

THE CONTRARIAN

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UNSUNG HEROES OF THE INDIAN ECONOMY

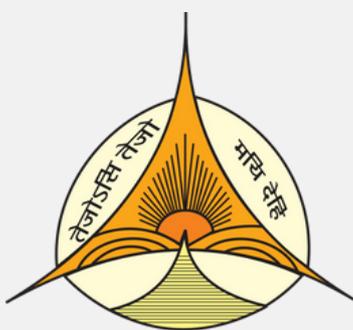
*An Academic Insight into
the Unrecognised Drivers
of Economic Growth*

discussions on
Informal Sector, Growth & Labour Market

The Contrarian Issue

2025

Unsung Heroes of the
Indian Economy



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“No work is insignificant. All labour that uplifts humanity has dignity and importance and should be undertaken with painstaking excellence”

Martin Luther King Jr.

TABLE OF CONTENTS

- i. Message from the Teacher-in-Charge 1
- ii. Note from the Faculty Advisors 2
- iii. Message from the Editors 3

—FROM THE EDITORIAL DESK: —

- 1. Women: The Unsung Heroes of the Economy by *Dr. Ruchi Bhalla* 6
- 2. Spoken of, but never saved: The Tragedy of Indian Farmers by *Ms. Divya Devassy* 10
- 3. More than Maids: Recognising the Economic Might of India's Female Domestic Workers by *Ananya Rastogi and Shriya Gupta* 15
- 4. Women-led Micro-enterprises in India: The Impact of Access to Financial Services on their Growth and Economic Mobility by *Kaatyayni Bahl and Navya Bahl* 20
- 5. Digital Harvest: Where Tech Meets Tradition in Indian Farming by *Payal Kukreja* 27
- 6. Fisherfolks: Harvesters of Coastal Bounty by *Sayasha Gupta* 31
- 7. Migrant Labourers: The Silent Engines of Progress by *Anuma Bisht* 37
- 8. Guardians of the Green Gold: The Tribal Economy Tapestry by *Evans Joy* 43
- 9. Threads of Empowerment: Women Micro-Enterprises Breathing New Life into Indian Handicrafts by *Tanya Singla* 49
- 10. Crafting Legacy: India's Artisans and their Timeless Creations by *Radhika Kukreja* 52
- 11. Skyline Sacrifices: The Workers Behind India's Urban Rise by *Yashika Saraswat* 58
- 12. Role of MSMEs in Driving Renewable Energy Adoption in India by *Hiya Kesharwani* 63
- 13. Street Vendors: The Backbone of Informal Urban Economies by *Siya Nandy* 69
- 14. Dabbawalas of Mumbai: Pioneers of Supply Chain Efficiency by *Ayushi Ladda* 74
- 15. Tradition under Threat: Analysing the Struggles of Rural Blacksmiths and Metal Workers in the Indian Economy by *Akhila S* 78
- 16. Behind the Veil: Shedding Light on the Unsung Heroes of India's Wedding Industry by *Aashna Dhingra* 82



—FROM THE CREATIVE DESK: —

1. Blooms and Toil: The Unseen Keepers of India's Floral Economy *by Dhvani Soni* **88**
2. Beauty and Chaos in Overcrowding: The Lanes of Chandni Chowk *by Eshana Bansal* **89**
3. Unsung Rhythms: A Photo Essay on the Soul of India's Informal Economy *by Janhvi* **90**
4. India's Silent Heroes *by Ananya Sirohi* **92**
5. Holding Up the Everyday *by Madhavi Kapoor* **93**
6. Night Shift *by Christa Tressa Tomy* **95**

—FROM THE DATA TEAM: —

1. Why they move, where they work: Mapping the Migrant Workforce *by Kanika Gupta* **97**
2. Sowing Success: The Rising Story of India's Agriculture *by Srishti Tripathy* **97**
3. Breaking Barriers: How Women-led MSMEs are Shaping India's Economy, One Sector at a time *by Richa Choudhary* **98**
4. A Decade of Handloom Exports: Rising Ambitions, Declining Outcomes *by Srishti Tripathy* **98**

—FROM THE RESEARCH CELL: —

1. Gender Pay Gap in India's Gig Economy: Evidence from Ride-Hailing Drivers *by Kavya Goyal, Aditi Lakra and Shreya Singh* **100**
2. Beyond Borders: Tracing India's Migration from Survival to Student Exodus *by Anya Bhagat and Jyoeeta Alex* **109**
3. The Maternal Equation: Employment, Empowerment, and the Nutritional Future of India's Children *by Ayushi Ladda, Sanvi Khandelwal, Irene Mariam John, Milin Mary Mathew and Dr. Shyma Jose* **115**
4. The East-Asian Demographic Crisis: Lessons for India amidst the debate of 90 Hours Work Week *by Srishti Tripathy and Tanya Singla* **121**
5. Mapping the Healthcare Needs and Barriers of Transgenders in India *by Alankriti Singh, Ishita Srivastava and Shrilekha Sharma* **128**





MESSAGE FROM THE TEACHER- IN-CHARGE

Ms. Rajni Singh

Associate Professor
Department of Economics

Contrarian is the Annual Magazine published by the Department of Economics . The theme for our magazine for the year 2024 -25 is "Unsung Heroes of the Economy ".

Street vendors, gig workers, fisherfolks, Dabbawallas of Mumbai, labourers and countless others form the backbone of our informal economy. Despite their significant contributions, these workers face challenges such as lack of social security and regular income, limited opportunities and hence they struggle to make ends meet. The government should formulate and implement policies that provide social security, legal protection and economic stability to informal economy workers. Skill development programmes can enhance their prospects of earning higher incomes.

In the present edition of the Contrarian, students from various departments of our institution, have written articles on wide ranging topics related to the theme "Unsung Heroes of the Economy".

My sincere thanks to the faculty members for their valuable insights, to the students for the articles written for the magazine and the members of the Magazine Committee for the time and effort invested in bringing out this edition of Contrarian .



NOTE FROM FACULTY ADVISORS

***Dr. Ruchi Bhalla &
Ms. Divya Devassy***

Assistant Professors
Department of Economics

Behind every statistic, every policy, and every success story in our economy, there are people — countless individuals whose work often goes unnoticed, unacknowledged, and uncelebrated. This year, *The Contrarian* is dedicated to them.

Our 2025 edition, themed “The Unsung Heroes of the Indian Economy,” is a tribute to the farmers who feed us, the women whose unpaid and underpaid labour keeps households and industries running, the migrant workers who build our cities brick by brick, the small manufacturers and local producers who power grassroots economies, the construction workers who shape skylines, and the Mumbai dabbawalas who deliver more than just lunch — they deliver consistency, community, and care. These are the people who make the economy move — not from boardrooms or headline announcements, but from the ground up. And yet, their stories are so often left out of the larger narrative. This edition is our

small attempt to bring those stories to light — to pause and look closely at the hands that build, the voices that rarely get heard, and the faces that make up the real economy of India. At a time when India is growing rapidly and stepping into a new global role, it’s more important than ever to make sure our growth is inclusive and fair. True progress isn’t just about rising numbers — it’s about shared well-being, dignity of labour, and equal opportunities for all.

What makes this edition even more special is that it brings together the voices of students from across departments and universities in India — each one offering a fresh perspective, a thoughtful reflection, or a compelling argument. As you flip through the pages, we hope you find inspiration, curiosity, and most of all — a renewed respect for those who quietly shape the heart of the Indian economy.

MESSAGE FROM THE EDITOR- IN-CHIEF

Dear Readers,
We proudly present 'The Contrarian', annual magazine of the Department of Economics, Jesus and Mary College.

This year's theme, '*Unsung Heroes of the Indian Economy*', revolves around the often overlooked sections of our economy, who play a pivotal role in moving the wheels of the country.

In this issue, we delve into the lives and struggles of domestic workers, construction labourers, farmers, fisherfolk, tribal communities, and street vendors—pillars of our economy whose contributions often go unrecognised yet remain indispensable.

We explore the multifaceted challenges they face in today's socio-economic landscape. Through in-depth research articles, photo essays, and infographics, we strive to highlight their economic, social, and cultural significance. Our aim is to honour these unsung (s)heroes by amplifying their stories. It is only through understanding their realities that we can move towards a more inclusive and equitable society.

The publication of this year's magazine would not have been possible without the support and able guidance of our teacher-in-charge, Ms. Rajni Singh and our faculty advisors, Dr. Ruchi Bhalla and Ms. Divya Devassy. I would like to extend my heartfelt gratitude to our Deputy Editor-in-Chief, Shriya Gupta, who was my rock throughout this process and our wonderful team, whose efforts shine throughout this publication.

As we try to further the spirit of heterodox thinking, we hope that as you flip through the pages of this magazine, you, too, challenge the status quo. May this issue start new conversations and strengthen the resolve of those already begun.



Ms. Ananya Rastogi
Editor-in-Chief

MESSAGE FROM THE DEPUTY EDITOR- IN-CHIEF

Often, when we discuss the behemoths of industry, the soaring GDP figures, and the intricate interplay of fiscal policies, we inadvertently overlook the foundational pillars upon which this economic realm truly stands. These are the individuals who toil tirelessly, often in the shadows, their contributions immeasurable yet frequently unacknowledged in mainstream economic discourse. Their stories are woven into the very fabric of our economic narrative, contributing significantly to our nation's growth, resilience, and social fabric. Yet, their voices often remain unheard, their challenges unseen, and their contributions undervalued.



Through the pages of this magazine, we aim to shine a light on these remarkable individuals and sectors. Our dear Contrarians have delved into the intricacies of their lives, exploring their economic realities, their struggles, their innovations, and their profound impact on the Indian economy. You will find insightful articles, thought-provoking analyses, and perhaps most importantly, human stories that will move you and broaden your understanding of what truly drives our nation forward.

Thus, this edition is more than just an academic exercise; it is a heartfelt tribute to the individuals who embody the spirit of hard work, resilience, and quiet determination. It is an invitation to look beyond the conventional metrics of economic success and to recognize the human element that underpins it all. We hope that as you turn these pages, you will gain a deeper appreciation for the "Unsung Heroes of the Indian Economy" and their indispensable role in shaping our nation's present and future. Their stories deserve to be told, their contributions deserve to be celebrated, and their voices deserve to be heard.

Ms. Shriya Gupta
Deputy Editor-in-Chief



From the
Editorial
Board



WOMEN: THE UNSUNG HEROES OF THE ECONOMY

DR. RUCHI BHALLA

Introduction

Eminent economists like W. Arthur Lewis in his economic model also has described informal sector as the main source which helps in employment generation or earning livelihood primarily within the developing countries like India. The working masses flooded into the industry, despite their low levels of education and skill, and this spurred the country's economic expansion and progress. However, as the sector remained unregistered in nature, it offered the fodder for unhealthy employment practices to nurture and flourish. Being associated with low productivity and poverty, the policymakers also started seeing the sector as problematic. As per the ILO Informal economy refers to "all economic activities by workers and economic units that are – in law or in practice – not covered or insufficiently covered by formal arrangements". In India, the informal sector accounts to be around 90%. The activities that are covered under informal sector are mostly those which are not regulated by the government and hence are not subject to taxation. It is largely an unregulated and ignored section of the workforce. According to the National Sample Survey Office (NSSO) this unregistered workforce makes a significant contributor to the Indian economy. Different research reports published by agencies like ILO India Labour Market Update (2016) and NSSO (2011-12) have highlighted that near about 90 % of the jobs in the informal sector comes under the category of agriculture and around 70 percent is under non-agricultural sector. Informal economy also

known as unorganised or residual economy started gaining prominence after the globalisation. With the rapid expansion of the Indian economy and vast majority of the working population shifting towards cities in search of better life style better job opportunity, there was immense scope for the working population for sources of livelihood in the informal sector. One of the most important part of the informal sector is the women. Women's participation in the informal sector has increased from 42.5% in 2009-10 to 46.5% in 2015-16. A report by the International Labour Organization (ILO) estimates that the contribution of women to India's GDP through the informal sector is between 20% and 50%.

Though being a significant contributor in the economy this section face numerous challenges. There is lot of inequality existing within different sectors and are usually low-paying and their working conditions are also substandard. An ILO report states that women in the informal sector earn 40% to 50% less than men in the same sector. The story remains same for the formal sector, women are not paid equally as per the male. According to the United Nations women in the labour market worldwide continue on average to earn 23% less than men for the same job or, to put it another way, are paid 77 cents for every dollar men get. The lady workers engaged in the segment are subject to compensation of discriminatory wages, extreme working hours, and sheer exploitation in different forms by the employers (Bhat & Yadav, 2011). The system of informality often treats

these female workers as reserve pool of workers which will be utilised during times of needs and laid off when the needs is over. And above all, no restraining voices will be raised against this exploitation. It's no exaggeration to call the informal sector as the breeding ground for marginalisation of the woman labour force not only in India, but also across the globe.

The Informal Sector: Gender Perspectives

The women in India's workforce are essential to the success of the country's unofficial economy. Women make up a disproportionately large component of the informal sector's working class, and they conduct a wide variety of jobs, from street vending and domestic work to subsistence farming and seasonal agriculture work. It is believed that over 94% of all working women in India are involved in the unofficial economy. The World Bank also agrees to the fact a significant portion of the woman labour engaged in the informal sector are not officially registered. As a result, the exact figures may exceed beyond expectations. The female workers can be found to be employed in both the agricultural and non-agricultural sector. They are generally engaged in sectors like assembly and real estate, domestic workers, textile industry, street vendors, agricultural laborers, tea plantation and cotton industry, handloom sector, sales and marketing etc (Geetika et al., 2011). The table below presents the distribution of informal sector workers in India.

Area	All workers			Agricultural workers			Non-agricultural workers		
	Total	Women	Men	Total	Women	Men	Total	Women	Men
2011-12									
All India	487.72 (100.0)	126.77 (27.1)	340.95 (72.9)	223.41 (47.8)	78.95 (16.8)	144.86 (31.0)	244.31 (52.2)	48.22 (10.3)	194.09 (41.9)
Urban	135.36 (28.9)	27.02 (5.8)	108.37 (23.1)	9.10 (1.9)	2.93 (0.6)	6.17 (1.3)	126.29 (27.0)	24.09 (5.1)	102.20 (21.9)
Rural	332.33 (71.1)	99.75 (21.3)	232.58 (49.7)	214.31 (45.8)	75.82 (16.2)	138.69 (29.7)	118.02 (25.2)	24.13 (5.1)	93.89 (20.1)
2017-18									
All India	481.52 (100.0)	104.95 (22.7)	356.58 (77.3)	194.08 (42.1)	57.78 (12.5)	136.30 (29.5)	267.45 (57.9)	47.17 (10.2)	220.28 (47.7)
Urban	130.25 (32.4)	29.91 (8.5)	120.33 (26.1)	9.25 (2.0)	2.72 (0.6)	6.53 (1.4)	141.00 (30.6)	27.19 (5.9)	113.81 (24.7)
Rural	311.29 (67.4)	75.03 (16.9)	236.24 (51.1)	184.83 (40.0)	55.05 (11.9)	129.77 (28.1)	126.45 (27.4)	19.98 (4.3)	106.47 (23.1)

Area	Total employment			Informal employment as per cent of total employment		
	Total	Women	Men	Total	Women	Men
India	481.52 (100.0)	104.95 (22.7)	356.58 (77.3)	415.23 (90.0)	96.16 (91.6)	319.06 (99.5)
Urban India	130.25 (100.0)	29.91 (19.9)	120.33 (90.1)	119.00 (79.2)	23.45 (78.4)	95.55 (79.4)
Delhi	6.09 (100.0)	0.91 (14.9)	5.18 (85.1)	4.92 (80.7)	0.69 (76.4)	4.22 (81.5)

SOURCE: (Source: <http://www.wiego.org>)

Table 1 reports the composition of employment by sex and by agriculture and non-agriculture. Table 2 reports the percentage of the population that is employed and the percentage of those employed who are informally employed. The employment rate of women is exceptionally low in India: 23 percent nationally, 20 percent in urban India and only 15 percent in Delhi.

Women on the Verge: Marginalizing female workers in the Informal Sector in India

Even though the representation of female workforce in the informal sector of the Indian economy is large, their contribution has hardly been appreciated neither been recognised. Several reports from numerous agencies have been published but most of them are concerned with presenting a statistical representation of the female workforce. The productivity and the value addition that they offer to the sector is hardly cited. Their role and contribution has remained marginalised pushing them on the verge of the Indian economy. This marginality has made their position in the Indian society not only vulnerable but also least significant. Let us understand why the female workforce remains marginalised in the Indian economy. Marginalisation has several connotations and interpretations in academic literature. Marginalisation can be social, political, economic, and so on. As a social phenomenon or practice, it can be regarded as exclusion of individual or certain group from participating in the society in a holistic sense (Kagan et al. 2002). Economic marginalisation forces a woman to be not able to enjoy her fruits of labour in form of wage equality, sources of livelihood etc. The World Economic Forum held in 2016 estimated

that it will take more than one hundred and seventy years for economic parity to prevail in practical terms. This economic marginalisation is attributed to the fact that women do not enjoy control over production process along with the control over work segmentation. In every manner possible, it refrains or restricts women to lead an independent life making them more dependent on the society. Thus, marginalization can be considered to include the dimensions of both process and condition where an individual or a group is prevented to participate actively and fully across different walks of life (Kagan et al. 2002).

Conclusion

The above discussion highlights how female workers are disproportionately represented in the informal sector making them a subject to political marginalization. Taking this advantage the employers also prefer to hire female workers as hiring them not only offers the employer to escape from the collective bargaining strength of the trade unions, but also female workers can be hired at much lower wages. But in spite of the prevailing anomalies, there are also rays of hopes lying within this sector. Wages in China which is world's greatest manufacturing power has witnessed spurt in recent years. This naturally is attracting the foreign investors towards India as a manufacturing hub. India has got huge potentials in the form of this female workforce to become a destination hub for manufacturing sector. Women workforce in this sector can be chalked out with much ease as they remain concentrated to their settlement areas. With more supportive regulations, greater flexibility in hiring female workers by providing them the required skill sets through training, India can no doubt, become a manufacturing hub. The revival of several cottage industries like khadi etc. can be cited in this regard where women,

with the help of training, have turned these sick units into profit generating units. This has also helped to improve the lot of the women residing in the village areas and helps in realizing the dream of 'inclusive growth' which remains the core essence of any Socialist and Democratic State like India. Women are at the base of the hierarchy and so there are obvious reasons for their sufferings. And since the informal sector is also considered as composing of the jobs done manually or considered mean and odd, but taking a serious consideration to bring this jobs under organized category, the plight of women workers can be improved substantially. Several nonprofit organizations need to be encouraged to come for the identification of female workforce.

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SPOKEN OF, BUT NEVER SAVED: THE TRAGEDY OF INDIAN FARMERS

MS. DIVYA DEVASSY

Introduction

“If agriculture goes wrong, nothing else will have a chance to go right.” – M.S. Swaminathan

India’s journey from the grim days of “ship-to-mouth” dependence to becoming one of the world’s largest producers of rice, wheat, and milk is nothing short of extraordinary. This transformation stands as a powerful testament to the relentless resilience, sweat, and spirit of its farmers—unsung heroes who turned scarcity into surplus and ensured the nation’s food security against all odds. Farmers are not just the backbone of our rural economy; they are the unseen architects of national prosperity. Their sweat irrigates the fields, but also powers the wheels of industry and fills the shelves of commerce. From grains that feed millions to cotton that weaves our everyday lives, their labour nourishes our bodies, our markets, and our GDP. Yet, those who sow for the nation often reap the least.

India, a country where over half the population is engaged in agriculture, continues to witness an unsettling paradox: while farmers feed the nation, they themselves are increasingly unable to feed their families. Despite the sector’s central role in employment and national food security, its contribution to the GDP remains modest and stagnant. The plight of Indian farmers is not a newly emerging crisis, but one that has been consistently neglected, misunderstood, and poorly addressed.

Indian farmers have always been spoken of with reverence in political speeches and policy declarations. They are seen as the guardians of food security, rural stability, and traditional knowledge. Yet, their lived experiences are

marred by exploitation, policy apathy, and systemic inefficiencies. According to the National Statistical Office, over 70% of agricultural households earn less than their monthly consumption expenditure. This disconnect between effort and reward has bred chronic debt and despair, culminating in a grim reality— According to the latest National Crime Records Bureau (NCRB) data released on December 4, 2023, one farmer or farm labourer dies by suicide every hour in India, with a total of 11,290 such cases reported in 2022. This marks a 3.7% increase from 2021 and a 5.7% rise from 2020, reflecting a deeply concerning trend. Alarming, the data also reveals that suicides among agricultural labourers have now surpassed those of cultivators, highlighting the intensifying distress in India’s agrarian sector. This article explores the role of farmers in the Indian economy, the challenges they face, and offers suggestions for future policy directions to ensure they receive the recognition, protection, and prosperity they truly deserve.

Role of Farmers

Farmers are central to India’s agricultural economy, which remains foundational to national growth. Their tireless efforts support three vital pillars of development: inclusive growth, rising rural incomes, and sustained food security. Although agriculture contributes nearly 15% to India’s GDP (as per 2022-23) and significantly to export earnings, it remains the main source of livelihood for nearly half the country’s population. According to the 2011

Census, the number of individuals engaged as cultivators and agricultural labourers rose from 234 million in 2001 to 263 million in 2011, reflecting the massive human capital invested in this sector. Behind the rise in agri-exports—from 13.08% of total exports in 2012–13 to 14.17% (₹2.68 lakh crore) in 2013–14—are the hands of millions of farmers whose produce feeds not only the nation but also a growing global market (Ministry of Statistics and Programme Implementation [MoSPI], 2016).

Despite being the backbone of the economy, farmers in India continue to face persistent and deep-rooted challenges. While their produce reaches global markets and sustains millions of lives, their own lives are often marked by uncertainty, hardship, and neglect. The economic value they generate is rarely reflected in their incomes, living standards, or security. As the rest of the economy moves forward, the Indian farmer remains stuck in a cycle of vulnerability—battling erratic weather, market volatility, rising costs, and policy gaps.

