problems in education. The impact of these measures, if implemented, would be visible after a timelag. In the interim, a judicious broad-based increase in government revenue expenditure might serve as a brief life-saver for the activity in certain segments.

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Book Review

Decentralised Governance and Planning in India

By N. Sivanna, Narayan Billava and Nayantara S. Nayak (Eds.),
Concept Publishing Company (P) Limited, New Delhi, 2023, xi+310 pages,
Rs. 1400, ISBN 978-93-5594-208-1 (Hardcover)

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Rudra Narayan Mishra

Following the momentous 73rd and 74th Constitutional Amendments in 1992 quite some research has been carried out to look at the effectiveness of decentralised governance at a disaggregated level. The book under review is one such exercise. In his prologue, S.S. Meenakshisundaram underscores that despite scepticism Panchayati Raj (PR) as a local level institution has been received well for its affirmative actions like reservation for women and marginalised groups. He argues for timely release of grants to panchayats upholding the mechanism of Gram Panchayat Development Plans (GPDPs).These views are complemented by editors in the opening overview chapter.

Authors of the second chapter consider the state of Karnataka as an early implementer of the provisions of PR under 72nd and 73rdAmendments. Their analysis shows that between 2016-17 and 2020-21 the major share of expenditure of PR institutions (PRIs) in the state was on construction and maintenance of village roads, sanitation, irrigation, drinking water supply and promotion of livelihood for poor. To assess the performance of PRIs in the state, a set of 17 indicators had to be monitored comprising household level food security, asset holding and quality of life along with solid waste management. The authors make a case for property tax collection by panchayats to ensure financial sustainability. The third chapter takes a critical look at outcomes of decentralised planning in the samestate. The study shows in most cases GP plans are being prepared bypassing the

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gramsabhas and habitation sabhas. Over the years the share of funds meant for PRIs in the state to stateplan outlay is coming down and whatever resources are allocated, two thirds of it goes towards salary and office expenses. The funds available for production and asset creation by the PRIs is grossly inadequate. The zilla and taluka parishads in the state have half of the sanctioned staff which is affecting their functioning.

Chapter four is a case study of GPDP of Mugad in the Dharwad District of Karnataka. It finds that in 2018-19, only one-third of the village households ever participated in the preparation of GPDP in gramsabha and again a third of those who attended any such meeting was aware about the provisions ofGPDP. There is no effort by GP to create awareness about the exercise and GPDP is being prepared. without necessary information/data and in haste. Chapter five talks about the decentralisation planning at grassroots in context of Tamilnadu. The author points out the regional politics of two dominant political parties in the state has made the elected representatives of local bodies subordinate to the direction of state government officials (p. 65). Infact, the district collector in the state is also the inspector of PR in the respective district. Drawing upon the case study of Karur Panchayat in Kottampatti Block in Madurai district, the author points out thatduring the preparation of GPDP in 2019, the respective government officials of line departments were not present in the gram sabha, most villagers were unaware about the GPDP and hardly any data was collected to draw the plans (pp. 76-77). However, a few youths in the panchayathad made an effort to sensitise people about the GPDP and met district collector regarding the lapses.This has resulted in sensitising the elected members of the panchayat about GPDP with people's participation and service delivery improved.

Chapters six and seven, bring out the transformation in decentralised planning with implementation of 'Gram Jyothi' scheme in the state of Telangana. The scheme is using decentralised planning as a tool to prepare need-based and local-specific plans. To draw realistic plans seven functional committees (FCs); sanitation and drinking water, health and nutrition, education, social security and poverty reduction, natural resource management, agriculture and infrastructure have been constituted at panchayat level. Each of these FCsprepare their part of GDP through collection of relevant data, review of current status of service delivery, physically inspect their GP through a transect walk, conduct situational analysis, use participatory method for assessing requirements of the

community, conduct resource mappingand then allocate resources for each sector. The summary reports of each of the FCs then goes into preparation of GPDP by the panchayat. The studypoints out apart from the grants received under 14th finance commission, the GPs in the state are collecting house tax, market fees, license and registration fees,which have helped them inachievingsome degree of financial sustainability to execute their respective GPDP (pp. 90-91).Chapter seven highlights a case study of GPDP for the year 2017-18in Lingareddypalli GP of Siddipet mandal of the state and found the exercise was transparent with active participation of villagers and adhered to the guidelines for preparing the GPDP under Gram Jyothi scheme.