Challenges

Despite their vital contribution, Indian farmers often struggle to meet even basic standards of economic well-being. The average annual farm income stands at just ₹77,230, barely 58% above the rural poverty line of ₹48,960 for a family of five, as per the Tendulkar methodology (Chand, Saxena, & Rana, 2015). For small and marginal farmers, particularly those owning less than 0.63 hectares of land and relying solely on agriculture, this often means living below the poverty line. Over 53% of farm households would slip into poverty without supplementary income from non-farm sources, underscoring the fragility of agricultural livelihoods (Chand et al., 2015).

Indian agriculture faces a paradox: its share in

GDP is shrinking, yet dependence on it remains high. This imbalance leads to low productivity and disguised unemployment. While rural India gradually transitions towards non-farm jobs and small enterprises—a shift that has helped reduce poverty in countries like China—the process in India is accompanied by persistent structural challenges. Fragmentation of land holdings, driven by population growth, has reduced the average farm size to just 1.2 hectares, with nearly 85% of holdings now classified as small (MoSPI, 2016). Expansion of cultivable land has stagnated, and overuse of resources has raised serious environmental concerns. Meanwhile, 52% of agricultural households are in debt, with an average outstanding loan of ₹47,000. Though 60% of these loans come from institutional sources, 25.8% still rely on moneylenders, perpetuating high-interest debt and financial vulnerability (NSSO SAS, 2013).

Marketing challenges continue to severely limit farmers' earning potential, despite decades of policy focus on pricing. Farmers face non-remunerative returns even in surplus and normal years due to pricing distortions and inadequate infrastructure (Dev, 2018). Regional disparities exacerbate the issue—a study using AgMarket data found significant price variations across mandis, with a standard deviation of 0.17 in real prices (Chatterjee & Kapur, 2017). The Minimum Support Price (MSP) policy, while intended as a safety net, remains largely focused on rice and wheat, excluding many farmers. Limited geographic coverage and weak procurement infrastructure further restrict access to MSP benefits. India has just one regulated market for every 407 square kilometres—far below the National Commission on Farmers' recommendation of one per 80 square kilometres. Over 1,100 markets remain non-functional, and many lack basic infrastructure

(Ministry of Agriculture & Farmers' Welfare, 2024). According to a joint OECD-ICRIER study, Indian farmers were effectively taxed at 14% between 2000 and 2017, highlighting systemic policy failures.

Why Policy Often Fails

While there is no dearth of schemes, what lacks is coherence and commitment. The 2020 Farm Laws, for example, aimed at liberalizing agriculture markets, were repealed due to widespread protests. This underscores the disconnect between policy design and farmer realities. Often, policies are top-down, poorly communicated, or hijacked by vested interests. Further, subsidy-driven policies have encouraged overuse of fertilizers and groundwater, leading to long-term ecological damage without increasing net farmer income. The e-NAM platform, though innovative, hasn't been scaled up effectively to become a true national market. Let's take a closer look at some of the flagship agricultural schemes and how they unfold in reality

Agricultural Schemes – Promises vs. Ground Reality

Scheme	Stated Objective	Ground-Level Reality
PM-KISAN (Pradhan Mantri Kisan Samman Nidhi)	Provide ₹6,000 per year in direct income support to small and marginal farmers.	Many tenant farmers and landless cultivators are excluded due to land ownership requirements. Amount inadequate.
Minimum Support Price (MSP)	Ensure farmers get a fair price for their produce and protect them from market fluctuations.	Only about 6% of farmers (mostly in Punjab and Haryana) benefit. No legal guarantee of procurement at MSP.
PMFBY (Pradhan Mantri Fasal Bima Yojana)	Provide affordable crop insurance against natural calamities, pests, and diseases.	Delays in claim settlements, low awareness, and insurer profit-making have led to farmers opting out.
e-NAM (Electronic National Agriculture Market)	Create a unified national market for agricultural produce.	Poor digital literacy, lack of infrastructure, and dominance of APMCs restrict effectiveness and reach.
Soil Health Card Scheme	Promote balanced use of fertilizers through scientific soil nutrient assessment.	Often treated as a formality; many cards outdated or ignored due to lack of farmer training or follow-up support.

Future Directions

The future of Indian agriculture lies in reimagining the role of the farmer as both a producer and stakeholder in economic growth. While the sector has shown resilience—with an

annual growth rate of 5% between 2016–17 and 2022–23 and record-breaking food grain outputs—the benefits have not reached all farmers equally (Chand & Singh, 2024). The persistent urban-rural income gap and inequitable benefit distribution call for a farmer-centric approach in policy-making. Indian agricultural policy has to shift its focus from increasing agricultural output to enhancing farmer incomes through diversified cropping, livestock integration, and direct cash support

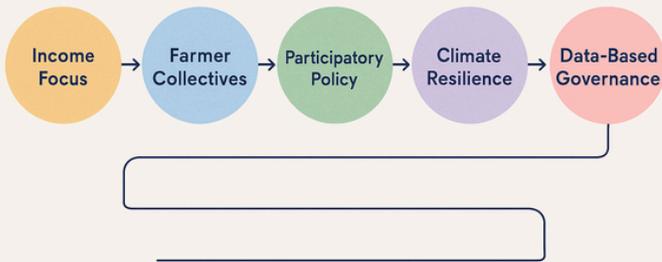
Reforming the agricultural marketing ecosystem is a top priority. Despite high production, weak procurement systems, limited market access, and dependence on intermediaries prevent farmers from receiving fair prices. The National Policy Framework on Agricultural Marketing emphasizes the need to diversify marketing channels, ensure transparent price discovery, and integrate digital platforms. Addressing market asymmetries and regional price variations requires robust data systems, localised intelligence, and infrastructure such as rural roads. Procurement must extend beyond rice and wheat to include diverse crops and regions.

Drawing on Dev's (2018) comprehensive roadmap, policy should focus on land reforms, water productivity, technology, and institutional restructuring. Legalizing land leasing through a Model Land Leasing Act can offer landowners security and enable tenants to access credit and insurance. Expanding the Digital India Land Records Modernization Programme (DILRMP) is vital for transparency and land-use efficiency. Water, a critical yet mismanaged resource, demands urgent reform. Despite heavy investments, canal irrigation has declined due to inefficiencies. As Dev (2018) notes, solutions must focus on water productivity and input pricing reforms. Programs like PM Krishi Sinchai Yojana offer promise, but subsidy



rationalization and participatory irrigation management are essential. Drip irrigation—ten times more efficient than flood methods—still covers less than 5% of the sown area. Expanding coverage through training and subsidies is necessary.

The Way Forward



Investment in agricultural R&D must rise from 0.6% to at least 1% of agri-GDP to close the productivity gap with global peers. Technology adoption, including biotechnology and digital platforms, can reduce input waste and increase transparency. Empowering women farmers through land rights, credit, and collective models, and attracting youth through agri-entrepreneurship and modern techniques, are crucial. Strengthening Farmer Producer Organizations (FPOs), local governance institutions, and farmer participation in decision-making must be central to reform. India must aim to build a future where farming is not a last resort but a dignified and prosperous livelihood of choice. Achieving this vision requires coordinated action across government, private sector, civil society, and farmers themselves—to create an agriculture that is economically vibrant, socially just, and environmentally sustainable.

Conclusion

The tragedy of Indian farmers lies not just in

failed crops or fluctuating prices, but in a deeper systemic neglect of the hands that feed us. Their burden cannot be lightened by platitudes or piecemeal reforms. What is needed is an empathetic, participatory, and sustained overhaul of how we treat agriculture and its custodians. Only then can we say that Indian farmers have been more than just spoken of—they have finally been saved.

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MORE THAN MAIDS

Recognising the Economic Might of India's Female Domestic Workers

ANANYA RASTOGI & SHRIYA GUPTA

Introduction

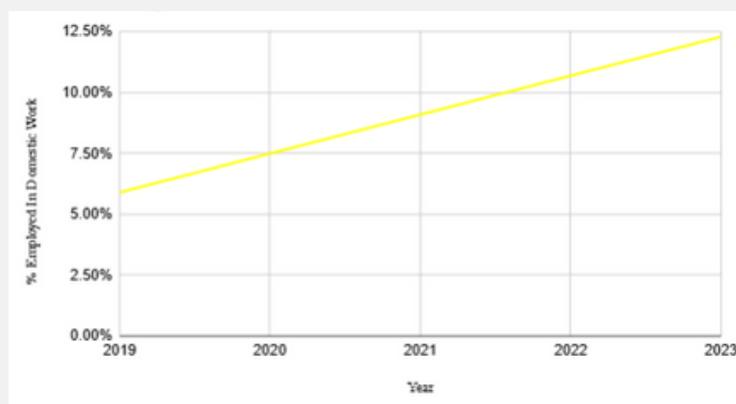
Behind the organised structures and statistical reports of formal economies lies a dynamic and often invisible world of informal work, a testament to human ingenuity and the necessity of making ends meet. This informal economy (IE) stands as a significant pillar of the global workforce, encompassing 61.2 percent of workers worldwide. (ILO, 2018). In India, this prevalence is even more pronounced, with a staggering 92.4 percent of the workforce engaged in informal employment. This figure significantly surpasses the 70 percent average observed in other developing nations, underscoring the profound embeddedness of informal labour within the Indian economic landscape. (Hammer et al., 2022)

Feminisation of Informal Work and Domestic Work Within this vast informal sector, domestic work emerges as a crucial, yet often overlooked, segment. Globally, the IE exhibits a strong gender dimension, with a striking 92.1 percent of working women in low-income countries employed informally in 2018 (Chant et al., 2008). India mirrors this trend; the 2017-2018 Periodic Labour Force Survey revealed that 91.6 percent of working women belonged to the informal sector, despite a low overall female employment rate of 22.7 percent (Govindan et al., 2020).

The integral role of domestic work within the IE is further highlighted by the fact that women constitute 76.2 percent of the global domestic workforce (Lakkireddy, 2024). In urban India, domestic work holds the position of the second-largest sector for female employment. According

to a survey of 1000 female migrants, Mumbai sees approximately 54.9% of female migrants being engaged in domestic work, while in Delhi, domestic workers account for a substantial 47.3% of the total female workforce (Ray Saraswati et al., 2015). Between 2019 and 2023, we observe a near doubling of the percentage of urban women employed as domestic workers rising from 5.9% to 12.3%. (Lakkireddy, 2024) Thus, there arises a critical need for urban centers to acknowledge and safeguard the rights and well-being of domestic workers (DWs)

FIGURE 1: Rise of Urban Domestic Workers (2019-2023)



Source: Lakkireddy, 2024

The Challenge of Data Scarcity

Estimating the total number of domestic workers in India remains a significant challenge due to the sector's informal nature. NSSO data from 2012 indicated 39 lakh domestic workers (at least 26 lakh women), while a 2010 estimate by the Minister of State for Labour and Employment suggested over 15 million. The National Domestic Workers' Movement (NDWM) estimates range even wider, from 4.2 million to

over 50 million.(Chadha et al., n.d.). This wide discrepancy underscores the urgent need for more precise data collection to better understand the scale and dynamics of this crucial workforce and consequently take up effective policy formulation. (see Table 1)

Source	Estimated Number of Domestic Workers
NSSO (2012)	39 lakh (at least 26 lakh women)
Minister of State for Labour and Employment (2010)	Over 15 million
National Domestic Workers' Movement (NDWM)	4.2 million to over 50 million

TABLE 1: Variation in Data Estimates from Official Sources

Child Labour in Domestic Work

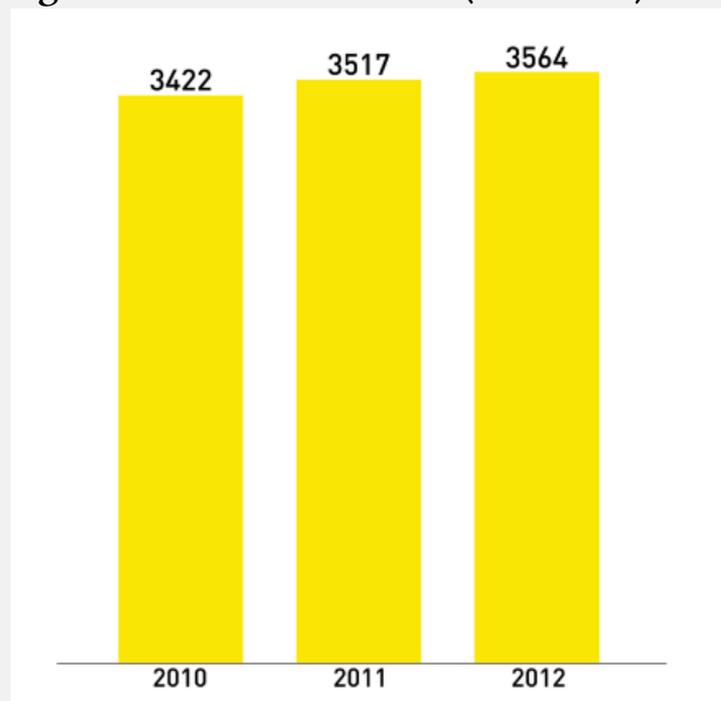
A concerning aspect is the prevalence of child labour within the sector. Reports suggest that over 12.6 million domestic workers are underage (below 18 years), with 86% being girls. Alarming, 25% of these child domestic workers are below 14 years of age. (UFDWRs 2010). The Juvenile Justice Act, 2000, plays a role in rescuing workers below eighteen. However, a critical disconnect exists with the Child Labour Act, which only prohibits domestic work for children up to fourteen. This legal distinction means that adolescents aged fourteen to eighteen can legally be employed in domestic work under certain stipulations, thus falling outside the protective umbrella of the Juvenile Justice Act. Given the extensive number of young individuals engaged in this sector and the magnitude of their vulnerabilities, these measures prove to be profoundly inadequate. (SEWA, 2014)

Vulnerability to Violence and Harassment

Despite their essential contributions, domestic

workers face significant vulnerabilities. Violence against them saw a rise between 2010 and 2012. (See Figure 2). A 2018 South Delhi survey revealed widespread awareness (92%) and experience (29%) of sexual harassment, with stalking being most common (65.6%). Caste also plays a major role, with a Bangalore study showing a high concentration of workers from Scheduled Castes (75%). (Chadha et al, n.d.) Legislative efforts like the UWSA and Minimum Wages Act in some regions e.g., Tamil Nadu benefiting 11,000 workers in 2013-14) show some positive impact, but the overall problem remains substantial. (Lakkireddy, 2024)

FIGURE 2: Reported Cases of Violence Against Domestic Workers (2010-2012)



Source: Chadha et al, n.d.

Weaving a story of female domestic workers in the Indian state of West Bengal

By the late 19th century, shifts in Bengal's labour landscape began to limit women's employment opportunities. Traditional household industries increasingly preferred single-male workers, and sectors like jute — where women had once made up nearly 20 percent of the workforce — saw a sharp drop in

female participation . At the same time, new factory laws restricted women's roles in industries such as coal mining. In this changing environment, domestic service, seen as a natural extension of women's nurturing roles, emerged as one of the few socially acceptable ways for women to earn a living.

According to the 1911 Census, as referenced by academics Ishita Chakravarty and Deepita Chakravarty in their 2013 journal article *For Bed and Board Only: Women and Girl Children Domestic Workers in Post-Partition Calcutta (1951–1981)*, domestic service made up 12 percent of all occupations in Calcutta. In comparison, the figures were lower in other major cities — 7.3 percent in Bombay, 6.68 percent in Madras, and 6.1 percent in Delhi. Popular and folk literature from that period often depicted Bihari domestic workers and Odiya cooks serving in Bengali households.

Due to social reform movements which advocated for the Victorian ideal of companionate marriage, the presence of domestic workers became not only a practical necessity but also a marker of social status in middle-class Bengali households. Scholars also connect the rising number of women in the unorganised sector to the shortcomings of state policies. They argue that as more qualified men face difficulties securing jobs in the organised sector, they increasingly displace women from roles in the unorganised sector, such as transport. Ishita and Deepita Chakravarty note in their 2008 journal article *Girl Children in the Care Economy: Domesticity in West Bengal* that, "As a consequence of male entry, women who have lost jobs get pushed into more and more unskilled professions... like domestics or retail trade."

Research on women's work has sought to understand the gendered segregation of the

labour market and how the interplay of capitalism and patriarchy shapes the distinct economic roles that women and men occupy in society (Chakravarty, 2008). It has also been pointed out that cultural inhibition against paid outside work pushed women to such gender specific occupations as domestic service, begging and prostitution (Jain, 1985).

The rural to urban migration began post the famine in 1943, which forced many impoverished individuals, particularly women and children, to migrate to the main city in search of food, work and survival. The influx of migrant girls into domestic work grew notably after the 1960s, reaching its peak by 1981. Census data from 1981 shows that nearly 88 % of working migrant girls in Calcutta were employed as domestic workers. That year marked a significant shift, as women and girls, for the first time since independence, outnumbered men and boys in urban West Bengal's domestic service sector. Domestic work was not only a predominantly female occupation but was also increasingly dominated by younger girls.

According to the 1991 Census, around 76 % of females aged 5–14 in urban West Bengal were engaged in domestic work — the highest concentration recorded for that age group.

In their 2016 book *Women, Labour and the Economy in India: From Migrant Menservants to Uprooted Girl-Child Maids*, Ishita and Deepita Chakravarty present another perspective on this migration trend. They suggest that hiring a girl child as a full-time domestic worker is both more affordable and easier to manage than employing an adult, enabling employers to assign a range of miscellaneous tasks. They further point out that the lower migration rates among boys can be linked to their preference for local employment opportunities and the

protective attitudes of families, who often shield boys from external risks.

Whole-time domestic workers, most of them young girls, fit the United Nations' 1999 definition of modern slavery. Yet in urban West Bengal, the situation has seen little improvement. National Sample Survey data shows that the employment of girls aged five to nine actually increased between 1993–94 and 2004–05, highlighting the troubling persistence of this practice. A 2006 study by the non-governmental organisation Save the Children revealed that 68 percent of child domestic workers surveyed in West Bengal had suffered physical abuse, 46 percent had sustained serious injuries, and 20 percent had been victims of sexual abuse. There are also some encouraging signs of progress. Primary school enrolment rates for girls are increasing, while dropout rates are steadily declining. State-led initiatives like Kanyashree Prakalpa are further motivating families to prioritise their daughters' education (Mohta, 2025).

In November 2022, the West Bengal government agreed to review the Paschim Banga Griha Paricharika Samiti's demands, the state's first domestic workers' organisation to gain trade union status, and consider a minimum wage for domestic workers. While a positive step, concerns remain about its effectiveness, particularly for female workers. Without laws mandating the registration of domestic workers by employers, these women are likely to remain informal workers, lacking legal protection and rights.

Conclusion

Between 1999–2000 and 2009–2010, the number of women employed as domestic workers increased fourfold (Neetha, 2013). These workers handle household tasks like

cooking, cleaning, and caregiving, often earning low wages under insecure conditions. While their income is crucial for household survival and can enhance their decision-making power, female domestic workers face significant challenges and remain largely unheard. To improve their quality of life, the implementation of the Minimum Wages Act, social security support, and access to healthcare is crucial. Long-term financial planning, skill development, and career advancement opportunities should also be prioritised. Inclusive strategies from the government and NGOs, alongside awareness campaigns, are essential for empowering domestic workers and ensuring their rights are upheld. These measures will help reduce exploitation and protect this vulnerable workforce, ultimately improving their physical and mental well-being.

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WOMEN-LED MICRO-ENTERPRISES IN INDIA

The Impact of Access to Financial Services on their Growth and Economic Mobility

KAATYAYNI BAHL AND NAVYA BAHL

Introduction

India's economic profile has witnessed a dramatic shift in recent decades, with MSMEs contributing to the country's employment opportunities and GDP contributions. Women-owned microenterprises have been a responsible but frequently underrated force, leading local economies and supporting economic independence. Yet, despite their promise, women entrepreneurs are hindered by systemic barriers, with restricted access to financial services being one of the biggest impediments.

Financial inclusion, that is, availability and access to banking, credit, insurance, and other financial services, has been an Indian policy priority. Programs such as the Pradhan Mantri Jan Dhan Yojana (PMJDY), MUDRA loans, and banking linkages for Self-Help Groups (SHGs) have attempted to bridge the gap. However, gender gaps continue, with women entrepreneurs being systematically excluded from the formal financial system based on socio-cultural factors, inadequate collateral, and financial illiteracy.

This article analyzes the influence of access to financial services on the growth and economic mobility of Indian women-led microenterprises. Through the analysis of trends, challenges, and policy interventions, we evaluate the role of financial inclusion in empowering women entrepreneurs and recommend avenues for sustainable economic growth.

Trends in Women-Led Micro-enterprises in

India

Women represent close to 14% of all entrepreneurs in India, and most of them work in the informal economy, such as small-scale retail, handicraft, textiles, and agri-business (Ministry of Statistics and Programme Implementation, 2023). Women possess 20.37% of proprietary enterprises as per the Sixth Economic Census (2016), with stronger concentrations in the states of Kerala, Tamil Nadu, and Andhra Pradesh. Most of them, however, are micro-scale due to resource limitations.

Some of the key challenges encountered by women entrepreneurs include restricted access to formal credit. A mere 27% of Indian women enjoy access to formal credit (World Bank, 2021), with most of them using informal moneylenders who charge excessive interest rates. Additionally, collateral requirements pose as another barrier. Banks usually require physical collateral, which women, especially in rural regions, rarely have. There are financial and digital literacy disparities. Numerous women are unfamiliar with banking services, digital payment methods, and procedures for obtaining loans. Above all, the patriarchy restricts women's movement, choice, and control over property, limiting their loan-accessing abilities.

Even with these obstacles, government initiatives such as MUDRA Yojana have helped enable more than 68% of loans to women entrepreneurs (Ministry of Finance, 2023). Likewise, SHG-Bank Linkage Programs have helped millions of

women gain access to microloans, triggering entrepreneurship at the grassroots level.

The Role of Financial Services in Enterprise Growth

- Credit Access and Business Expansion

Credit access enables women-owned microenterprises to make investments in raw materials, equipment, and employee hiring. According to a Reserve Bank of India (RBI) study (2022), women who obtained formal loans registered a 30-40% rise in business income within two years.

Launched in 2000-01, the Stree Shakti program is a state-wide initiative in Karnataka aimed at empowering rural and urban women by promoting self-reliance and economic independence. At the heart of the program are Stree Shakti Groups (SSGs), formed at the village level to encourage savings habits and foster financial empowerment among women. Spearheaded by the Government of Karnataka and overseen by the Department of Women and Child Development, the initiative focuses on supporting Self-Help Groups (SHGs) through regular monitoring and assistance. As part of its efforts, the program has extended low-interest loans to around 50,000 women entrepreneurs. This support has led to a 25% increase in average monthly incomes and improved asset ownership among participating women, marking a significant step toward their socio-economic upliftment (S & Laxmana, 2012).

- Digital Financial Inclusion

The growth of mobile banking, UPI, and fintech products has decreased cash transaction dependence, enhancing transparency and efficiency. The government introduced the JAM Trinity initiative — an integrated approach that

brings together Jan Dhan accounts, Aadhaar cards, and mobile banking—to drive financial inclusion across India. Under this framework, Jan Dhan accounts are targeted at underserved and economically vulnerable groups, providing them with access to basic banking services. Aadhaar serves as a unique identification system to ensure transparency and eliminate duplication, while mobile banking addresses the critical challenge of last-mile service delivery by enabling easy access to financial transactions. Together, the JAM Trinity creates a foundational infrastructure that not only supports inclusive growth but also opens up opportunities for fintech companies to innovate and expand their reach in India's evolving digital economy (Fuloria & Mishra, 2022).

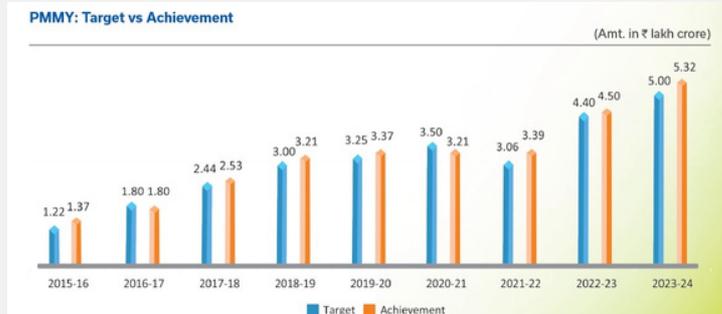
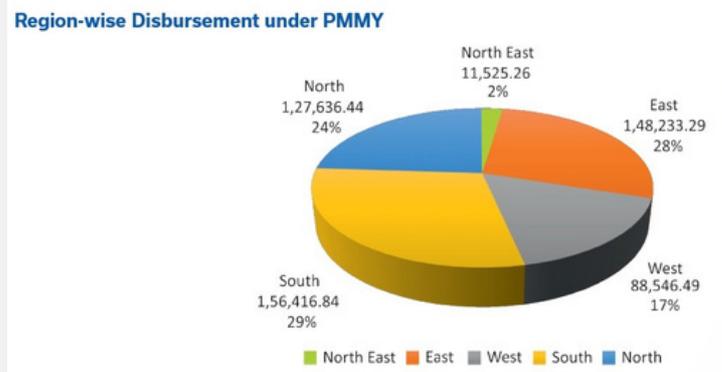
- Insurance and Risk Mitigation

Numerous women-led businesses deal with risk-prone sectors (e.g., agriculture, handicrafts). Microinsurance schemes, like the Pradhan Mantri Suraksha Bima Yojana, assist in reducing exposure to risks of crop failure, medical emergencies, or price fluctuations. The Government of India launched the Pradhan Mantri Suraksha Bima Yojana (PMSBY) on May 9, 2015—an accident insurance scheme aimed at increasing coverage among low-income households. Praised for its affordability and ease of access, PMSBY has brought formal insurance within reach for millions, with over 45.36 crore Indian adults enrolled as of July 2024 (Dvara Research, 2024). However, the program has not been without controversy. Media investigations have uncovered instances where banks enrolled customers and deducted premiums without their explicit consent. Moreover, deeper structural issues within the insurance delivery system—particularly on the supply side—continue to limit the scheme's effectiveness, discouraging providers from offering adequate services and

support to policyholders (Kapoor & Husain, 2023).

Policy Interventions and Their Impact

- Pradhan Mantri MUDRA Yojana (PMMY)
The Pradhan Mantri MUDRA Yojana (PMMY) facilitates small enterprises by providing loans of up to ₹10 lakh under three schemes—Shishu (up to ₹50,000), Kishor (₹50,001–₹5 lakh), and Tarun (₹5–10 lakh). More than 40 crore loans have been disbursed since its inception in 2015, empowering entrepreneurs from all industries. Interestingly, 70% of the recipients are women, promoting economic empowerment and business development. The program, run by the Ministry of MSME, has substantially increased micro-enterprises, especially in rural and semi-urban regions, by simplifying credit access without the need for collateral, thereby enhancing economic inclusion and self-employment prospects.



Source:
<https://www.mudra.org.in/Default/DownloadFile/Annual-Report-2023-24.pdf>

- Deendayal Antyodaya Yojana – National Rural Livelihoods Mission (DAY-NRLM)
DAY-NRLM aims at strengthening rural women by empowering them through Self-Help Groups (SHGs), offering credit linkages, skill training, and livelihood support. More than 9.5 crore women have been mobilised into SHGs, promoting entrepreneurship and financial empowerment. The scheme has enabled a credit disbursement of ₹1.2 lakh crore (NITI Aayog, 2023), allowing women to establish microenterprises in agriculture, handicrafts, and retail. Through collective entrepreneurship, DAY-NRLM improves income generation, curbs poverty, and reinforces women's leadership in rural economies. The mission also incorporates digital financial literacy to provide sustainable growth and economic resilience to the marginalized communities.

- Stand-Up India Scheme
Stand-Up India Scheme encourages women, SC, and ST communities' entrepreneurship by providing bank loans between ₹10 lakh and ₹1 crore for greenfield projects. More than 1.5 lakh loans have been sanctioned since its launch, with 81% being given to women entrepreneurs (SIDBI, 2023). The program provides access to credit, training, and market connections, supporting inclusive growth. Through its focus on underserved segments, the scheme promotes job generation, widens economic inclusion, and fosters innovation across industries such as manufacturing, services, and trade. It plays a crucial part in turning marginal people into prosperous entrepreneurs, propelling India's socio-economic growth.

The Case of Kudumbashree

Kudumbashree, the largest self-help group network in the country, was officially launched

on May 17, 1998, by then Prime Minister A.B. Vajpayee. It began as a network of neighborhood-based microcredit groups focused on thrift and credit activities, and, over the years, it has nurtured thousands of women from modest backgrounds into crisis managers and entrepreneurs (Devika & Thampi, 2007). The initiative has played a crucial role in grassroots planning related to employment generation, poverty alleviation, and women's empowerment, resulting in the widespread mobilisation of women in community-based development. Kudumbashree, which translates to "prosperity of the family," is a unique poverty alleviation program introduced by the Government of Kerala that targets women in both rural and urban areas. By encouraging them to form grassroots self-help groups, the scheme aims to enhance their economic security through microcredit and enterprise development. These efforts are led by Community Development Societies made up of poor women themselves. As of March 2020, the network encompassed around 4.5 million women, 287,723 Neighborhood Groups, 19,489 Area Development Societies, and 1,064 Community Development Societies. Collectively, these women-led groups have achieved an impressive annual turnover of ₹32,000 crore through various microenterprises (UGC Research Fellow Department of Development Studies & Gupta, 2023). The success of the Kudumbashree model underscores the importance of foundational literacy and skill-building, making it essential for both government and civil society to support women through access to basic education and capacity-building opportunities.

Barriers and the Way Forward

Even with progress, major challenges still exist, including low rural penetration. While the National Family Health Survey (NFHS-5, 2021)

shows that only 34% of women in rural areas have bank accounts in their name, it wouldn't be fair to ignore the progress made in recent years. According to data released by the Ministry of Statistics and Programme Implementation on April 6, 2025, women now hold close to 40% of all bank accounts in India. That's a significant achievement, especially when it comes to bringing rural women into the financial fold. The share of women's accounts has climbed from 34.6% in 2017–18 to 39.6% in 2022–23, marking a steady five-percentage-point increase. This improvement points to the impact of initiatives like Jan Dhan Yojana and other programs aimed at improving financial inclusion.

That said, having a bank account doesn't necessarily mean active usage. Many women still don't carry out regular transactions such as depositing or withdrawing money or making digital payments. This gap extends to digital banking as well. While about 47% of men reported using their accounts for digital transactions, only 31% of women said the same ("Women and Men in India 2024," 2025). The divide is even wider in rural parts of the country, where women often lack access to smartphones or internet connectivity, and may not be fully aware of how to use digital financial services.

The second major challenge is related to gender discrimination in lending. Earlier research by the World Bank (World Bank & International Monetary Fund, 2007) noted that women tend to have higher loan repayment rates, largely because they make more cautious investment choices and present a lower risk of moral hazard. This pattern is also visible in India. A report by TransUnion CIBIL (TransUnion CIBIL Insights Show That Women Exhibit Better Credit Profiles, n.d.) shows that women retail borrowers have a lower average delinquency rate on consumer loans (5.2%) compared to men (6.9%). However, it is

also true that women tend to get rejected more often, even with improved repayment history (RBI, 2022).

Conclusion

Financial services access is a key enabler for the economic mobility and growth of Indian women-led microenterprises. While digital innovation and government schemes have made progress, there remain systemic obstacles. These can be overcome through gender-sensitive policies, fintech, and financial literacy, enabling the true entrepreneurial potential of women, which can translate into inclusive economic growth.

Economic empowerment of women is not merely a social necessity but a strategic economic imperative. By providing financial inclusion, India can leverage the untapped potential of millions of enterprises owned by women, promoting sustainable development and narrowing gender gaps in entrepreneurship.

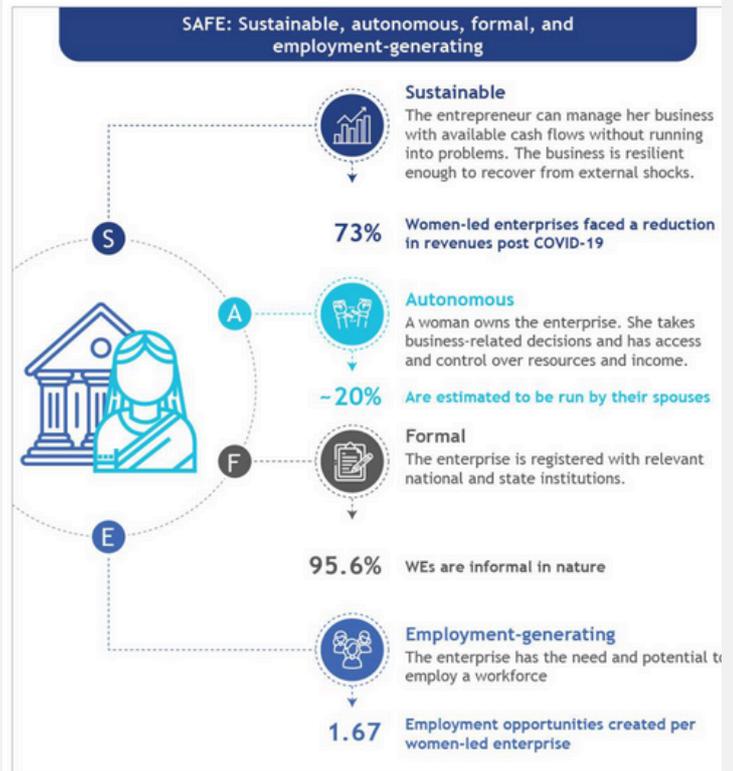


Figure 8: MSC's SAFE framework

Source: Jaitly, S., Thangallapally, L. S., & MicroSave. (2022).

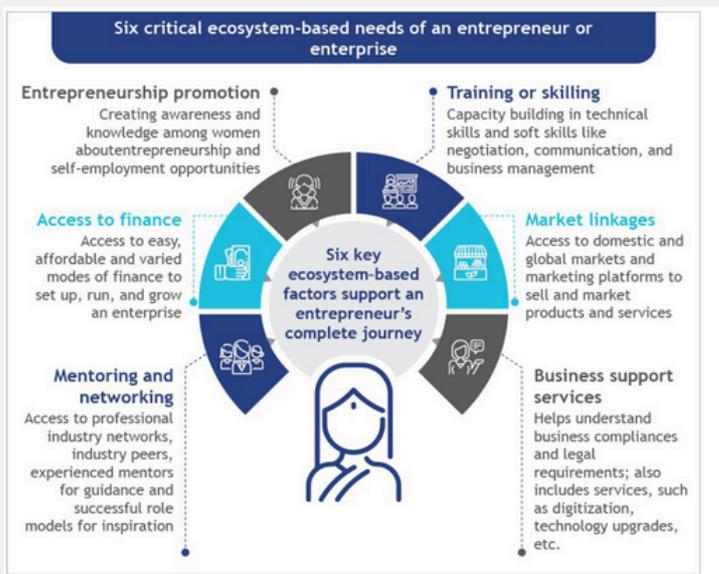


Figure 10: Six critical ecosystem needs of an enterprise or an entrepreneur

Source: Jaitly, S., Thangallapally, L. S., & MicroSave. (2022).

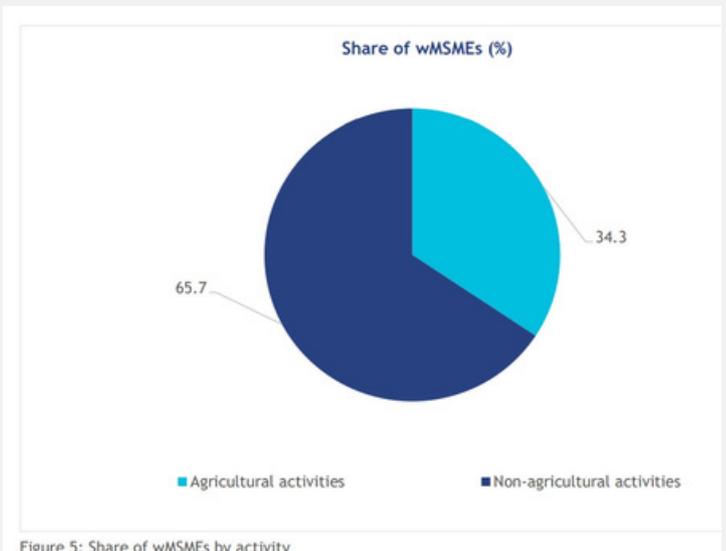


Figure 5: Share of wMSMEs by activity

Source: Sixth economic census, 2015-16

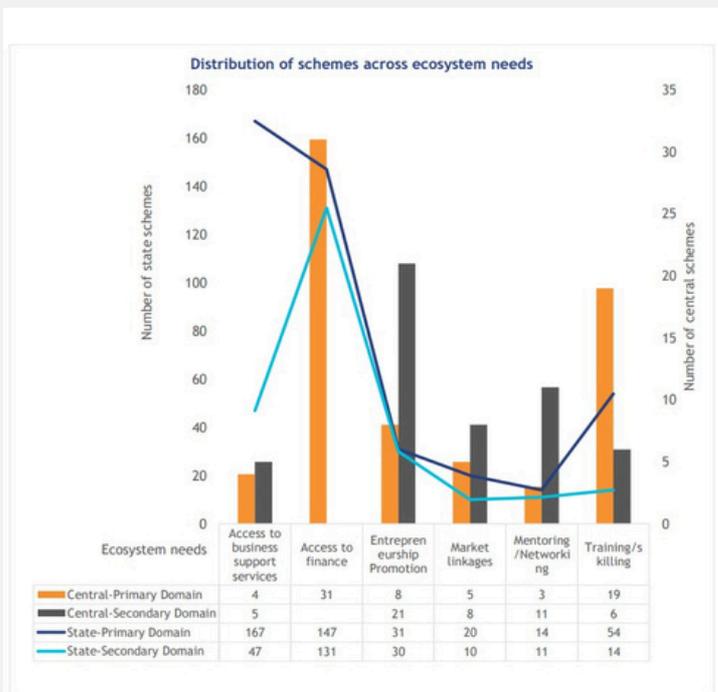


Figure 15: Share of schemes that support each ecosystem need

Source: MSC’s research on central and state schemes supporting entrepreneurship, 2022

2.4 Share of women-owned MSMEs by sector¹⁸



Figure 4: Share of wMSMEs by sector

Source: MOSPI 2018

2.3 Share of women-owned MSMEs by size¹⁷

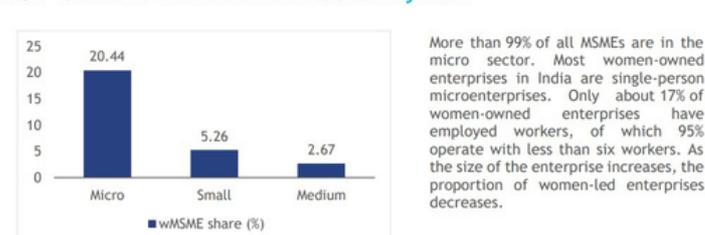


Figure 3: Share of wMSMEs by size¹,

Source: MoMSME annual report 2021-22

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DIGITAL HARVEST

Where Tech Meets Tradition in Indian Farming

PAYAL KUKREJA

In an era where technology is redefining every sector, the agricultural landscape is undergoing a silent revolution—driven by the powerful convergence of Artificial Intelligence and blockchain—to tackle some of the most pressing challenges of the 21st century. India's agricultural sector, a cornerstone of its economy, is very crucial. It is a major contributor to the GDP, accounting for around 17-18%. It employs about 40-50% of India's working population, providing food security to the country with the largest population in the world. It is undergoing a transformative shift by integrating Artificial Intelligence (AI) and Blockchain technologies. These innovations enhance sustainability, efficiency, and transparency in farming practices, particularly benefiting rural communities. (Blockchain is a decentralised, distributed, digital ledger that records transactions across multiple computers in a secure and tamper-proof way.) (Deshmukh & Patil, 2022)

AI in Precision Agriculture

Before the introduction of Artificial Intelligence (AI) in precision farming, agricultural practices in India often relied on traditional methods, which were labour-intensive and highly dependent on the experience of the farmers (Horrihan et al. 2002). This led to challenges such as inefficient use of resources, crop damage due to unpredictable weather conditions, and difficulty in managing pests and diseases. Farmers often lacked access to timely data, which made it harder to optimise yield and minimise losses. AI-driven

solutions are revolutionising precision farming in India. By analysing data from IoT sensors, drones, and satellite imagery, AI enables farmers to make informed decisions about crop management. For instance, AI-powered platforms like AgroStar assist farmers in minimising climate risks, optimizing productivity, and accessing real-time crop advisory services. Moreover, AI applications are addressing specific challenges such as human-elephant conflicts in agricultural regions. Amrita Vishwa Vidyapeetham developed an 'Elephant Early Warning System' that employs cameras and AI algorithms to detect elephants near farmlands, sending timely alerts to prevent crop damage and ensure safety.

Blockchain for Supply Chain Transparency

Blockchain technology is enhancing transparency and trust in agricultural supply chains. The Punjab Agri Export Corporation (PAGREXCO) has implemented blockchain for organic product traceability, certification, and transparency, starting with seed potatoes. *This initiative ensures authenticity and quality, bolstering consumer confidence in organic produce. Additionally, blockchain facilitates direct connections between farmers and consumers, reducing intermediaries and ensuring fair compensation.* Digital platforms now provide farmers with direct market access and real-time demand insights, allowing them to plan their harvests more effectively and reduce waste. (Kamilaris et al., 2018)

Financial Inclusion through Technology Access to financial services remains a challenge for many smallholder farmers in India.* AI and blockchain are bridging this gap by offering innovative solutions. Blockchain-backed smart contracts ensure transparent and timely disbursement of funds, reducing the reliance on traditional intermediaries*. (Jurgens & Kaushik, 2023) Digital literacy programs are pivotal in empowering rural communities in India, enabling farmers, women, men, and the elderly to adopt advanced technologies like Artificial Intelligence (AI) and blockchain*. These programs provide essential training, bridging the digital divide and fostering inclusivity in the agricultural sector.

Empowering Women Through Digital Literacy

Initiatives such as the Internet Saathi program*, a collaboration between Google and Tata Trusts, have significantly impacted rural women by developing local female trainers to impart digital skills. This initiative has reached over 15 million women across 150,000 villages*, enhancing their understanding of the Internet and enabling them to leverage digital tools for improved agricultural practices and market access. In India's agricultural sector, women constitute a significant portion of the workforce*, yet they often face systemic challenges, including limited access to markets, financial services, and technological resources. The integration of blockchain technology offers a transformative solution to these issues by enhancing transparency, reducing intermediaries, and ensuring fair compensation, thereby empowering women farmers and fostering gender inclusivity in agriculture.

Case Study: AgriLedger Project in Maharashtra

A notable example is the AgriLedger project piloted in Maharashtra, which leverages

blockchain technology to connect small-scale farmers directly with buyers. This initiative has been particularly beneficial for women-led farming cooperatives, enabling them to bypass traditional intermediaries who often exploit their labour. By recording each transaction on an immutable ledger, the system ensures transparency and trust, leading to a reported 15% to 20% increase in income for participating farmers. This increase in income not only enhances the economic status of women farmers but also contributes to their empowerment and decision-making capacity within their households and communities.* (Piramal & World Economic Forum, 2024)

Challenges, Policy Recommendations, and Conclusion

The integration of Artificial Intelligence (AI) and blockchain in Indian agriculture represents a transformative opportunity, but several systemic barriers still hinder its widespread adoption. India's agricultural sector, which supports over half the population, continues to grapple with low digital literacy, inadequate rural infrastructure, and the high costs of technological implementation. These challenges are particularly acute for small and marginal farmers who make up the majority of the agricultural workforce. Limited access to internet connectivity, training, and financing restricts their ability to benefit from innovations that could drastically improve productivity and sustainability.