Chapters eight, nine and thirteen highlightthe status of decentralised planning in West Bengal, one of the Indian states which had functioning PRIs before 73rd and 74thAmendments. Authors of these three chapters on West Bengal find poverty, lack of formal education, high level of outmigration and rising violence in rural Bengal due to political differences are the major hurdlesin realisinggoals of decentralisation planning in the state. Chapter ten highlights progress in decentralisation planning in the Scheduled Areas of Odishahaving a large tribal population.Based on the case studies from two major tribal dominated districts of the state; Sundargarh and Koraput,the author shows very high level of participation among tribal population in preparation of GPDP and awareness about its various provisions (p. 153). However, the respondents in the study felt many of the plans under GPDP were not actually implemented due to lack of adequate and timely release of funds (p. 154).

Chapter eleven covers the status of decentralisation planning and outcomes in two autonomous regional councils of Assam and Tripura, Bodoland Territorial Council (BTC) and Tripura Tribal Areas Autonomous District Council (TTAADC). In BTC administered villages there are no elected bodies, but in TTAADC areas there are democratically elected village councils. The presence of autonomous councils in these states makes them distinct in matters of decentralisation elsewhere in the country. The author shows due to state legislations over the years TTAADC is more empowered and participatory than BTC (pp. 173-174).

Chapter twelve looks at the realisation of decentralised planning in Kerala from perspective of political economy. The allocation of ten percent of the budget towards women component plan (WCP) in panchayat level planning

exercise helps in mainstreaming of gender which distinguish the decentralised planning in Kerala from other states. The state also earmarked budget in the GPDP of respective panchayats towards Tribal Sub-Plan (TSP) and Special Component Plan (SCP) to address the needs of marginalised sections (p. 213). The study of GPDPs in selected panchayats found that plans were finalised with active participation from all sections in the GP. However, most of these projects were not being completed in time due to competing interests of various line departments/implementing agencies.

Chapter fourteen looks at the impact of participatory tracking (P-tracking) in the implementation of the GPDP based on case studies from two blocks, namely, Aundipatti and K. Myladumparai in Theni district of Tamil Nadu. It observes that P-tracking has helped in better data collection for preparing the GPDP. The study recommends similar intervention could make exercise of preparing the GPDP meaningful elsewhere in the country. Chapter fifteen brings out how PRIs have empowered women in regions like Sawai-Madhopur in Rajasthanwhere the social architecture is such that participation of women in public life has been a taboo in the past. The author observes thatsome of the traditional caste-based panchayats in the state are still limiting the scope for women empowerment through PRIs by reinforcing regressive social practices.

Chapter sixteen presents three indices constructed by the author; gender inequality index, child development index and food security index for rural Karnataka from various secondary sources which show the backwardness of women and marginalised section is higher in backward regions of the state. The author argues, these inequalities can be addressed through effective implementation of decentralised planning through PRIs. Chapter seventeen is an assessment of overall functioning of the three-tier system in rural India based on various secondary sources. It finds that thecollusion of the dominant groups in the village with the ruling dispensation in the state and bureaucracy often results in the exclusion of the poor and marginalised from the making of GPDP and functioning of PRIs. The author suggests for active role from civil society organisations to strengthen the PRIs in the country.

This book is a good reference text for researchers, policy makers and anyone interested in the functioning of decentralised planning and devolution of power in rural India.

Book Review

Economic Principles and Problems: A Pluralist Introduction

By Geoffrey Schneider
Routledge. London and New York, 2022.
Pages 992. Paperback
Price INR 7277.

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Annavajhula J C Bose

At the fag end of my teaching career, I have found an ideal democratic textbook as titled above.

It is a humongous textbook divided into ten parts, viz. Economics: A pluralist definition; The evolution of economic ideas and systems; Markets, supply and demand; Market structures and corporations; Government intervention in microeconomic markets: Labour markets and inequality; Macroeconomic issues and problems; Macroeconomic models; Stabilization policy; and Growth and global interconnectedness. There are 35 chapters in all running through these parts. They present the views of mainstream economists who tend to advocate a capitalist market system with limited government intervention. They also present the views of political economists (institutionalist, social, post-Keynesian, feminist and Marxist) who believe that capitalism can and should be reformed or capitalism is fatally flawed and so should be replaced.

The book, organised thus and rich in pluralistic ideas, is a veritable boon to students as also teachers because it offers a comprehensive introduction to the major perspectives in modern economics, including the right-wing mainstream and left-wing heterodox approaches. It allows, thereby, the reader to choose which ideas she or he finds most compelling in explaining modern economic realities.