In response, the Indian government has launched progressive initiatives like the **Digital Agriculture Mission 2021–2025**, which aims to modernize farming through AI-based crop monitoring, remote sensing, and blockchain-enabled supply chain solutions. Private-sector involvement is also growing, with startups such as *CropIn*, *DeHaat*, and *AgNext* leading the charge in delivering AI-powered insights to farmers. Blockchain applications are beginning

to show promise as well, with use cases like AgriLedger improving traceability, thereby enabling farmers to gain fairer prices and build market trust. However, when compared to global peers, India still lags in certain aspects of digital agriculture. For instance, countries like the Netherlands and Israel, despite having smaller arable land, have successfully integrated precision farming tools, AI-driven greenhouse systems, and robust digital infrastructure to achieve high yields and sustainability. In the **Netherlands**, AI algorithms help control the exact nutrient and water delivery in hydroponic farms, maximizing output with minimal resource use. **Israel**, with its advanced drip irrigation and AI-powered decision support systems, demonstrates how tailored technologies can thrive even in resource-scarce environments. On the other hand, India is ahead of many developing countries in acknowledging and acting upon the need for technological transformation in agriculture. Nations in Sub-Saharan Africa, for example, face even greater infrastructural and economic barriers, with limited access to even basic mechanization, let alone AI or blockchain. India's scale, diversity, and recent policy momentum place it in a unique position to emerge as a global leader in inclusive agri-tech solutions—if implementation is effective and inclusive. To bridge the gap with more advanced nations, India must continue investing in rural internet connectivity, digital skilling programs, and affordable, scalable technologies tailored to the needs of Indian farmers. Policies must also focus on fostering partnerships between government, agritech startups, and farming communities to co-create practical solutions. Regional language support, financial incentives, and demonstration models at the grassroots level can accelerate adoption and impact.

Conclusion

In conclusion, the convergence of AI and

blockchain offers India a chance to leapfrog traditional barriers and build a future-ready agricultural sector. While the path is complex, with the right blend of innovation, investment, and inclusivity, India can not only catch up with global leaders but also set an example for how technology can be used to empower millions of farmers and ensure sustainable, equitable growth in agriculture.

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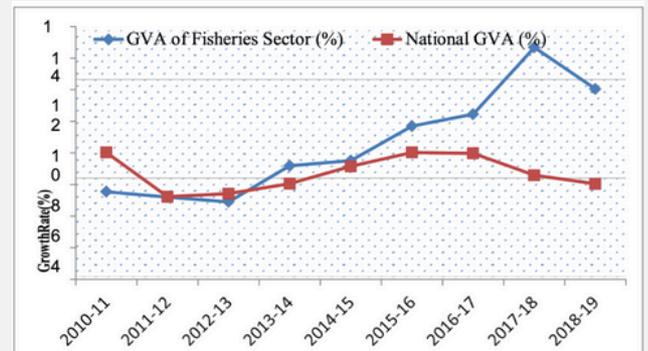
FISHERFOLK

Harvesters of Coastal Bounty

SAYESHA GUPTA

India is one of the biggest fish producers in the world, with an 8,118-kilometer coastline and a wide Exclusive Economic Zone (EEZ) of 2.02 million square kilometres. The nation's economy depends heavily on the fishing industry, which also benefits millions of people's livelihoods, food security, and general well-being. The foundation of this industry is that fisherfolk are not only suppliers of seafood but also stewards of cultural heritage and maritime resources.

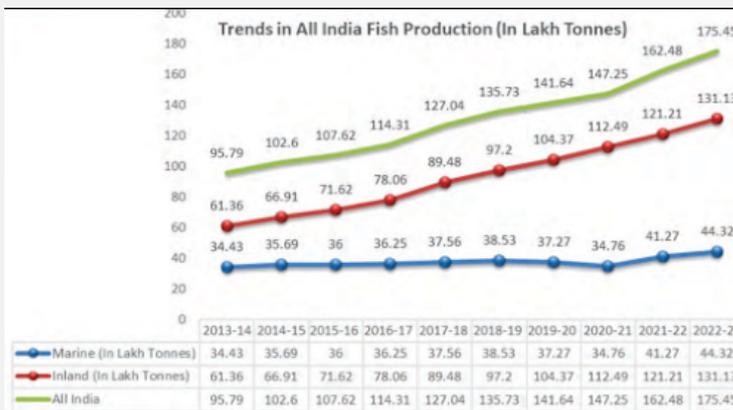
The fisheries sector in India is a critical component of the national economy. It contributes approximately 1.24% to the Gross Value Added (GVA) and around 7.28% to the agricultural GVA as of 2018-19. The sector has shown impressive growth, with an average annual growth rate of 10.88% from 2014-15 to 2018-19. In the fiscal year 2018-19 alone, fish production reached an all-time high of 137.58 lakh metric tons, with marine products accounting for a significant portion of this output. (*National Fisheries Development Board*) The trends for the contribution to the GVA and annual Fish production are depicted in the graphs below.



Source: GVA Trends of Fisheries Sector (*Avtar et al. (2021)*).

Fisherfolk are essential to maintaining the country's food security. Fish is an indispensable ingredient in many Indian households since it is a reasonably priced source of animal protein and vital minerals. About twenty-five million fisherfolk and fish growers are directly employed in this industry, and twice as many are employed along the value chain. In rural areas, this work is very important, especially along the coastline where there may not be many other possibilities for a living. (*Government of India et al., 2025*)

Indigenous knowledge and traditional fishing methods are essential to India's maritime conservation initiatives. Many fisherfolk use traditional methods that have been used for many generations. These practices not only support biodiversity preservation in maritime habitats but also ensure sustainable fishing. For instance, practices such as seasonal fishing and selective harvesting allow fish populations to regenerate, contributing to long-term sustainability.



Source: Trends in All India Fish Production (*World Fisheries Day, n.d.*)

State-Specific Fishing Practices

State-specific fishing practices in India highlight

the diverse approaches shaped by local ecosystems and regulations. Kerala was the first state to implement an annual seasonal ban on mechanised fishing in 1988, aimed at protecting fish stocks and reducing ecological pressure. This ban, later adopted by all coastal states, lasts for 61 days and safeguards traditional fishers from competition with mechanised vessels. Kerala also pioneered shrimp trawling under the Indo-Norwegian Project, significantly boosting the region's mechanised fishing. Furthermore, the Marine Fisheries Regulation Act (MFRA) restricts larger vessels in areas reserved for traditional crafts, ensuring sustainable practices.

In West Bengal, brackishwater aquaculture in tidal wetlands (Bheries) is a prominent practice. These wetlands utilise natural tidal cycles for cultivating fish and shrimp, contributing to both ecological balance and economic activity. Similarly, Andhra Pradesh has advanced shrimp farming techniques, including intensive aquaculture systems that dominate its fishing sector. Both states benefit from MFRA provisions that impose seasonal bans during monsoon months to protect breeding stocks and regulate mesh sizes to prevent overfishing.

Furthermore, an awareness of local ecosystems and species behaviour is frequently included in traditional knowledge, which is essential for efficient resource management. These methods can be integrated with contemporary scientific methods to potentially improve conservation efforts that benefit marine habitats and fisherfolk alike.

Challenges Faced by Fisherfolk

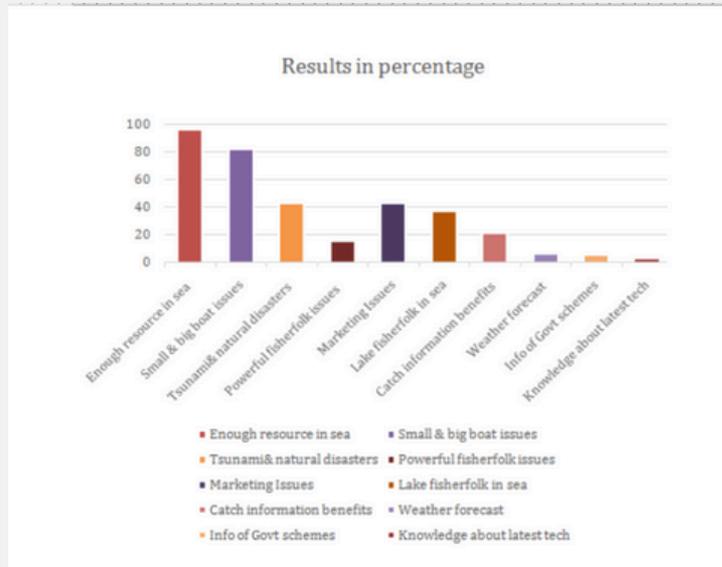
Fisherfolk in India face a myriad of challenges that hinder their socio-economic development and well-being. Fisherfolk communities are especially susceptible to the negative

consequences of overfishing, coastal development, and climate change despite their substantial contributions.

Overfishing is one of the most pressing issues; as demand for seafood increases, fish stocks are depleted faster than they can replenish (World Wildlife Organisation, n.d.). This puts fishing villages' financial stability in danger in addition to affecting fish availability. The issue is made worse by unsustainable fishing methods that overfish marine resources, such as the usage of bottom trawlers and damaging fishing gear. Traditional fishing methods have also been disrupted, and fish stocks have been impacted by altered fish movement patterns. Another significant threat is climate change. Fish breeding cycles and migration patterns are impacted by rising sea levels and shifting ocean temperatures. As environmental changes cause their traditional fishing areas to become less productive or inaccessible, fisherfolk are frequently left vulnerable. Coastal development, including the construction of ports, industrial facilities, and tourist resorts, has encroached upon traditional fishing grounds and habitats, displacing fisherfolk and threatening their way of life. (NCSCM, 2023) The construction of the Vizhinjam International Seaport in Kerala has led to coastal erosion, loss of fish habitats, and displacement of local fishing communities, severely impacting their livelihoods. Fisherfolk have reported reduced catch and restricted access to the sea. (The Hindu, 2023)

Socioeconomic marginalisation is a critical issue as well. Many fisherfolk are from low-income areas and may not have access to the resources needed for sustainable fishing methods, along with fundamental amenities. Limited access to government assistance programs and credit facilities exacerbates this marginalisation (Pomeroy et al., 2020). They are frequently left

tout of decision-making procedures that have an impact on their life and means of subsistence. Another major issue is limited market accessibility since many fisherfolk find it difficult to sell their harvest at reasonable prices because of poor infrastructure, a lack of transportation, and unscrupulous market middlemen.

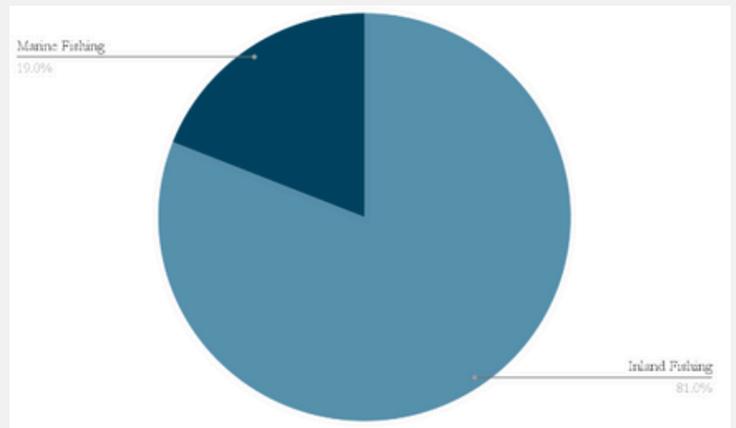


Problems of Sea Fisherfolk
Source: S & Aram, 2018

The above figure presents findings from 100 questionnaires given to sea fisherfolk. Most respondents believe fish resources are adequate but highlight key issues like conflicts between big and small boats, especially when trawlers damage nets. Other major concerns include natural disasters, lack of market access, and insufficient dissemination of catch-related information. While fisherfolk are familiar with mobile communication, network failures during disasters remain a challenge.

Women in the Blue Economy

According to a 2024 study by Baker et al., which examines women's involvement in the various sectors of India's blue economy framework, 81% of the workforce handling inland fishing activities is female, whereas just 19% of all workers are fisherwomen engaged in marine fishing.



Fisherwomen Distribution Marine vs Inland

Source: Baker, M., Isaac, L., Alkoyak-Yildiz, M. et al. Examining the major barriers to women's participation and employment in coastal activities of India's blue economy: A systematic literature review. *Environ Dev Sustain* (2024).

According to data from the Department of Fisheries, Government of India, just 18% of all fisherfolk are employed in inland fishing, while 82% are involved in marine fishing. This ratio highlights the limited participation of women in the fishing industry.

Particulars	Male	Female	Total
Inland (2020-2021)	13013978	10103842	23117820
Marine (2020-2021)	2651652	2294066	4945718
All India (2020-2021)	15665630	12397908	28063538

Total Fisherfolk Participation Ratio (*Handbook of Fisheries Statistics, 2024*)

Only 12% of women are employed in the tourism industry. There is a chance for women to work in coastal tourism-related conservation-related fields, for instance, mangrove safaris, which are both fun and informative and are operated by a women's self-help group from the fishing community. They have established a sustainable business of guiding tourists on boat excursions through Sindhudurg's waterways (Arathimenon, 2025).

According to the researchers, as reported by Priyamvada Kowshik, women's participation in port facilities, the maritime transportation industry, and the shipping sector is relatively low, although investments have increased since the Sagarmala project was launched. Women make up around 20% of the workforce in shipping and maritime transportation.

According to experts, to empower women, the issue must be viewed from social, economic, and institutional lenses. Co-creating culturally inclusive policies, improving representation, altering views, and rephrasing communication to achieve gender neutrality can empower and strengthen the economy and inclusivity.

Government Initiatives: A Path Forward

Recognising the importance of fisheries for national development, the Indian government has implemented several initiatives aimed at supporting fisherfolk and promoting sustainable practices.

One of the flagship initiatives is the Pradhan Mantri Matsya Sampada Yojana (PMMSY), launched in 2020 with an estimated investment of ₹20,050 crores over five years. By 2024–2025, the PMMSY aims to increase fish production to 22 million tons, according to their goals mentioned while launching the scheme. Through improved infrastructure and technology integration, the plan aims to increase aquaculture productivity from three tons per hectare to five tons per hectare. It seeks to boost fish productivity, support sustainable fishing methods, and raise the fisherfolk's standard of living. The program offers funding for infrastructure improvement, fishing vessel refurbishment, and fisherfolk capacity training.

Another significant program is the Fisheries and Aquaculture Infrastructure Development Fund (FIDF), established in 2018–19. (World Fisheries Day, n.d.) This fund offers funding for the construction of necessary infrastructure in the inland and marine fisheries industries. It seeks to enable fish farmers and cooperatives to efficiently scale up production by using interest subvention to cover up to 80% of project expenditures. (National Fisheries Development Board (NFDB), n.d.)

The National Fisheries Development Board (NFDB) continues to play a crucial role in the development of the fisheries sector. It supports various programmes and initiatives to improve fish production, enhance market access, and promote the welfare of fisherfolk. (Sarkar, Jena, Singh, Singh and Rebello, 2012) Through various schemes and capacity-building initiatives, NFDB aims to uplift marginalised communities involved in fisheries. These efforts have contributed to the overall growth and development of the fisheries sector in India.

The government's ambitious target to increase fish production to 15 million tons by 2025–26 underscores the importance of the fisheries sector in ensuring food security and providing economic opportunities for millions of people (KM, 2023). India is one of the few nations that have released a draft Blue Economy policy framework, which acknowledges the potential of its blue economy. By 2030, the Indian government estimates that the coastal sectors might generate between \$1 and \$3 trillion in revenue.

Furthermore, the industry, which currently employs more than four million people along the coast, can create employment for millions. The Maritime India Vision 2030 (MIV 2030) and Amrit Kaal Vision 2047, India's Blue Economy policy framework, highlight initiatives to inclusively realise India's marine vision across all blue economy sectors. One hundred and fifty projects are outlined in MIV 2030 to advance India to become a worldwide maritime leader. (Arathimenon, 2025)

With the implementation of supportive government initiatives like PMMSY and FIDF, there is hope for a more sustainable future where fisherfolk can thrive while preserving India's rich marine resources for generations to come.

However, there is still much work to be done to address the challenges faced by fisherfolk and ensure their socio-economic development and well-being.

By recognizing the contributions and addressing the challenges faced by the fisherfolk communities through focused policies and community engagement, India can ensure that its fisheries sector continues to flourish as a vital part of its economy and cultural heritage. Policymakers, stakeholders, and fishing communities must collaborate to safeguard the future of fisherfolk and India's marine wealth.

Conclusion

Fisherfolk are vital to the informal economy of India, forming the backbone of coastal livelihoods and contributing significantly to food security, employment, and cultural identity. Despite often being under-recognized, they support an expansive value chain — from harvesting to processing, selling, and exporting — much of which operates outside formal institutional structures.

Their work not only sustains over 16 million people directly or indirectly but also plays a key role in the rural coastal economy, particularly for marginalized communities. As custodians of traditional ecological knowledge and low-impact fishing practices, fisherfolk help maintain the sustainability of marine resources, making them indispensable to both the economy and environmental stewardship. Strengthening this sector is not just an economic necessity — it's a social imperative.

However, they face numerous challenges that threaten their livelihoods and the sustainability of marine resources and require urgent attention from policymakers and stakeholders alike. Policies must continue to strengthen fisherfolk groups and prioritize sustainability as India develops

. The journey towards sustainable fisheries is not just about preserving resources; it is also about uplifting communities that have long depended on these resources for their livelihoods and survival.

It is necessary to incorporate inclusivity into the legislative framework, support the long-standing and historic coastal activities in which women have historically participated, and provide employment possibilities in "non-traditional" male fields. Women can transition from tiny, vulnerable, and less lucrative informal companies into more modern industries with the help of capital and capacity.

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MIGRANT LABOURERS

The Silent Engines of Progress

ANUMA BISHT

Introduction

The economic transformation of India since its independence in 1947 has been phenomenal. Once highly dependent on agriculture, the country has evolved into a global center for services and a thriving manufacturing powerhouse. As seen by World Development Indicators, this trip has been marked by rapid economic expansion and structural changes in the GDP composition. The enormous and varied labor force of India is at the center of this change. Within this sector, migrant workers make up a vital but frequently disregarded economic backbone. Moving from rural to urban areas and across state lines, these workers have been crucial in sustaining important industries that significantly boost India's GDP. Their work has been crucial to the expansion of modernized agriculture, manufacturing, services, and construction.

A migrant worker, as defined by the United Nations Convention on the Protection of the Rights of all Migrant Workers and Members of their Families, is an individual who intends to engage in, is currently engaged in, or has previously engaged in a paid activity in a state of which they are not citizens. In developing nations like India, poverty, unemployment, natural disasters, and underdevelopment at the place of origin are the main causes of migration rather than the so-called pull factors of the destination, as is typically the case in affluent nations.

In poor nations, migration is still seen as a means of survival. (Government of India et al., 2020)

By focusing on this critical aspect of India's development story, we can gain deeper insights into the complexities of the country's economic progress and the human element that drives it. This analysis will not only shed light on the past and present of India's economic journey but also offer perspectives on sustainable and inclusive growth strategies for the future.

Trends of Migration in India

Based on their last place of residence, 455 million people were classified as migrants in the 2011 Census, making up almost 37% of the nation's overall population. This number shows a 97% increase from 1991 (231 million) and a 44% increase from 2001 (314 million).

India has considerable regional differences in the areas of development and population distribution. Northern states like Uttar Pradesh, Odisha, and Bihar enjoy population density but have inadequate infrastructure, lower per capita incomes, and slower rates of industrial and agricultural development consequently, these states see a greater exodus of workers. As per the official report "Migration in India 2020-21" released by the Ministry of Statistics and Programme Implementation (MoSPI), the Indian states boasting the largest migrant populations are Kerala, Punjab, and Maharashtra. In the same report it is mentioned the urbanisation and industrial expansion in Maharashtra draws migrants searching for opportunities, education, and employment. Punjab, known for its industrial cities and agricultural areas, witnesses both inflow and outflow of migration, specifically from the states Uttar Pradesh and

Haryana. Industrial work, seasonal farm jobs, and displacement due to drought are often the reasons for migration. “The Punjab Human Development Report 2012” recognises North-Western, Eastern, and Central states as the main sources of inflows. Kerala sees an inflow of migrants from northern states seeking better wages, particularly for unskilled labour. Jammu & Kashmir has the lowest percentage of migrants in the overall population (22.57%), followed by Manipur and Meghalaya. The lowest level of human mobility in these states is caused by political unrest and terrorism. (Nanzy et al., 2017)

According to the ““Migration in India 2020–2021” study” conducted by the Ministry of Statistics and Programme Implementation (MoSPI), India’s overall migration rate was 28.9%, with rural areas at 26.5% and urban areas at 34.9%, indicating that migration is more likely in urban regions. The bulk of migrations, according to the research, are intra-state, meaning that people relocate within a state rather than across borders. 87% of migration occurs within the same state, while only 13% is interstate. According to India’s 2011 Census data, there were roughly 41.4 million interstate migrants. While Uttar Pradesh and Bihar are major sources of out-migration, Maharashtra, Delhi, and Gujarat have been popular travel destinations because of their economic potential. (Government of India et al., 2020b)

The primary driver of migration, particularly for women, is marriage, according to the same MoSPI data, whereas men are primarily motivated by work-related factors. With social factors affecting female migration and economic factors influencing male migration, this highlights the gendered character of migration in India. Women migrate mostly for marriage (more than 70%), while they migrate for work at a lower rate than men. (Government of India et al., 2020b)

Employment opportunities in urban areas like Delhi, Karnataka, and Maharashtra attract workers from Uttar Pradesh, Bihar, and Odisha, leading to more people moving from rural to urban areas. According to the Ministry of Labour and Employment, Government of India (Annual Report 2019–20), millions of individuals migrate temporarily for jobs in textiles, construction, and agriculture, making them vulnerable to economic changes as they often return home after a few months. Key cities like Bengaluru, Delhi, and Mumbai are major employment hubs, while states such as Gujarat and Rajasthan see increased migration due to industrial growth. Migration is rising, especially in eastern and central India, due to more frequent floods, droughts, and reduced farming income related to climate change. The COVID-19 pandemic caused a significant reverse migration in India, revealing the lack of social support for migrant workers (Ministry of Labour and Employment, 2020)

The Economic Impact of Migrant Labour in India

Migrant workers have substantial economic influence, having a direct relationship in boosting national growth and development in both the source and destination regions. Migrant labor constitutes a significant proportion of the construction industry, which is a major force behind urbanisation. The migrant workers played a crucial role in the construction of the Delhi Metro. Approximately 8% of India's GDP comes from the construction industry. About 14% of GDP comes from agriculture, and migrant labor is the largest contributor to the agricultural workforce roughly contributing 38% of the agricultural workforce in rural India as recorded in the “Periodic Labour Force Survey 2022-23”.

Migrant laborers from Bihar and Uttar Pradesh are essential to Punjab's wheat and rice. Manufacturing, especially MSMEs, accounts for 16–17% of GDP. Electronics, leather and textiles rely heavily on migrant workers, additionally, Tamil Nadu, Gujarat, and Maharashtra are industrial centers that depend on their labor force.

The service sector constitutes 54% of GDP, making it the largest economic sector in India and is heavily dependent on migrant labour providing their services in hospitality, transportation and domestic services, delivery and transportation services, and the gig economy, which includes Zomato, Swiggy, Ola, and Uber, mainly rely on migrant labour. The mining sector, which accounts for about 2% of the GDP, employs a large number of migrant workers, particularly in Jharkhand, Odisha. (Ministry of Statistics and Programme Implementation, 2024b)

Key Issues Impacting Migrant Labourers

A prevalent challenge is that a lot of the migrant workers are not provided with social security benefits for the labour they do. The September 2020 Press Release by the Ministry of Labour & Employment addresses wage thefts as another common incident, where the workers are deprived of their hard earned wages, which was especially noticed during the COVID-19 crisis. Unsanitary living conditions force migrant labourers to live in crowded neighborhoods with poor sanitation, which can cause various illnesses. Without adequate medical care, migrant workers are more prone to illnesses due to a shortage of such facilities. Legal and regulatory challenges prevail as the workers are still ignorant of their rights, leading to abuse of their rights. (Ashok et al., 2014b)

A surging problem arisedv during the COVID-19 period, Reverse migration, where individuals move back to their place of origin after living elsewhere for a period of time. In India, this

phenomenon gained popularity, especially during the COVID-19 pandemic, when large numbers of migrant workers returned to their home villages due to lockdowns and job losses. An estimated 10 million migrants returned to their villages during the lockdown (Labour Ministry, 2020), 51.6% of rural migrants returned from urban areas due to the pandemic and lockdown. (based on NSO Periodic Labour Force Survey, p. 8). Between 600,000 and 800,000 migrants left Mumbai on foot, by trucks or special trains early in the lockdown (p. 5). (Rajan & International Institute for Migration and Development, 2023)

Causes of reverse migration can vary. COVID-19 brought with it a global economic slowdown where people were forced to move back to their hometowns due to the uncertainties in the job market. Populated urban places were seen as a breeding ground for the virus, which led to people shifting towards rural areas. Little to no social security and support in the urban areas made people more vulnerable, eventually leading to reverse migration. (Kaur & Shubham, 2021)

Reverse migration furthermore impacted the economy tremendously. The sudden return towards rural areas put heavy pressure on the local resources and employment opportunities in rural areas. As the result of the reverse migration, heavy overdependence on agriculture, and the influx of labour, led to disguised unemployment. Adding to this problem, Industries in urban areas faced labour shortages, affecting productivity and economic activities. The situation brought awareness to the lack of robust migrant welfare policies and how better implementation of existing laws needs to be brought about. Handling these issues needs comprehensive policy interventions, effective implementation of labor laws, and the formation of support systems to make sure the welfare and rights of migrant workers in India are addressed properly. (Kaur & Shubham, 2021)

Kerala as a Model for Inclusive Migration Governance

Despite exploitation of migrant workers still being prevalent in India, Kerala has shown positive developments, emerging as a model state in India with its inclusive approach. Even in today's scenario, many states struggle with labour welfare, Kerala with its progressive policies has successfully provided better living and working conditions for migrant workers to a significant extent. The state witnessed over 3.5 million migrant labourers, as mentioned in the Kerala Migration Survey 2018, and has widely recognised their contributions and taken active steps to improve their well-being.

As per the Reserve Bank of India's Handbook of Statistics on Indian States for 2023-24, Kerala's pay to migrant workers is twice the national average. Compared to the national average of Rs 417, workers in Kerala earn an average daily wage of Rs. 894 --Rs. 807. Multiple trade unions also actively advocate for the rights and welfare of the workers, like Kerala Building and Other Construction Workers Welfare Board, a state government initiative that provides welfare benefits like health insurance, pension schemes, and financial aid for migrant construction workers. Other prominent unions include the Indian National Trade Union Congress and Centre of Indian Trade Union. Kerala was the first state to introduce the "Awas"(Apna Ghar)" housing scheme that provided migrant labourers with affordable living spaces. Aardram Mission provides the migrant workers with free healthcare services in government hospitals. During the pandemic, the government aided the workers with free food, shelter and healthcare, making an example of efficient crisis management. To ensure inclusivity and enhance employability, The Kerala Literacy Mission runs Changathi (Friend) Program, which offers language training in Malayalam to help migrants integrate better into the local economy.

Kerala is one of the few states where state welfare schemes take into consideration migrant workers like Awaaz Health Insurance, which offers free medical treatment up to ₹15,000 per year. Inter-state Migrant Workmen Act enforcement 1979, ensures labour rights and contract protections. The state promotes financial literacy among workers, where they are encouraged to open bank accounts and access formal financial services. The Kerala State Planning Board actively examines migration trends and adapts policies accordingly. Local governments, along with NGOs, work on community integration, reducing discrimination and social exclusion.(Kerala Institute of Labour and Employment, 2023)

Unlike other states where labourers frequently migrate back due to poor conditions, Kerala retains and upholds a steady migrant workforce. Migrant labourers contribute significantly to Kerala's construction, manufacturing, agriculture, and service sectors. Improving Human Development Index (HDI), Kerala's focus on labor welfare contributes to higher literacy, better health indicators, and economic stability.(GOVERNMENT & IPRD, n.d.-b)

Final Reflections: Empowering Migrant Workers for Equitable Growth

This study emphasizes the vital but frequently disregarded role that migrant workers—especially those employed in the unorganized sector—play in India's economy. Businesses that are essential to the nation's economic growth, such as construction, agriculture, and services, use a sizable portion of migrant labor. Notwithstanding their significance, these workers deal with a number of difficulties, including subpar working conditions, a lack of social security, subpar housing, and restricted access to healthcare and education. These persistent problems were brought to light by the COVID-19

pandemic, which also exposed serious flaws in immigration-related legislation. The ongoing rural-to-urban migration trend points to a deeper failure of rural economies to provide sustainable livelihoods. Economic inequality, regional disparities, and environmental pressures further fuel this migration. However, India's migration policies remain fragmented, with welfare benefits for migrants often inconsistent and non-transferable across states.

Recent legislative initiatives, particularly those supported by NITI Aayog, mark advancements in tackling the intricate issues of labor migration. A move towards more inclusive migration governance is demonstrated by initiatives such as the construction of a national database via the e-SHRAM portal, the One Nation One Ration Card program, the growth of cheap rental housing, and skill development programs for low-skilled workers. However, successful execution, sufficient funding, and close state-to-state collaboration are required to support these initiatives.

Looking ahead, there is a need for a comprehensive national framework for migrant labor that ensures portable social protections, promotes formal employment, and leverages technology for registering workers and delivering benefits. Labor reforms should also address the social and psychological aspects of migration, including reintegration, legal support, and migrant representation in policy making.

In conclusion, labor migration should be viewed as a crucial development priority rather than merely a logistical or financial concern. Achieving equitable and sustainable growth requires a rights-based, inclusive migration policy that upholds the agency and dignity of migrant workers. Acknowledging, empowering, and assisting migrant workers will boost economic output and help create a more resilient community.

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GUARDIANS OF THE GREEN GOLD

The Tribal Economic Tapestry

EVANS JOY

India's tribal societies have had an age-old, inseparable link with forests, depending on them not just for livelihood but also as part of their identity and economic prosperity. These societies are an important constituent of India's rural population as they also contribute their part to the country's national economy through livelihoods based in forests, which we often tend to overlook due to the status of being a marginalised sect of society. Forest-based Non-Timber Forest Products (NTFPs) like medicinal herbs, honey, bamboo, and tendu leaves are important income sources for them. These products are often used in different sectors in different forms - for example, in the food industry, pharmaceuticals and herbal medicine, handicrafts and cottage industries, cosmetics, etc. This article examines the economic value of forest-based livelihoods, their indigenous knowledge systems about conservation, and the effect of cooperative frameworks in enhancing tribal prosperity while advancing India's overall economic growth.

Historical Background of Tribal Livelihoods in India

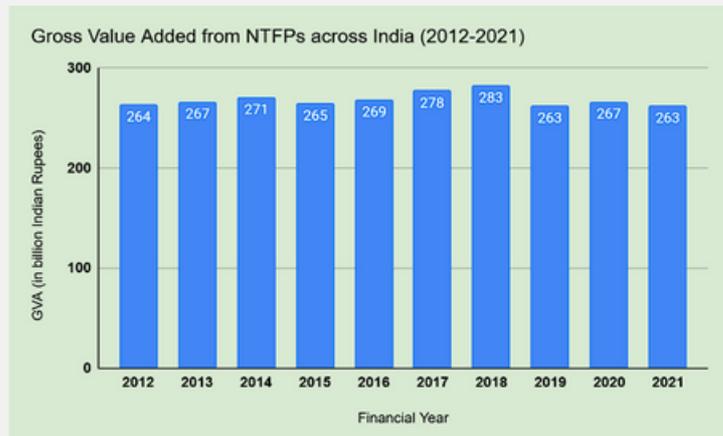
For centuries, Indian tribal communities have been dependent on forests for sustenance, medicine, and livelihood, setting their subsistence activities apart from settled agricultural economies. Before colonial times, the communities enjoyed relative control of forest

resources, which allowed them to sustain their livelihoods. British colonial forestry, however, resulted in extensive commercialisation and curbed indigenous access to necessary resources, upsetting traditional lifeways (Guha, 1999). After independence, the policies of the government to integrate tribals into mainstream society did not consider their unique socio-economic systems and thereby resulted in marginalisation and economic insecurity. Although legislative interventions like the Forest Rights Act (2006) have made efforts to restore land rights and provide traditional forest-based livelihoods an official status, there remains a problem in making their economic security, equitable distribution of resources, and sustainable development a reality (Panda, 2017). Such challenges can only be addressed via an integrated approach that combines both legal safeguards for the communities and the establishment of economic systems that favour and promote tribal livelihoods.

Forest-Based Livelihoods: Major Sources of Income

As per the India State of Forest Report (2023) released by the Forest Survey of India (FSI), the country has a forest cover of 7,15,343 sq km, which accounts for 21.76% of the geographical area. India is the fifth largest economy, with a Gross Domestic Product (GDP) in 2022 of \$3.467 trillion, and around 7% of its share comes from Forest Ecosystems (Quinney, 2020).

Non-timber Forest Products (NTFPs) are a mainstay of the livelihood of numerous tribal communities and are a source of substantial income, both in terms of subsistence and market earnings. Over the last decade, the Gross Value Added from NTFPs has been around \$2.5 billion annually and has significantly contributed to the rural economy (The World Bank, 2023).



(The graph illustrates the Gross Value Added (GVA) from Non-Timber Forest Products (NTFPs) across India over the period 2012 to 2021. It represents the annual contribution of NTFPs to the Indian economy in terms of monetary value, measured in billion Indian Rupees.)

Source: Statista, 2024

Some of the popular products that are extensively harvested and sold include Tendu leaves, Mahua flowers, bamboo, and lac (Panda, 2017). These are the economic drivers of many forest-dependent families. Another major contributor to tribal economies is the self-developed and existing traditional industries and handicrafts, which include bamboo and cane products, pottery, and textiles. Not only do these crafts conserve the heritage of cultures, but they also offer employment opportunities. Such contributions from the forestry sector are significant, but they have been undervalued in the past.

The Tribal Cooperative's Role in Reinforcing Forest-Based Economies

Tribal cooperatives have been of utmost importance in reinforcing forest-based

economies by making indigenous communities self-dependent, strengthening their bargaining strength, and providing them with just compensation for the forests. According to Rajendran & Mohanty (2004), bypassing middlemen in the form of cooperative frameworks has the potential to improve the tribal incomes, as illustrated from the Indian example of successful dairy cooperatives such as Amul and Mother Dairy, which have enhanced stability for farmers. Such cooperatives ensure diminished economic exploitation, better access to markets, and sustainable livelihood options. One of the best examples is the Madhya Pradesh Minor Forest Produce Federation (MP-MFPF), which has been able to develop a chain of primary cooperative societies for non-timber forest product (NTFP) gathering and processing. By facilitating direct procurement from tribal gatherers, the federation provides improved compensation and reduces middleman exploitation (Bhattacharjee & Mehta, 2024). Likewise, the Self-Employed Women's Association (SEWA) has played a pivotal role in promoting tribal women working in forest-based enterprises like lac and honey production, thus improving economic autonomy and market access (Panda, 2017).

In Maharashtra, the Pachgaon village used community forest rights to manage and commercialise bamboo resources. Following the establishment of these rights in 2012, the village established a cooperative system that ensured the direct sale and management of bamboo, which produced handsome profits. The income generated was ploughed back into community development projects, employment opportunities, and schooling programs to ensure balanced income distribution and participatory governance. Likewise, in the Chhindwara district of Madhya Pradesh, organic cotton-growing cooperatives have revolutionised the livelihoods of tribal small farmers. With assistance from

institutions such as the World Wildlife Fund (WWF) and Self-Reliant Initiatives through Joint Action (SRIJAN), these cooperatives shifted to organic farming, lessening their reliance on chemical inputs and enhancing soil quality. Through the use of sustainable agricultural practices, farmers not only enhanced their revenues but also helped preserve biodiversity and improve their market competitiveness. At the national level, the Tribal Co-operative Marketing Development Federation of India (TRIFED) is responsible for institutionalising the minor forest produce trade. TRIFED was formed in 1987 under the Ministry of Tribal Affairs and has established a large network of tribal cooperatives that ensure the marketing and distribution of tribal products. Through programs such as the Minimum Support Price (MSP) for Minor Forest Produce scheme and the Van Dhan Vikas Kendra program, they provide remunerative prices and improved market access to tribal gatherers. These programs have substantially raised income levels and consolidated sustainable livelihoods among different tribal communities.

Microfinance and Financial Inclusion of Tribal Entrepreneurs

Microfinance institutions (MFIs) and self-help groups (SHGs) are central to promoting financial inclusion for tribal entrepreneurs by enabling access to credit, savings, and insurance products. Such institutions fill in the gaps where the reach of formal banks is low, and the National Bank for Agriculture and Rural Development (NABARD) helps facilitate and develop them (Viswanath, 2020). Successful models of SHG-led initiatives in states such as Jharkhand and Chhattisgarh underscore the promise of banking at the grassroots level in enabling self-reliance and curtailing economic vulnerability.

However, despite these benefits, many tribal communities remain wary of MFIs due to past financial exploitation, high interest rates, and coercive debt recovery practices. Additionally, stringent documentation requirements and the need for collateral limit borrowing capacity, restricting business expansion. Improving regulatory controls and ensuring ethical lending behavior are critical to helping microfinance be a facilitator of empowerment and not exploitation. To improve financial inclusion, government efforts like the Pradhan Mantri Jan Dhan Yojana (PMJDY) and the Stand-Up India program are directed toward offering banking services and entrepreneurship financing to disadvantaged populations and also launching financial literacy campaigns specific to their context and including tribal cooperatives within microfinance channels can mitigate this gap. Effective cooperative bank models also serve to illustrate community-controlled financial stewardship. Tribals in Gujarat, for example, have exhibited that joint control over finances helps guarantee a balanced dispersal of loans and rechanneling of proceeds towards community schemes. Cooperative models that reduce financial dependence on off-system institutions translate to higher cooperation and confidence among tribals. By evolving from a simple money tool to a force of empowerment, microfinance can become an agent of transformation in sustainable economic development for tribal communities.

Challenges in the Tribal Livelihood System

The presence of two major challenges in the tribal livelihood system hinders India from developing its economy to its maximum potential. The first and biggest danger to tribal livelihood lies in extensive deforestation, and the problem is not limited only to this sect of the society. There are environmental consequences with the increasing demand for deforestation due

to mining, infrastructure development and commercial plantations.

Industrial developments, usually approved in the absence of proper consultation with indigenous peoples, disturb established economies and compel tribal communities to resettle as a result of a lack of work elsewhere. Displacement not only brings economic unrest but also dissolves cultural attachments and undermines conventional systems of knowledge, which are traditional and inherited for generations (Panda, 2017).

Another major challenge is the lack of equitable markets and price volatility due to the absence of appropriate storage facilities. This creates an imbalance in market relations that leads to economic exploitation, especially in rural settings where middlemen dominate trade and set prices. For example, Mahua leaf gatherers in Odisha face logistical challenges as they have to cover long distances to reach processing units, which results in higher transportation charges and lower profit margins (Viswanath, 2020). In addition to this, legal uncertainty regarding land ownership deters long-term investment in sustainable resource exploitation. Even after the passage of the Forest Rights Act (2006), several tribal households continue to encounter bureaucratic constraints in getting legal sanction for their property rights. This uncertainty has resulted in the persistence of shifting cultivation practices, which, although sustainable in the past, have increasingly become challenging because of dwindling forest cover and government prohibitions (Viswanath, 2020). And the lack of alternative opportunities worsens the situation for one, making them more economically vulnerable.

Tribal Communities and the Informal Economy

Tribal communities in India have long preserved our country's ecological wealth

through deep-rooted traditional practices, which are evident in their conservation of *sacred groves* via religious and cultural beliefs. Such groves are found across states like Kerala (Kavus), Maharashtra (Devrais), and Meghalaya (Law Kyntangs), are often associated with deities and spirits, ensuring their protection through customary laws rather than formal governance structures (Gadgil & Vartak, 1976; Tiwari et al., 1998). These sacred ecosystems act as biodiversity hotspots, water catchment areas, and seed banks, contributing directly to ecological sustainability. Beyond their environmental value, these practices are foundational to the informal economy they create. Forest-based livelihoods generate substantial economic activity at the community level without formal industrial structures. Despite their substantial contribution, these activities are frequently excluded from national economic statistics and policy frameworks. Tribal knowledge systems, although vital to sustainable resource use and environmental services, are rarely acknowledged or credited in mainstream development narratives (Baviskar, 2005). Tribal communities, with their sustainable practices and indigenous knowledge, thus hold immense potential to drive India's ecological and economic future rendering them as caretakers of India's "Green Gold".

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THREADS OF EMPOWERMENT

Women Micro-Enterprises Breathing New Life into Indian Handicrafts

TANYA SINGHLA

For centuries, traditional crafts in India have been more than just an artistic expression; they have been a source of dignity, cultural identity, and empowerment, especially for rural women. These crafts, passed down through generations, are not only a means of earning a livelihood but also a tool for social change. When women are given the resources and opportunities to develop their creative skills, they gain more than just financial independence, they gain a voice, respect, and a sense of self-worth. Women-led microenterprises form a pivotal part of India's informal economy, where over 80% of female-owned enterprises operate, driving economic activity and providing livelihoods to millions despite limited formal recognition and support. These microenterprises empower women to organize production, bear financial risks, and create value, often from home-based or small-scale setups, making them essential contributors to both local economies and cultural preservation through traditional crafts.

Empowerment as a Journey, Not a Destination

Rowlands' (1997) Theory of Empowerment highlights that true empowerment is not a singular moment but a process that unfolds across multiple dimensions, which is personal, relational, and collective. In rural India, the journey begins when women recognise their capabilities, take control over their economic choices, and redefine their roles within their communities. For many women, the ability to earn an income through traditional crafts transforms their lives.

Studies show that economic empowerment directly leads to improved social standing, better decision-making power within the family, and higher investments in children's education (CSR Mandate, 2022). According to the Handloom Census (2019-20), about 35,22,512 handloom workers were employed across the country, of which 25,46,285 were women, making up 72.29% of the total handloom workforce. Additionally, approximately 16,87,534 women handicraft artisans were registered with the Office of the Development Commissioner (Handicrafts) (Government of India, 2020). These figures emphasise that when women engage in economic activities, the benefits extend beyond individual success to uplift entire families and communities.

Traditional Crafts as a Catalyst for Change

Across India, women have harnessed the power of traditional arts to carve out spaces of independence and identity. In Madhubani, Bihar, artisans have transformed Madhubani painting into an international success, earning significant income and gaining global recognition (Singh, C. S. B., & Devi, P. S. S. (2025)). In Gujarat, the intricate art of Patola weaving has not only revived a dying craft but has also placed female artisans at the center of an export-driven industry. Similarly, the resurgence of Jaipur's blue pottery has seen a 30% increase in female participation over the past five years, proving that with the right support, traditional crafts can provide sustainable livelihoods (CSR Mandate, 2022).

This success is not accidental. NGOs and self-help groups (SHGs) have played a critical role in providing training, market access, and financial support. For example, the Self-Employed Women's Association (SEWA) is a prominent trade union in India, dedicated to empowering women in the informal economy. As of recent data, SEWA has a membership of over 3.2 million women across 18 states in India (SEWA, 2023). Organizations like Dastkar and Rang Sutra ensure that artisans receive market-aligned compensation, breaking cycles of exploitation and undervaluation (Ashray Foundation, 2023).