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This is in contrast to most principles of economics textbooks like Gregory Mankiw's which cover only mainstream economics, ignoring rich heterodox ideas; neglect the kind of historical analysis that is crucial to understanding trends that help us predict the future; and focus on abstract models more than existing economic realities.

Consider here, for example, how Schneider explains with a mix of perspectives what our own powers of observation have made us see— plentiful, high-quality private goods on the one hand, and inadequate public goods languishing in disrepair on the other. We have observed this equipped with the knowledge that the quantity and quality of public goods and the ability of all citizens to access them are major determinants of the efficiency and equity of any economic system, and that public goods are very important to our enjoyment of private goods.

We know that public goods are nonexludable and nonrivalrous. Physical infrastructure, market infrastructure, security services, governance and public services, environmental services, public knowledge and public health are public goods. Quasi-public goods and services are also there, like the provision of health care and education to individuals, where society as a whole reaps substantial external benefits and where competition can be inefficient or wasteful, and therefore governments usually provide them as if they were public goods.

According to mainstream economic theory, an effective political system (liberal democratic) with non-corrupt politicians should be able to provide the optimal level of public and quasi-public goods. Citizens elect representatives who reflect their preferences and deliver the amount of public goods that citizens desire.

But this is not the case in the real world. There is infrastructure deficient in many areas. The answer is simple, according to the heterodox economist John Kenneth Galbraith. There is overemphasis on private goods due to the dominating influence of large corporations. Companies work to create new wants and desires via ever-increasing levels of sophisticated advertising and marketing. Producers determine what is desired and consumed by creating and nurturing consumer demand. There is also the dependence effect, which means that households become increasingly dependent on more and more commodities over time, treating new items as necessities.

However, as people become more dependent on ever-larger quantities of commodities, they are not necessarily better off. Increasing consumption not only does not make us happier but also it causes a decrease in the quantity and quality of public goods. Given limited resources, if society devotes a greater share of its resources to the production of private goods, it must devote a smaller share of resources to the production of public goods. What ultimately materialises is a social imbalance, with private goods elevated over public goods even though public goods are incredibly valuable. This social imbalance persists due to the powerful lobbying by corporations and business owners who benefit from increasing sales of private goods. This lobbying pressurises governments for tax cuts, deregulation, and other policies that would stimulate growth in the sales of private commodities. Typically, the growth lobby frames the public sector as the enemy of the private sector. Similarly, the crusade against environmental regulations has resulted in increasingly rapid climate change and other forms of environmental damage, while the production of private goods soared.

Rebalancing of political power is the only solution to this social imbalance problem which is rampant. According to Galbraith, a system of countervailing power, where corporations, individuals/workers, and government would have equal power and no one group could dominate the others is required. If corporations become too powerful, we would experience a social imbalance because private goods would dominate public goods. If government becomes too powerful, we could end up with a totalitarian regime that works poorly for people. And if workers become too powerful, they might make demands that would make businesses uncompetitive, which could harm economic growth and international competitiveness. However, if all three power blocks were relatively equally balanced, we would get a system in which corporations and workers both prospered and the government provided a sufficient quantity of public goods!

Right-wing Austrian economists do not agree with Galbraith's analysis. According to them, businesses work hard to please consumers and advertising is simply to provide information. The luxury consumption of the rich is useful in "pioneering new ways of consumption, and thereby paving the way for later diffusion of such consumption innovations to the mass of the consumers". Government is too large and overbearing. Less government and more private provision of goods is preferable. Private

producers are the source of all that is good in the economy. Government is an inept and insufficient force that needs to be contained as also constrained.

The book abounds in numerous democratic discussions like the above.

To conclude, the book succeeds in conveying us that we need to be saved from the tunnel vision that has infected mainstream economics in recent decades, by a broader, diverse background.I have found it really enjoyable to coherently and variegatedly study economics by this book, although the challenge of making up one's mind on any controversial topic is daunting and discomforting indeed. Kudos to Schneider (of Bucknell University) for bringing economics to life by simultaneously discussing the mainstream textbook economy and the economy described by the critics of the status quo; and also to Routledge for bringing out pluralist introductions to economics like this.

The book has lived up very well to the operational call from Freeman (2009) in particular and the World Economics Association in general thus: "Pluralism - the capacity to examine critically a range of explanations for observed reality - should be the primary required outcome of economics education. Specific provisions should recognise, promote, defend and guarantee this good practice in teaching and assessment alike. Such a revision… is the appropriate response to widespread criticism of economics, to which the monotheoretic character of its practice has laid the profession open, following the recession which began early in 2008."

The only downside is that the book can only be afforded for library procurement in the Indian context.

Reference

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