Breaking Barriers: The Role of Digital Platforms

In today's digital economy, traditional artisans are no longer limited by geography. E-commerce platforms have given women a global stage to showcase their work, bypassing intermediaries who often take advantage of rural craftsmen. Platforms like Amazon Karigar and Okhai have connected thousands of artisans to consumers worldwide, enabling them to earn sustainable incomes (CSR Mandate, 2022). Reports indicate that in 2022 alone, e-commerce helped over 20,000 rural women achieve financial independence through Madhubani art. These numbers highlight how digital access can accelerate economic growth and bridge the gap between tradition and modern enterprise.

The Psychological and Social Impact of Craft Empowerment

Beyond financial independence, engagement in traditional crafts provides women with a renewed sense of self-esteem. In many cultures, women struggle for recognition, with their contributions often overlooked.

However, when a woman sees her artwork displayed at exhibitions or sold internationally, she experiences validation that goes beyond economic success; it is a reclamation of her identity (Rowlands, 1997). The psychological impact of empowerment is evident in how women perceive themselves and their futures. As Rowlands' framework suggests, empowerment is deeply tied to self-awareness and agency. When women engage in artistic entrepreneurship, they are not just earning; they are asserting their place in society, reshaping narratives, and inspiring future generations (CSR Mandate, 2022).

Bridging Gaps to Empower: Scaling Digital Literacy and Market Access for Women Artisans

While significant progress has been made, more needs to be done to ensure that traditional crafts remain viable sources of empowerment. Government policies, corporate partnerships, and infrastructure investments are essential in scaling these efforts (Government of India, 2020). Rural women artisans in India encounter several significant challenges that hinder their economic and social empowerment. A primary issue is the lack of digital literacy, which restricts their ability to navigate e-commerce platforms and utilise social media for marketing their crafts. According to the latest National Sample Survey Office (NSSO) data, only 24% of rural Indian households have access to the internet, compared to 66% penetration in urban areas, highlighting a significant digital divide between rural and urban India. This digital divide confines them to local markets, limiting their income potential (Ashray Foundation, 2023). Financial instability is another pressing concern.

Many artisans earn less than ₹5,000 per month, making it difficult to sustain their craft and livelihoods (Handloom Census 2019-20.) This economic vulnerability often forces them to rely on middlemen who exploit their labour, further diminishing their earnings. Additionally, limited access to broader markets and technology gaps prevent the growth of women-led micro, small, and medium enterprises (MSMEs). Despite women constituting over 50% of India's artisan population, only 22% of MSMEs are women-owned (Economic Survey 2024-25). This disparity highlights the systemic barriers, including inadequate business skills, market access, and mentorship opportunities, that women entrepreneurs face in scaling their enterprises (Government of India, 2020).

The Self-Employed Women's Association (SEWA), with over 3.2 million members, is a prominent trade union that supports women artisans by providing training and facilitating direct access to markets, thereby enhancing their economic independence and preserving cultural heritage (*Self-Employed Women's Association*, n.d.). Similarly, Sadhna, a women's handicraft enterprise based in Rajasthan, works with over 550 rural and tribal women artisans, promoting traditional crafts such as patchwork and embroidery through fair trade practices and sustainable livelihoods. Additionally, the Jaipur Rugs Foundation supports more than 40,000 rural artisans, primarily women, by offering skill development and leadership training, helping sustain the traditional rug weaving craft while connecting artisans to global markets (*Jaipur Rugs Foundation*, n.d.) These organizations exemplify how women-led microenterprises are vital in bridging the gap between heritage crafts and contemporary economic opportunities, fostering empowerment and cultural preservation.

By supporting traditional crafts, we are not just preserving cultural heritage—we are creating a future where women are recognized as economic contributors and cultural custodians.

Conclusion

Empowerment is not given; it is cultivated through opportunity, education, and systemic support. The stories of women turning traditional crafts into tools of transformation demonstrate that when women thrive, society thrives. As we move forward, we must ensure that this empowerment is not just a possibility for a few but a reality for many.

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CRAFTING LEGACY

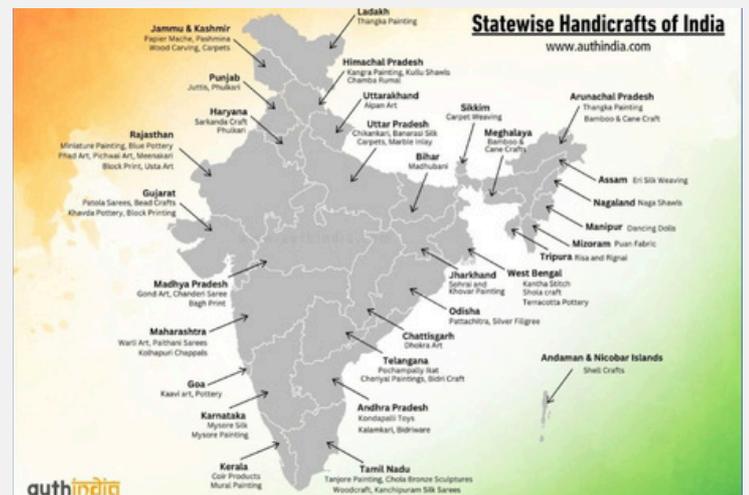
India's Artisans and Their Timeless Creations

RADHIKA KUKREJA

Perfection is an illusion; true beauty lies in the passion and efforts behind every creation. One such talent is handicrafts, which are works of art created by hand, motivated by passion, and influenced by culture. Handicrafts are a significant part of India's rural livelihood, they are not a mere skill but a testament of inherited values, rich stories, and skilled mastery passed down through generations. These pieces can be utilitarian, aesthetic, artistic, and creative, while holding cultural, decorative, functional, traditional, religious, and social significance. As the demand for sustainability and authenticity is increasing globally, India's handicraft industry is using its creativity and innovative skills to carve a niche that celebrates artisanship, heritage, and creativity.

The Indian Handicraft is as old as the Stone Age. The art of spinning and weaving of cotton was known to the people of Indus Valley Civilisation 5000 years ago. The Harrapans were famous for their art, culture, and craftsmanship. Some of the notable bronze images of Harrapans include dancing girl, small chariots, seals, pottery and terracotta figures. Their passion and resilience for handicrafts has been inherited by modern India. The block printing, mainly of Gujarat region, found in Egyptian tombs is evidence of Indian textiles and handicrafts being exported to other countries, in the medieval ages. Moreover, the intricate design and carvings of Indian Temples testify the fact that art and craftsmanship are not new to India; it is the skill which is deeply embedded in its cultural heritage and rituals (Bhat J.,2016).

Nataraja, or the dancing Shiva, located in the Chidambaram Temple in Tamil Nadu is amongst the well known Indian temple structure. The Khajuraho Group of Monuments in Madhya Pradesh is one of the largest and most ornate temples dedicated to Lord Shiva, adorned with over 800 sculptures. Some other notable temples famous for their artistic prowess are Brihadeshwara Temple, Konark Sun Temple. All these crafts and patterns are mostly representations of everyday living, the natural environment or mythological characters.

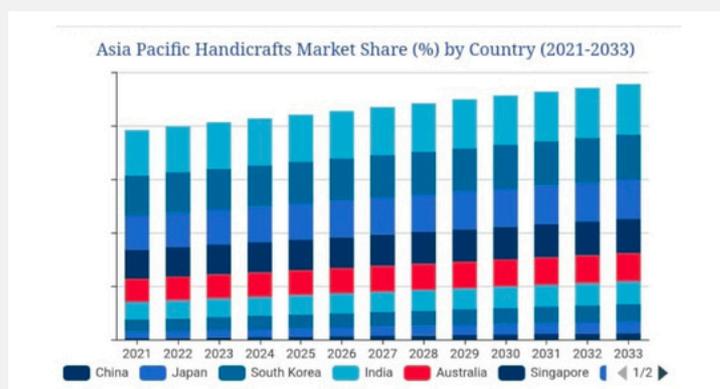


Source: www.authIndia.com

India is home to 3,000+ craft forms with artisans, spread across the country, supported by a network of 744 clusters that employs approximately 212,000 artisans offering around 35,000 products. (ibef,2024). The tremendous diversity in the Indian handicrafts is a result of social, cultural, economic and religious interactions ranging from north to south and east to west.

Market Analysis

In a world dominated by machines and algorithms, the charm and charisma of handcrafted items is making a powerful comeback, weaving together culture, tradition, and sustainability. Globally, the sector is evolving and transforming the lives of artisans. Factors such as sustainability, e-commerce, and technological advancements are key contributors to its growth. The global handicraft market was valued at approximately USD 1,107.67 billion in 2024 and is expected to grow to around USD 1,218.77 billion in 2025 and is projected to reach USD 2,397.15 billion by 2032, reflecting a compound annual growth rate (CAGR) of 10.15% over the forecast period (Fortune Business Insights, 2025). Countries like India, Australia, China, Germany, and the United States are key players in this emerging market.



Source: Asia Pacific Handicraft Market

The graph highlights that Asia Pacific leads the tally being the largest share in the handicraft industry due to the increasing production opportunities and diverse craft products in the countries, such as India, China, Bangladesh, and others. India is positioned to be a significant hub for durable and aesthetic handmade crafts, unlike China's machine-made replicas. The Indian handicraft industry is expected to leverage as consumers increasingly value the story, sustainability, and uniqueness of the products they purchase, which Indian artisans are offering them.

Breaking it Down

For rural and underserved areas of India, artisanal crafts are more than just cultural symbols—they serve as a crucial foundation for economic resilience. The economic importance of these traditional crafts is evident in several ways, from providing livelihoods to local artisans to sustaining entire communities. These crafts contribute significantly to the economy by promoting local employment, preserving heritage, and fostering sustainable practices that act as an alternative to agricultural activities, especially in rural areas of India.

Employment opportunities & Women empowerment:

Artisanal crafts serve as a powerful engine for employment, engaging a diverse workforce from skilled artisans to raw material suppliers, marketers, and retailers across the multiple stages of production and distribution. This expansive employment network sustains local economies and offers a reliable source of income. According to the 2011 Census, women are more involved in this field than males are. Working in the handicraft industry has a big impact on the lives of women, since it allows them to manage their family and work, making them independent and empowered.

The census also reflected the highest share of OBC category in the field of handicraft, followed by SC and General. While ST share remains the lowest.

Attracting Tourism: Cultural and Economic Impact

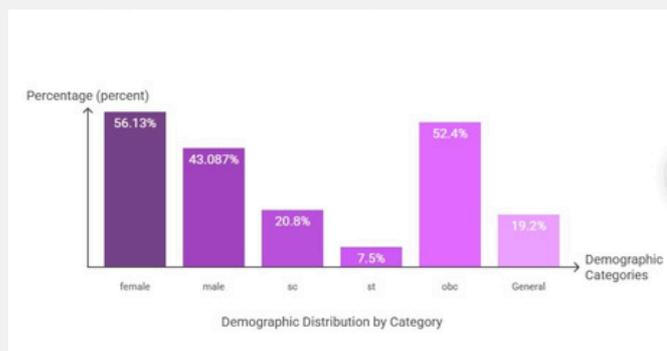
Artisanal crafts serve as a key attraction for cultural tourism, significantly impacting local economies. Regions famous for their unique crafts draw tourists seeking authentic, culturally enriching experiences. Increased demand for handmade goods drives revenue for local businesses in accommodation, food, and

transportation. This tourism also aids in preserving traditional crafts by supporting artisans and promoting intergenerational skill transfers.

Community Development: Social & Economic Growth

Artisanal crafts foster community cohesion through collaboration and resource-sharing among artisans. Cooperation among artisans helps them to secure a better market position and avail economic opportunities. This collective spirit also enhances social bonds, leading to improved education, health, and overall well-being of the community. The Development Commissioner (Handicrafts), Ministry of Textiles, Government of India, has empanelled 2466 NGOs working with the artisans for the upliftment of India's traditional craft so that it can regain its place in the Indian economic mainstream (Development Commissioner Handicraft, Ministry of Textiles)

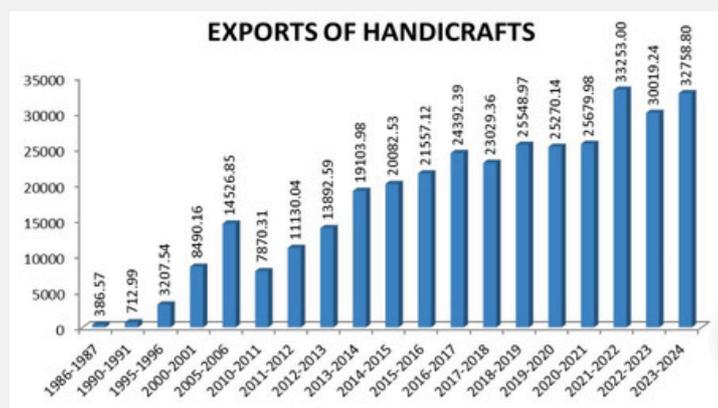
All India Artisans and Craftworkers Welfare Association (AIACA) is one of the informal associations of craft persons, which commenced its operations in March 2003. Craftmark (www.craftmark.org) is a certification programme designed and managed by AIACA that certifies genuine Indian handmade craft and the artisans. AIACA engages in policy research and advocacy, support programs and undertake development programmes for sustainable livelihood generation of rural artisans (AIACA. Org)



Source: Saha, D., & Mahasamudram, G. (2024)

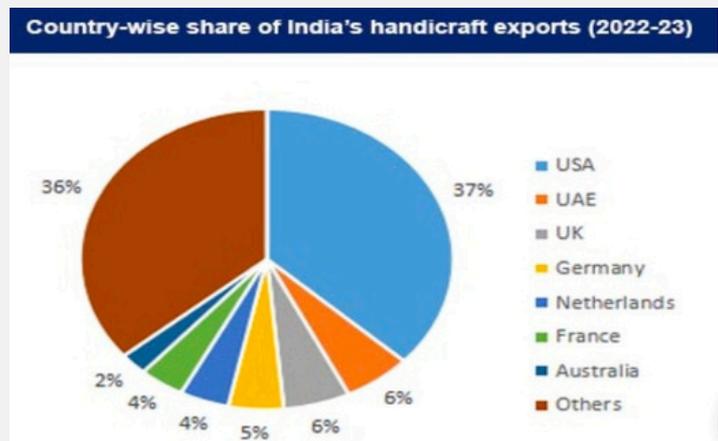
Global Canvas of Indian Handicrafts

Technology's integration and digital revolution has significantly impacted how handicrafts are marketed and sold. This transition from traditional retail to online marketplaces has not only expanded the reach of handicraft producers domestically but also globally. In the context of the Indian economy, globalisation and technological revolution have paved the way for local artisans to showcase their skills, culture and heritage to the world.



Source: Export Promotion Council for Handicrafts

The data showcases a consistent year-on-year growth in handicraft exports, with the highest export value recorded in FY 2021-2022. In FY 2023-2024, the industry continued its upward trajectory, achieving a notable 11.11% growth compared to the previous year. According to projections by the IMARC Group, the handicrafts industry is expected to reach approximately US\$ 7,817.8 million by 2032, growing at a CAGR of 6.9% during the forecast period 2023-2032.



Source: Export Promotion Council for Handicrafts

The uniqueness and aesthetic appeal of Indian handicrafts have always influenced the consumers. The USA, UAE, UK, Germany, Netherlands, and France are the prime export destinations, with the USA leading at 37% of total exports in 2022-23. The USA is a major buyer of hand-printed textiles, zari woods, embroidered goods, imitation jewellery, and shawls, while handmade and silk carpet exports to the country reached US\$ 818 million in 2022-23, compared to US\$ 1.28 billion in 2021-22 (ibef, 2024). The UK also remains the second key market destination, importing mainly art pieces, crocheted items, wood wares, and imitation jewelry.

Knots in the Thread of Success

India's handicraft sector is still in the hearts of rural areas, where craftspeople still use traditional methods that have been handed down through the ages. Even though these approaches maintain cultural authenticity, they are inefficient in keeping pace with the changing needs of a globalised marketplace. Consumer preferences are shifting due to Western design influences, cheap Chinese goods. Therefore, Indian craftspeople must innovate and adapt without sacrificing their culture. India's share in the world handicraft market is a dismal 2% as compared to China which claims 17% of the world market share. A recent study by the EXIM Bank recommends that the Handicraft sector needs to be mechanized and the modern segment should be evolved to face the global competition. (Mohi-ud-din, T. An Analysis of Current Scenario and Contribution of Handicrafts in Indian Economy).

Other problems faced by artisans is digital divide i.e. lack of access to digital platforms for better reach and easy operations. Easy access to a variety of goods due to technological advancements and globalisation, have empowered the consumers. Yet many Indian artisans struggle with digital literacy, restricting

them from leveraging online marketplaces and digital payment systems. Rural area based artisans are the one who suffers most as they lack digital Infrastructure and digital literacy. Without adequate training and support, they may lose their relevance in an increasingly digital economy.

In order to introduce new technology and access the digital platforms, capital is the basic requirement to improve infrastructure and train craftspersons. However, the problem arises when these craft based MSME had to struggle hard to avail capital. According to the 2023 Artisans' Business of Handmade research, 78% of handmade and craft-based MSMEs (HCMs) have trouble raising operating capital. Another layer of disadvantage has been introduced by gender inequality; according to a poll, compared to one-third of businesses run by men, over half of women-led HCMs are unaware of the variety of financing choices accessible to them (Asia Society. Org).

The handicraft sector has the potential to significantly boost India's GDP, strengthen the nation's entrepreneurial ecosystem, drive innovation, support employment, and encourage women-led businesses if capital is effectively harnessed towards the handmade economy with coordinated efforts by government agencies and local artisans.

The Way Forward

The Indian Handicraft sector stands on the brink of transformation. Factors such as sustainability, e-commerce, and technological advancements are providing endless optimistic opportunities to local artisans. But we too need to ponder upon the challenges like unfair pay, gender disparity, and lack of technical and financial infrastructure.

Schemes like NHDP and CHCDS have been launched by the government to cater to the needs of artisans and leverage their contribution

to the economy.

National Handicraft Development Programme (NHDP)- Aims at promoting Geographical Indication (GI) tags for regional crafts, ensuring fair compensation for artisans and preserving the rich heritage of Indian handicrafts. As per PIB Delhi, A total no. of 214 handicrafts products and 104 handloom products have been registered under the GI Act.(PIB Delhi, Ministry of Textiles, 2025)

Comprehensive Handicrafts Cluster Development Scheme (CHCDS)- The purpose of this scheme is to assist artisans and entrepreneurs in establishing world-class units with modern infrastructure, cutting-edge technology with adequate training.

31.14 lakhs handicraft artisans across the country have been registered as on 30.06.2023 (PIB, Ministry of Textiles 2023) . to avail the benefits of the National Handicraft Development Programme (NHDP) and Comprehensive Handicrafts Cluster Development Scheme (CHCDS) of Ministry of Textiles. Total 1.17 lakhs artisans benefitted through various scheme of the Office of Development Commissioner (Handicrafts) during the year 2022-23 (Ministry of Textiles 2023). This is just a milestone in the journey of revolutionizing the handicraft sector. We need a holistic support ecosystem for preservation and promotion and development of artisanal crafts and craft persons.

The future of handicraft sector lies in the balanced blend of tradition and technology - where heritage and culture is preserved with empowerment of artisans.

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SKYLINE SACRIFICES

The Workers Behind India's Urban Rise

YASHIKA SARASWAT

While living beneath the glittering skylines of towering skyscrapers, residential complexes, and never-ending highways, we often forget about a different world that exists in the shadows, at the corners of our cities. It is home to the people who built these marvels, yet remain invisible to those who enjoy them. They return each day to their small houses, if they are lucky enough to have one, or to cramped slums, struggling to meet their daily needs with low wages and little to no job security. As we admire urban progress, we must listen to the hands that craft these marvels.

India's cities are transforming at an unprecedented pace. In 1991, during the economic reforms, the construction sector was valued at \$37.9 billion; by 2023, it had grown approximately 740% to reach \$318 billion (World Bank, 2023).



Source: World Bank, 2023

India's skyline is evolving rapidly, with towering skyscrapers, high-speed trains like Vande Bharat, sprawling highways, and extensive urban infrastructure. However, behind this progress lies the often-overlooked reality of construction labourers

who work in hazardous and exploitative conditions to earn a living. Today, India's construction industry has one of the highest fatality rates, with an average of 38 worker deaths reported daily due to unsafe working conditions and inadequate safety measures (International Labour Organization [ILO], 2022). Despite the rapid expansion of the construction sector, real wage growth for labourers has remained stagnant, increasing by just 0.6% over the past five years (Ministry of Labour and Employment, 2023). As India builds its future, the question remains: at what cost?

A Look Back

The 1991 reforms marked a significant shift in India's economic landscape, catalysing a boom in the construction sector (World Bank, 1991). This created a large demand for labour in urban centers. Consequently, there was a mass migration of labourers from rural areas to rapidly transforming urban centers (Srivastava & Sasikumar, 2003). This migration was driven by the promise of better employment opportunities and improved living standards. However, whether these promises were fulfilled remains a matter of debate. This shift and surge in demand resulted in the rise of informal employment, with over 90 percent of construction workers today lacking formal job security or social protection (International Labour Organization [ILO], 2022).

The Building and Other Construction Workers (BOCW) Act, 1996, was the government's attempt to provide welfare benefits and social security, but poor implementation left a majority of workers behind (Ministry of Labour and Employment, 2019).

Current Standing

India's construction sector is the second-largest employment generator, with 7.1 crore workers currently employed, and the number is set to cross 10 crore by 2030, according to the Knight Frank-RICS report, 2023. Between FY 2011 and 2019, the total Gross Value Added (GVA) grew by 4% CAGR as reported by MoSPI (The Economic Times, 2023). However, this growth is not evenly spread across the country. For instance, only five states—Maharashtra, Tamil Nadu, Gujarat, Karnataka, and Uttar Pradesh—contributed around 50% to the sector's total GVA in 2019-20 (Economic Survey of India, 2021). Internal or interstate migrants make up a significant portion of the labour force, with millions moving annually in search of livelihood (International Labour Organization [ILO], 2022). According to the Global Fund to End Modern Slavery (2023), an estimated 30–50 million rural workers migrate annually to India's cities for construction jobs. The larger context of migration highlights how the industry depends on a seasonal workforce that is usually engaged in informal employment without adequate social protection (Ministry of Labour and Employment, 2019). Moreover, the difference in investment in infrastructure and the degree of urbanisation in different states has created unsynchronised employment opportunities, leading to economic imbalances on a regional scale (Insights on India, 2024).

Economic Inequalities

The average daily wage of a construction

worker is around ₹350 to ₹500, while the minimum recommended living wage by the International Labour Organization (ILO) is ₹700–₹1,000. Gig workers who work on a contract basis with the large firms, including construction labourers, earn an average of ₹18,611 per month, far below the salaried urban workers, who earn between ₹21,500–₹22,800 per month (The Hindu Business Line, 2023). India's minimum wage system is complex, with approximately 1700 different template rates for different job categories under the Minimum Wages Act of 1948. Despite this, many studies have shown that more than 85% of total labourers get paid less than that (World Development, 2021). Wage theft and delayed payments are rampant, with at least 30% of workers not receiving wages on time, forcing them into debt traps (EPW, 2019). Moreover, the piece rate system is quite common in the construction sector under which workers are paid on the quantity of work completed by them rather than a fixed daily rate, which often leads to income instability and the possibility of wage reduction. Research has shown that workers end up receiving wages below the minimum prescribed wage due to irregular payment practices and occupational illness & injuries (Oxfam India, 2022).

Workplace Health

The working conditions of these labourers are also not satisfactory. 85% of these workers live in slums, huts or overcrowded labour colonies. In these areas there is a lack of basic necessities which these labourers and their families need to sustain a healthy life. 60 percent lack access to clean water and 48 percent do not have proper toilets, increasing the risk of disease like malaria, diarrhea, cholera and respiratory infections (Heliyon, 2024). The construction industry accounts for nearly a quarter of the

approximately 48,000 work-related deaths in India each year (Down to Earth, 2016). One cross-sectional study in Karnataka found that about 33.2 percent of migrant workers suffer from breathing issues such as dry coughs and breathing problems, while 36.2 percent reported various skin ailments, including infectious skin disease and contact dermatitis (Banerjee et al., 2015). These conditions are worsened by long working hours, often an average of 8 to 12 hours per day and poor access to protective equipment. In one study, it was recorded that over 1/3 of workers were found to work without any personal protection equipment (PPE), leaving them vulnerable to occupational injuries and illnesses (Environics Trust, 2021). Furthermore, construction sites are infamous for their lax safety protocol. Injuries are quite common, and most of these workers don't have the benefit of a medical checkup or insurance coverage. The high rates of injury and occupational disease not only reduce the quality of life for these workers but also result in significant economic losses for their families (British Safety Council, 2022).

Social Invisibility

Construction workers, despite being the backbone of urban transformation, remain socially invisible and marginalised. Lacking formal contracts and legal safeguards, they are subjected to systemic exploitation and forced to survive with minimal living conditions. Their exclusion from the aesthetic and economic vision of the city underscores a deep-rooted neglect. Integrating them into mainstream society, with dignity, rights, and basic necessities, is not just a moral imperative—it's a structural necessity for truly inclusive urban development.

The “Skyline Sacrifice” Paradigm

The term “skyline sacrifice” captures the irony of

India's urban growth—where the shining skyscrapers symbolize progress, but hide the exploitation of labourers who built them under hazardous conditions. While the elite enjoy luxury, workers face invisibility, poor living conditions, and a lack of rights. The push for global competitiveness and aesthetic appeal has come at the cost of basic dignity and labour protection, exposing the hollowness beneath the glamorous facade of urban development.

Critics contend that the issue extends beyond a moral lapse, highlighting a fundamental structural flaw in the development model. Inadequate wages, opaque recruitment practices, and insufficient safety measures have created a system in which the rewards of urban expansion are disproportionately captured by investors and developers, while the burden falls heavily on the workers who enable this growth (UCA News, 2023; Indeed, 2023).

Labour Protection Initiatives

The Building and Other Construction Workers (Resolution of employment and conditions of service) Act and the Building and Other Construction Workers Welfare Cess Act were constituted in 1996 to address the issue faced by the construction workers. These legislatures mandate the institution of the Construction Workers Welfare Board (CWWB)—a tripartite entity with equal representation from workers, employers and the government. The CWWB is tasked with registering the workers and benefits such as medical assistance, accident cover, educational assistance for children of workers, loans and pensions. To raise capital for providing the welfare benefit under state CWWBs, the collection of cess at the rate of 1 percent of the total cost is mandated by the said legislations. However, the implementation has been patchy. In many states, registration rates are concerningly low and issues like duplicate entries and fraudulent record submissions have

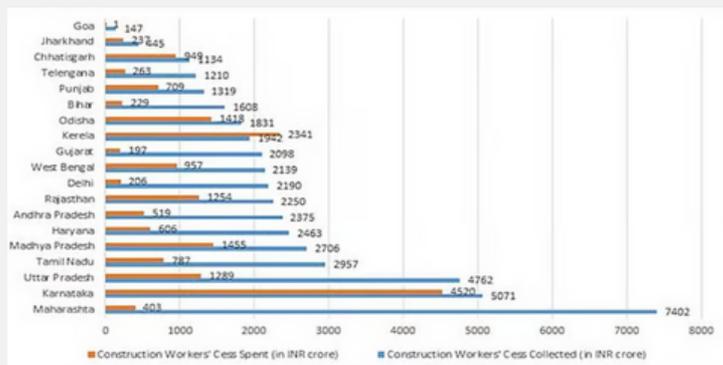
further undermined the effectiveness of these schemes(Down To Earth, 2021).

The state-wise scenario of construction worker registrations from 2017 to 2019 highlights significant regional disparities.

Major States of India	Number of Construction Workers (million)		Number of Registered Workers (million)		Ratio (%) (3/2)	Diff (4-2)	% Change (6/3)
	2017-18	2018-19	2017	2019			
1	2	3	4	5	6	7	
Andhra Pradesh	4.15	1.73	1.82	41.7	0.1	5.0	
Assam	1.08	0.12	0.25	10.8	0.1	114.5	
Bihar	4.47	0.83	1.24	18.5	0.4	49.6	
Chhattisgarh	1.25	1.38	1.94	110.3	0.6	40.7	
Gujarat	1.50	0.60	0.65	39.9	0.1	9.3	
Haryana	1.10	0.73	0.86	66.1	0.1	17.3	
Jharkhand	1.95	0.71	0.80	36.4	0.1	12.0	
Karnataka	2.08	1.16	1.54	55.6	0.4	33.5	
Kerala	2.35	1.46	1.53	62.3	0.1	4.2	
Madhya Pradesh	3.69	2.92	3.10	79.1	0.2	6.1	
Maharashtra	2.84	0.66	1.61	23.4	0.9	142.5	
Odisha	2.66	1.85	2.72	69.4	0.9	47.1	
Punjab	1.35	0.64	0.87	47.0	0.2	36.5	
Rajasthan	3.76	1.81	2.22	48.3	0.4	22.6	
Tamil Nadu	4.43	2.79	2.83	63.0	0.0	1.3	
Uttar Pradesh	8.67	3.61	4.86	41.6	1.2	34.6	
Uttarakhand	0.35	0.16	0.23	46.9	0.1	42.2	
West Bengal	4.27	3.08	3.10	72.2	0.0	0.7	
Delhi	0.44	0.50	0.54	113.4	0.0	7.7	
All-India	54.48	28.62	34.86	52.5	6.2	21.8	

Source: Parliamentary Standing Committee on Labour, 2017-18, Ministry of Labour, 2017 and Lok Sabha unstarred question No-1284, November, 2019.

The highest registration rates were recorded in Delhi (113%), Chhattisgarh (110%), Madhya Pradesh (79%), and West Bengal (72%), all exceeding the national average of 52.5%. In contrast, states like Assam (10.8%), Bihar (18.5%), Maharashtra, Gujarat, Jharkhand, and Uttar Pradesh reported registration rates significantly below the national average. Notably, Delhi and Chhattisgarh recorded registration rates exceeding 100%, suggesting the possibility of duplication or fraudulent entries(Down To Earth, 2021).



Source: Ministry of Labour and Employment (2019) "Lok Sabha Unstarred Question No. 278", Lok Sabha, New Delhi

Moreover, the collection of 1 per cent cess of the total cost of construction and its proper distribution has some major implementation gaps which need to be addressed. There is no proper mechanism for the collection of cess, as it is transferred to the concerned BOCWWB, according to the 38th Standing Committee on Labour of the Lok Sabha (2018). The committee also highlights the issue of under-assessment of cess. States like Tamil Nadu, Uttar Pradesh, West Bengal, Kerala, and Bihar together contribute more than 70 percent of the total construction Gross Value Added, but their total cess collection is only 37 percent, highlighting inefficiencies in proper fund collection(Down To Earth, 2021).

There is also mismanagement in the distribution of funds. As of 2019, only 39 percent of the total cess collected was distributed to workers. Maharashtra, in 2019, collected ₹7,402 crores, and Uttar Pradesh collected ₹4,762 crores in cess, but they only spent ₹403 crores (5.4%) and ₹1,289 crores, respectively, showing the authorities' low level of motivation(Down To Earth, 2021).

Additionally, almost all the migrant construction workers are unable to avail the benefits of the relief & social security measures offered by the Employees' Provident Fund (EPF), as such benefits can only be accessed by formal workers registered as contributing members of the Employees' Provident Fund Organisation (EPFO). This represents only a small percentage of total construction workers in India, as estimated by the Periodic Labour Force Survey 2018-19. It also highlights that the construction sector in India is largely informal, with 83% casual and 11% self-employed workers. Only 5.7% of people have regular jobs, of which just 1.6% are formally employed. As a result, only 2.2% of construction workers receive any social security benefits, and just 1.5% qualify for EPF, highlighting the vulnerability of the sector and people(Down To Earth, 2021).

There is an urgent need for administrative authorities to intervene and check these gaps between cess collection and spending. Without comprehensive registration of informal workers, wage protection, healthcare and security provisions, millions of workers remain exposed to economic exploitation, medical emergencies and oppressive labour practices (Down To Earth, 2021).

Way forward

As India urbanises, a more equitable development model must prioritise workers' rights, welfare, and dignity. The skyline, symbolic of growth, is built on the invisible labour of millions who face unsafe conditions, low wages, and social invisibility. Despite contributing significantly to GDP, many workers still lack minimum wages, healthcare, and social security. Migrant workers are especially vulnerable due to job instability and exclusion from welfare schemes caused by poor documentation and bureaucratic hurdles.

To address these issues, stronger implementation of labour laws is essential—boosting the number of inspectors, enforcing strict penalties, and mandating formal contracts outlining wages, work hours, and safety provisions. Skill development, low-cost housing, and mobile medical units can help reduce the hardships of informal work. Social construction must include labour welfare as a core goal. NGOs, unions, and civil society must amplify workers' stories to build public pressure for reforms. Initiatives like MGNREGA, Skill India, Startup India, the BOCW fund, and Ayush can play a transformative role when properly implemented. Bridging the gap between rapid economic progress and social justice is not just necessary—it is long overdue.

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ROLE OF MSMEs IN DRIVING RENEWABLE ENERGY ADOPTION IN INDIA

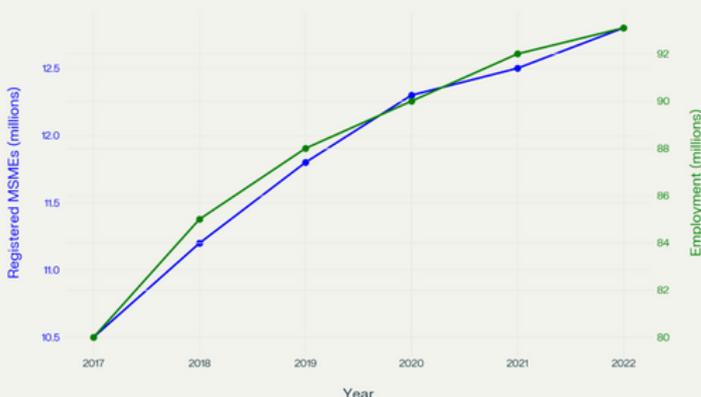
HIYA KESHARWANI

MSMEs: Pillars of Sustainable Growth

India aims to achieve developed-nation status by 2047—an ambitious goal that hinges on inclusive and sustainable economic development. Micro, Small, and Medium Enterprises (MSMEs) are central to this vision, contributing nearly 30% to the GDP and employing around 110 million people. However, their operations can have environmental implications, making the adoption of sustainable practices imperative. By embracing innovation, institutional support, and environmental responsibility, MSMEs can play a pivotal role in shaping a greener, more resilient future for India.

The Economic Importance of MSMEs

Across India, there are over 63 million MSMEs, contributing to nearly 45% of exports and about 36% of manufacturing output. They are among the fastest-growing sectors, with job creation increasing by 110% annually over the past six years. By the end of 2022, around 12.8 million MSMEs were registered, employing approximately 93.1 million people, including a large number of women entrepreneurs. Beyond statistics, MSMEs are a force for innovation, local development, and entrepreneurship (*Role of MSME Sector in the Country*, n.d).



Source: Press Information Bureau, 2023

ISSUE 2025

Year	Registered MSMEs (millions)	Employment (millions)	Job Creation Growth (%)
2017	10.5	80	100
2018	11.2	85	105
2019	11.8	88	108
2020	12.3	90	110
2021	12.5	92	110
2022	12.8	93.1	110

Source: Press Information Bureau, 2023

The Role of MSMEs in Sustainable Development

MSMEs in India are increasingly adopting energy-efficient technologies to align with Sustainable Development Goals (SDGs), offering significant environmental and social benefits. A notable example is the Surat textile cluster, where the UNIDO-EESL-MoSME program successfully promoted energy-efficient technologies. This initiative enabled small manufacturers to replace outdated machinery with energy-saving alternatives, significantly reducing energy consumption and carbon emissions while cutting costs (*Role of MSME Sector in the Country*, n.d.). Such efforts not only contribute to India's net-zero targets but also empower MSMEs to build resilience and competitiveness in a rapidly changing market environment (Centre for Responsible Business, 2023).

Water conservation is a significant focus, with MSMEs implementing water retention systems and rainwater harvesting to replenish groundwater and support ecosystems, especially important in regions with water shortages.

Waste management is evolving as MSMEs in India increasingly adopt circular economy principles, emphasizing reduction, reuse, and recycling. A notable example is the Institute for



A notable example is the Institute for Industrial Development (IID), which has developed an innovative method to transform non-biodegradable plastic waste into paver bricks. These bricks, made from high-density and low-density polyethylene plastics, are used for building walls, driveways, and railway sleepers. The process involves cleaning, shredding, mixing with concrete, and shaping the plastic waste into durable bricks that are stronger than traditional clay bricks. This initiative not only reduces environmental hazards but also creates economic opportunities for rag collectors, women entrepreneurs, and small businesses, demonstrating the potential of circular practices in addressing plastic pollution and promoting sustainable development (Plastic Waste to Bricks, 2023).

The use of renewable energy is increasing among MSMEs, with many incorporating solar power to reduce reliance on fossil fuels and lower greenhouse gas emissions. Initiatives like SIDBI's "Greening MSME" program provide financial support for these changes.

MSMEs also advance social equity by creating jobs for local people, particularly marginalized groups, helping alleviate poverty and improve living standards. Many MSMEs prioritize diversity in their workforce.

Women-led MSMEs in India are particularly impactful, empowering women economically and contributing to community development through business opportunities that boost household incomes. For instance, in rural Gujarat, the Self-Employed Women's Association (SEWA) has trained women artisans to transform their crafts into thriving businesses, generating annual revenues of over ₹5 crores (How MSMEs Empower Women in India | IIFL Finance, n.d.). Additionally, initiatives such as the Mahila Udyam Nidhi Scheme have enabled women entrepreneurs in Jaipur to establish home décor

businesses, which have successfully expanded into international markets within two years. Government programs like the Credit Guarantee Scheme further support such ventures by providing financial assistance and facilitating growth in the sector (Sridharan, 2025).

Fiscal Year	Number of Guarantees	Amount (₹ Crore)	Percentage of Total Guarantees	Percentage of Total Amount
2021-22	1,39,244	8,021	19%	14%
2022-23	3,65,582	16,373	31%	16%
2023-24	4,25,865	32,223	25%	16%
Cumulative	19,30,188	94,296	22%	15%

Source: Balsana, V. (2024, August 22). 3-Year Analysis: Growth and Impact of Women-led MSMEs in India. *EnterSlice*.

Challenges Faced by Small Businesses (MSMEs)

Small businesses, known as MSMEs, are crucial for promoting sustainability but face significant challenges, particularly financial constraints. One of the major hurdles is the lack of access to loans and funding, which makes it difficult for them to adopt green technologies. Only about 14% of India's 64 million MSMEs have access to formal credit, leaving a substantial portion reliant on informal sources. The sector faces a massive credit gap of approximately \$530 billion, with nearly 47% of debt demand being unaddressable due to financial viability issues or stringent collateral and documentation requirements. Despite an increase in credit flow to MSMEs, many small businesses continue to struggle with securing timely and adequate formal credit. This financial barrier limits their ability to invest in environmentally friendly solutions, highlighting the need for more accessible and affordable financing options to support sustainable practices.

Another issue is the lack of awareness about sustainable practices. Many business owners lack knowledge about the latest green technologies and their benefits, leading to hesitation in making beneficial changes. Regulatory barriers also play a role. Complex rules and regulations

can discourage small businesses from pursuing eco-friendly initiatives due to concerns about dealing with bureaucratic red tape. Infrastructure deficiencies further complicate the situation. Without reliable energy sources, implementing renewable energy solutions becomes challenging for small businesses.

Government Support for Small Businesses

The Indian government has recognized the importance of MSMEs in sustainability efforts and launched several initiatives to assist them.

The

National Manufacturing Mission promotes clean technology manufacturing to prepare industries for a sustainable future.

- The Credit Linked Capital Subsidy Scheme (CLCSS) provides financial assistance for technology upgrades, helping ease the financial burden of adopting new, efficient technologies.
- The Zero Effect Zero Defect (ZED) Scheme encourages businesses to reduce their environmental impact while improving product quality, fostering a culture of ongoing improvement.
- Additionally, programs like MSE-GIFT offer financial backing for sustainable investments, ensuring that small enterprises have the resources they need to implement eco-friendly practices.

MSMEs and Sustainability

To further boost sustainability among small businesses, several policy recommendations should be considered. Enhancing access to finance, specifically for green investments, is crucial. This could involve subsidies or low-interest loans tailored to support sustainable technology adoption.

Awareness programs should be implemented to educate business owners about sustainable practices and the resources available to support informed decision-making. A notable example is

the FICCI-organized "Awareness Program on Sustainability in ESG for MSMEs," held in Indore in March 2025. This program brought together industry leaders, government representatives, and sustainability experts to discuss Environmental, Social, and Governance (ESG) principles and their integration into MSME strategies.

The event aimed to raise awareness about ESG policies and emerging opportunities, fostering collaborations to embed sustainability into business models for a greener future. Similarly, the "Say YES to Sustainable MSMEs in India" initiative by YES Bank has sensitized over 27,000 workers from nearly 15,000 MSMEs across eight states on energy efficiency and occupational health and safety measures. These workshops have empowered MSMEs to adopt sustainable practices while improving competitiveness. Such initiatives demonstrate the importance of structured awareness programs in driving sustainability within the MSME sector (FICCI, Federation House, n.d.) Simplifying regulatory frameworks would encourage more small businesses to adopt eco-friendly practices by reducing the compliance burden and allowing them to focus on sustainability rather than navigating complex bureaucratic processes.

Investment in infrastructure is crucial for supporting small businesses, particularly in transitioning to renewable energy solutions without incurring additional costs. Current initiatives in this area include several measures outlined in the Union Budget 2025-26, which aims to strengthen India's MSME sector through infrastructure development. Key initiatives include:

Enhanced Credit Access: The budget has doubled the credit guarantee cover for MSMEs from ₹5 crore to ₹10 crore, unlocking an additional ₹1.5 lakh crore in credit over five years. This increased access

to credit can help MSMEs invest in the infrastructure upgrades necessary for adopting renewable energy solutions.

- **Infrastructure Development:** The government is focusing on developing industrial parks and supply chains, which will improve the overall infrastructure available to MSMEs. This includes projects like the Magna Star Industrial & Logistics Park, which will drive key manufacturing and infrastructure projects.
- **Digital and Trade Reforms:** The introduction of Bharat Trade Net (BTN) aims to simplify trade documentation and financing, enhancing MSME competitiveness in global markets. This digital infrastructure can also support the integration of renewable energy technologies by facilitating smoother supply chains.
- **Focus on Labour-Intensive Sectors:** The budget emphasizes support for labour-intensive industries, which can benefit from infrastructure investments that enable the adoption of sustainable practices.

Technology plays a crucial role in helping small businesses adopt sustainable practices effectively. Digital tools can monitor energy use and identify areas for improvement, enhancing operational efficiency. The Internet of Things (IoT) offers transformative potential for waste management, providing real-time tracking that improves waste disposal methods and efficiency. As awareness of climate change increases, consumer demand for sustainable products is growing. This trend has led to stricter regulations, pushing small businesses towards eco-friendly practices. Large companies are increasingly seeking partnerships with businesses that share their sustainability values, creating positive impacts throughout supply chains that depend on small-scale producers and service providers.

Conclusion

MSMEs are indispensable players in India's pursuit of a sustainable future. Their contributions extend beyond economic growth; they hold significant potential for fostering environmental stewardship and social equity within communities across the nation. By embracing sustainable practices such as energy efficiency measures or circular economy principles, these enterprises can enhance competitiveness while simultaneously contributing positively toward local ecosystems. Addressing existing challenges through targeted government support mechanisms—including improved access to finance—capacity-building initiatives aimed at raising awareness about sustainability benefits—and streamlined regulatory frameworks—will be essential steps toward unlocking the full potential inherent within this sector.

As India strives toward becoming a developed nation by 2047, empowering its vibrant network of micro, small, and medium-sized enterprises will prove crucial not only for achieving economic goals but also for ensuring balanced progress that protects both people and the planet alike. In conclusion, collaboration among government, industries financiers must come together constructively to create supportive frameworks enabling these vital players to thrive sustainably, driving transformative changes across various sectors and communities alike, ultimately paving the way toward a brighter, greener future ahead.

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STREET VENDORS

The Backbone of Informal Urban Economies

SIYA NANDY

Introduction

Street vendors play a crucial role in the informal urban economy, significantly contributing to local economies through job creation, entrepreneurship, and the provision of affordable goods and services. This paper explores various aspects of street vending, particularly focusing on how it boosts local economies. The discussion is structured around several key subtopics that highlight the multifaceted impact of street vendors.

Why Street Vending Thrives?

Street vending thrives due to several factors, including low barriers to entry, flexibility in operations, and the ability to cater to local needs. Many vendors are often from marginalized communities seeking livelihood opportunities with minimal startup costs. Research indicates that street vending accounts for approximately 14% of total urban informal employment in India, providing essential goods at lower prices to low-income groups. The affordability and accessibility of street vendors make them a vital link between producers and consumers, especially for those with limited financial resources.

Opportunity Cost of Formal Employment vs. Street Vending

The opportunity cost of formal employment can be significant for many individuals. While formal jobs may offer stability and benefits, they often require higher qualifications and entail rigid working hours. In contrast, street vending allows for flexible working hours and immediate income generation, which is particularly appealing for those with limited education or skills.

This flexibility enables vendors to balance work with other responsibilities, such as caregiving.

Case Studies of Cities that Have Integrated Vendors into Urban Planning Cities around the world have recognized the vital role street vendors play in urban economies, leading to innovative approaches for integrating them into urban planning.

Bhubaneshwar, India

Bhubaneshwar stands out as a pioneering example in India for integrating street vendors into urban planning. The city established official vending zones and constructed fixed kiosks through a collaborative process involving local authorities and vendor organizations. This initiative began with participatory discussions that led to the identification of suitable locations for vending zones, followed by a phased implementation approach. By 2011, Bhubaneshwar had created 54 vending zones with approximately 2,600 kiosks, legitimizing street vending and enhancing urban aesthetics. Key success factors included strong political will, effective leadership from vendor associations, social dialogue, and public-private partnerships.

Ahmedabad, India (Jamalpur Market)

The Jamalpur Market in Ahmedabad has implemented a structured approach to manage street vending. This market accommodates around 675 vendors and is strategically designed to prevent encroachment on non-vending areas while ensuring efficient traffic flow.

The city has introduced demarcated vending areas and separate parking spaces, which not only enhance safety but also improve the overall market environment. This model demonstrates how organized vending zones can alleviate congestion and contribute to effective space management in urban settings.

Mumbai, India

Mumbai's approach to integrating street vendors involves redesigning civic spaces to accommodate informal markets equitably. Urban design strategies have been developed to ensure that street vendors can operate without obstructing pedestrian pathways or vehicular traffic. This integration aims to create a balanced coexistence between formal and informal economies, enhancing the vibrancy of urban life while addressing the needs of both vendors and consumers.

Surat, India

Surat has developed a comprehensive planning framework based on extensive surveys of its street vendors across various markets. The city's strategy focuses on understanding the spatial distribution of vendors and their economic contributions. By recognizing street vendors as integral components of the urban economy, Surat aims to create policies that facilitate their operations while ensuring public order and safety.

State-Wise Street Economy

1. Maharashtra

The state has a substantial number of street vendors, particularly in urban centers like Mumbai and Pune. Initiatives have been taken to create designated vending zones to regulate and support their activities.

2. Uttar Pradesh

As one of the most populous states, Uttar Pradesh has a diverse street economy that supports

millions of vendors. Vendors often face challenges related to regulatory compliance and competition from formal retail sectors. However, they play a crucial role in providing affordable goods to low-income populations.

3. Tamil Nadu

Tamil Nadu has made efforts to integrate street vendors into urban planning through designated vending spaces and supportive policies. The state's vibrant street economy contributes significantly to local employment and consumer choice.

4. Gujarat

Gujarat is known for its entrepreneurial culture, which extends to street vending. The state has implemented policies aimed at formalizing the street economy while ensuring vendors' rights are protected. Cities like Ahmedabad have established vending zones that enhance operational stability for street vendors.

Women-led Street Vending Businesses and Economic Independence

Women-led street vending businesses play a crucial role in fostering economic independence, particularly in the informal sector. Street vending offers women a low-cost entry point to earn a livelihood, often due to economic necessity. Despite facing numerous challenges, women's participation in street vending significantly contributes to their empowerment.

Key Aspects of Women-Led Street Vending:

Economic Contribution: Women street vendors are vital to the informal sector, helping to build a stronger economy in India. The informal sector is a primary driver of the Global South economy, significantly contributing to its GDP and employing a substantial number of its workforce.

Participation Statistics: Approximately one-third of the hawker population in India consists of

women street vendors. These women often sell goods in weekly markets, streets, or roadside stalls, or assist their families with back-end work. In Delhi, however, only 30% of street vendors are women according to MCD's official figures. **Income and Earnings:** Women street vendors generally earn less than their male counterparts. The average daily income for men in this sector is about ₹70, while women earn approximately ₹50. Some women vendors report earning between ₹50 to ₹100 per day, which barely suffices for their families

Challenges Faced

Harassment and Insecurity: Women street vendors face uncertain and insecure working conditions, including the regular threat of eviction and harassment by local officials. The street as a workspace is especially insecure for women, who are more vulnerable to sexual harassment.

Mobility Issues: Cultural norms and safety concerns can restrict women's mobility, limiting their access to customers and impacting their earnings. As one vendor stated, mobility selling vegetables on a cart is not always possible for a woman.

Discrimination and Stereotypes: Discrimination and gender stereotypes exacerbate the difficulties faced by women, compounding the hurdles they encounter. Patriarchal norms in public and private spheres limit women's access to education and the types of work they can engage in, creating segmentation in the labour market.

Do Street Vendors Eat into the Profits of Formal Retailers or Do They Expand the Market?

The relationship between street vendors and formal retailers is complex, with evidence suggesting that street vendors can both compete with and complement formal businesses. Some argue that street vendors erode the profits of

formal retailers, while others contend they expand the market and offer unique benefits.

Street vendors often offer goods at lower prices, attracting customers who intend to spend only a short time shopping. Unlicensed vendors operating in public spaces can create problems for formal retailers.

Street vendors generate jobs not only for themselves but also for porters, security guards, transport operators, and storage providers. They purchase goods, supplies, and services from local markets, fostering economic activity. Businesses located close to vendors maintained higher levels of employment. By 2011, establishments near vendors employed double the number of workers than their counterparts not in geographic proximity. Street vending enables the working poor to generate jobs, potentially reducing dependence on city services.

Street vendors fill a different need in the local economy than off-street businesses. They attract customers who cannot afford to go to restaurants. Businesses in close proximity to street vendors maintained employment levels from 2007 to 2011 and grew, on average, by five percent. Many brick-and-mortar stores went out of business because they lost the foot traffic attracted by the market when street vendors left the neighborhood. Economists estimated that there were \$49.3 million in total losses to the business ecosystem that evolved around the market, including the customers and the neighboring brick and mortar businesses.

Overall, while some competition may exist, street vendors often expand the market by providing affordable goods and services, creating jobs, and attracting foot traffic that benefits nearby formal businesses. They also play a crucial role in stimulating local economies.

Are Street Vendors Recession-Proof?

Street vending has shown resilience during economic downturns as consumers turn to affordable options during tough times. Research

indicates that during recessions, demand for low-cost goods from street vendors often increases as people seek budget-friendly alternatives. This adaptability makes street vending a critical component of urban economies.

Policy Recommendations for Making Street Vending an Integral Part of Urban Economies

- To effectively integrate street vending into urban economies, policymakers should consider the following recommendations:
- Establish designated vending zones to ensure safety and accessibility.
- Implement training programs focused on business skills and financial literacy.
- Create streamlined processes for obtaining licenses and permits.
- Foster partnerships between local governments and vendor associations to address challenges collaboratively.
- Promote awareness campaigns highlighting the economic contributions of street vendors.

Conclusion

Street vendors are indeed the backbone of informal urban economies, significantly contributing to local economic development through job creation, entrepreneurship, and affordable goods provision. By recognizing and supporting this sector through targeted policies, governments can harness its potential for broader economic growth.

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DABBAWALAS OF MUMBAI

Pioneers of Supply Chain Efficiency

AYUSHI LADDA (*Researcher*)

Introduction

According to a 2012 article in the Harvard Business Review, the Dabbawalas of Mumbai exemplify a grassroots logistics model renowned for its exceptional efficiency and reliability. With a workforce of around 5,000, they deliver over 2 lakh meals daily, achieving a near-perfect accuracy rate without the use of advanced technology, and they rely mainly on a simple yet effective coding system and strong organisational skills. They have been operating for about 130 years, which reflects their trustworthiness, reliability and outstanding evidence of the power of grassroots logistics. This paper will examine their organisational structure, operational methodologies, challenges and comparison to modern supply chain principles. The study also explores the impact of digital transformation on their traditional business model and evaluates their potential role in the evolving logistics landscape.

Formally known as MTBSA (Mumbai Tiffin Box Suppliers Association), a dabbawala is a person in Mumbai, India, whose job is to carry and deliver freshly made food from home in lunch boxes to office workers. The dabbawalas originated when India was under British rule. Since many British people who came to India did not like the local food, a service was set up to bring lunch to their offices straight from their homes. This was carried in horse-drawn trams and delivered in the Fort area. Today, businessmen in modern Mumbai use this service and have become the main customers of the dabbawalas (Patel et al., 2006).

The lunch hours are peak hours in the railway network, and it is not feasible for the office workers to get their lunch during this time. Another option would be to eat food from a canteen or restaurant, but not all offices provide their employees with a canteen, and eating unhealthy food from the roadside or a restaurant is neither health nor budget-friendly. This need allowed the dabbawalas to grow their network and meet the demands of many. They deliver over 2,00,000 boxes, and charges vary from Rs. 150-300 depending upon location and collection time (Patel et al., 2006).

The dabbawalas come from the rural area of Maharashtra, about 200 kilometres east of Mumbai. They mainly speak Marathi and Hindi. Currently, they are a distributed, flat, self-governed network organisational structure with around 5000 members/employees (George, 2018). In the three-layer structure, all employees are paid equally. The organisational culture is characterised by discipleship and not followership (George, 2018). Their workforce, largely composed of semi-literate individuals, has built an exceptional reputation for delivering home-cooked meals from households to working professionals with remarkable precision. Technology has not yet been adopted in their business thus features such as a customer database, online booking etc., are not available. Their access to new customers is primarily through word of mouth, which now is a challenge for their business. The system operates under the principles of efficiency, low-cost management, and timely delivery, making it a fascinating case study in supply chain logistics.

Despite minimal technological intervention, the dabbawalas maintain an error rate as low as 1 in 16 million transactions, earning them a Six Sigma certification, which is a professional credential that demonstrates an individual's expertise in improving business processes through data-driven methods (George, 2018).

Operational Model and Logistics

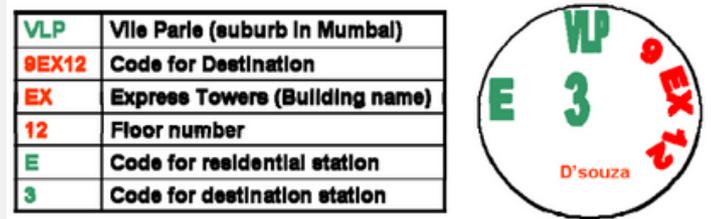
Dabbawalas, each serving around 30 customers per day, work under the leadership of a 'mukadam' (supervisor). They have time-tested and perfected their hub-n-spoke concept. Each spoke is managed autonomously by a team of 20-25. Over time, this 'hospitality network' evolved into a flawless system with a Six Sigma performance rating (George, 2018).

The efficiency of the dabbawala system can be attributed to a well-structured process, which can be broken down into the following steps:

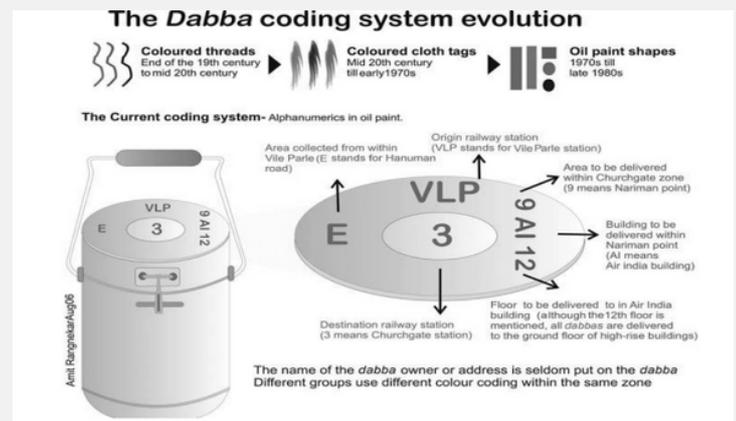
The first step is collection – A dabba's journey from kitchen to consumer is handled by between three and twelve different delivery men. Dabbawalas collect tiffin boxes from customers' homes in the morning, and they will either walk or cycle to collect these lunch boxes, marking each with a unique colour and alphanumeric code to indicate the source, destination, and recipient. The lunch boxes are made out of aluminium or tin, and the address of the customer is painted on top of each box. The codes use colour, dashes, crosses, dots and simple symbols to indicate the various parameters such as the originating suburb, route to take, destination station, whose responsibility, the street, building, floor, etc. The use of a coding system prevents misdeliveries and streamlines operation, and the work is known for its ingenuity, special codes and markings (Patel et al., 2006). The next step is sorting and transit – The tiffins are taken to local railway stations where they are sorted and loaded onto suburban trains.

The Mumbai local train network acts as a backbone for transportation, enabling quick movement across the city. The dabbas are sorted again– At the destination railway stations, dabbawalas reassemble and redistribute the tiffins according to delivery zones. The final delivery is when the lunch boxes reach offices and workplaces in time for lunch. The process is reversed in the afternoon when empty tiffins are collected and returned to homes.

Exhibit 5 – Markings of a Dabba



Source: *White Paper, University of North Carolina, Kenan-Flagler Business School*



Source: *Think India Journal 2019, Vol 22, Issue 14*

This workflow ensures smooth and timely service with minimal reliance on written documentation or technology.

Supply Chain Efficiency and Management

The success of the entire system of dabbawalas lies in their discipline, teamwork and the simplicity of operations.

Despite lacking the use of technology and sophisticated digital tracking systems, they have consistently outperformed many modern supply chain companies in terms of accuracy and efficiency due to the following factors: First,

reliability and accuracy – the Six Sigma performance standard, that is, 99.9999% accuracy (Talluri, 2019) showcases their error-free execution, attributed to their rigorous training and commitment. Second, cost-effectiveness – the dabbawala system operates on a minimal budget, unlike commercial logistics firms and hence charges affordable rates while ensuring sustainable operations. Third, standardisation and process optimisation – the coding system serves as a manual tracking tool, ensuring consistency and systematic delivery. And lastly, a human-centric approach – in the three-layered structure, all employees are paid equally. The organisational culture is characterised by discipleship and not followership. This culture is known to nurture individualised customer care, collaborative planning, and implementation. They take pride in strong teamwork and strict time management (George, 2018). Each dabbawala is highly motivated, as they function within a cooperative model where profits are equally distributed.

Unlike heavily automated supply chains, this model is built on human efficiency, decentralised management, and deep-rooted community engagement. Several multinational companies have studied their methodology to refine last-mile delivery strategies.

Companies like FedEx and Amazon have drawn inspiration from their simplistic coding model for package sorting and delivery. Likewise, lean manufacturing principles in Toyota's supply chain mirror the dabbawalas' operational efficiency, emphasising just-in-time (JIT) processes and workforce synchronisation.

Future Challenges and the Impact of Technology

With the rise of food delivery apps and other meal-providing services, the dabbawalas face a significant threat. The increasing use of Swiggy, Zomato, and Uber Eats in urban centres has led

to a gradual decline in demand for traditional tiffin services. To tackle the challenge, efforts have been made to integrate technology into the dabbawala system. Some dabbawalas now use mobile apps and SMS alerts to track deliveries, while others have collaborated with online platforms for better customer engagement. Research was done wherein technology was introduced to the dabbawalas, and it was evaluated that technology in the form of maps and apps did help the dabbawalas to serve in a better way (Chakraborty et al., 2015). However, complete digitisation remains a challenge.

Apart from the growing competition from food delivery apps, dabbawalas face several other challenges that threaten the existence of their traditional system. One of the main challenges is the aging workforce; the younger generation shows little interest in this area of business. As the existing workforce ages and is more fatigued, there is a looming risk of attrition without sufficient new entrants, which could eventually lead to a breakdown of the system. The dabbawala system falls more under the informal sector, so the profession lacks social security, leaving workers without health insurance, pensions, or job stability. Moreover, the profit margins are low, and when combined with the rising cost of transportation and fuel, it strains the financial viability of their operations. The model has limited scalability beyond Mumbai due to its dependence on the city's dense geography and train network. Lastly, the work pattern has changed over the years, with an increase in work-from-home and dining services being provided by the office reducing the demand for traditional tiffin delivery services.

Conclusion

The dabbawalas of Mumbai stand as pioneers in supply chain logistics, demonstrating a blend of precision, discipline, teamwork and resilience.

Their model provides valuable insights into sustainable, cost-effective logistics, serving as a benchmark for global supply chain management. Despite facing modern challenges, the dabbawala system continues to evolve, proving that even in an age dominated by technology, human-centric logistics can thrive. Future efforts should focus on integrating digital tools without compromising their core strengths, ensuring that this historic service remains relevant in the changing landscape of urban logistics.

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TRADITION UNDER THREAT

Analysing the Struggles of Rural Blacksmiths and Metal Workers in the Indian Economy

AKHILA S (Researcher)

Introduction

Traditional blacksmithing metalworking, was once a flourishing and irreplaceable skill forming the backbone of pre industrial societies. They provided agricultural and artistic contributions to the villagers. However, with the invention of new technologies and industries, they are facing a potential threat.

Rural blacksmiths and metalworkers face economic hardships and environmental challenges that put their livelihoods at risk.

India's technological and cultural history has been significantly influenced by blacksmithing. Indian metallurgists produced high-quality wrought iron and sophisticated iron extraction methods by the first millennium BCE. Around the sixth century BCE, Wootz steel was invented. It was a revolutionary accomplishment, known all across the world for its exceptional quality and eventually influencing the manufacture of Damascus steel. The Iron Pillar of Delhi, which has demonstrated India's proficiency in metallurgy by withstanding corrosion for more than 1,600 years, is another outstanding achievement. These developments demonstrate India's historical contributions to engineering and metalworking.

A rural blacksmith or rural metal worker is a craftsman who works with metals like iron and steel and uses traditional techniques like forging to create tools and other objects needed by the local community often including agricultural equipment ,household items or even decorative artworks. They typically work or live in a village or countryside setting. Some blacksmiths may be semi-nomadic ,travelling between villages to

provide their services.

They commonly use hammer,anvil and tongs to heat and shape metal and pass down their skills throughout their generation within their family or their community. They play a very important role in the local economy by repairing and making essential metal items for farmers and residents.

Blacksmiths make a variety of objects that were used in everyday life . These include nails , screws ,nuts and bolts ,other fasteners etc.

They create both functional and decorative items and sell them to businesses ,museums or even ordinary individuals.

But unfortunately, the status of this traditional blacksmithing is potentially under threat due to the rise in innovation and technology, and it is to be doubted that this tradition will continue within the next few years.

DiMaggio, Hargittai, Neuman and Robinson (2001)observed that the new technology's impact on society is creating new forms of identity and inequality, submerging powers into decentered flows, and establishing new forms of social organisations.

According to Rajesh Behera in The Pioneer (2022), blacksmithing has declined by almost 80% in the past two decades in the coastal districts of Kendrapada and Jagatsinghpur. The advent of agricultural machinery such as tractors, paddy cutting machines, and power-tillers has significantly reduced the demand for handmade tools. Today, blacksmiths in these areas find work only for a month during the paddy cultivation season and around 20 days during the harvesting period, leading to severe

unemployment for the rest of the year.

The decline of blacksmithing is part of a broader de-industrialisation trend in India. As noted by Subir Maitra in his research paper *De-Industrialisation in India: The Decline of Handicrafts* (2020), the number of workers in industrial activities dropped from 2.11 crores in 1881 to 1.29 crores in 1931, while workers in agriculture increased from 7.17 crores to 10.02 crores. This shift displaced traditional artisans, forcing them into agricultural labour and increasing overall unemployment.

Challenges Faced by Rural Blacksmiths and Metal Workers

The once-thriving blacksmith community now struggles to make ends meet, with many seeking alternative livelihoods. This age-old craft, passed down for generations, is on the brink of extinction in several districts. Once renowned for their masterful metalwork, crafting farming tools, weapons, and household items, blacksmiths now find themselves fading into obscurity.

Local sources report a sharp decline in the number of blacksmiths over the years, as most young people pursue other careers. Additionally, the low wages in the trade have further contributed to its decline, making it an unsustainable profession for many.



(The graph represents the average daily wage rate of rural, non-agricultural male blacksmiths in India from July 2017 to June 2018. The data shows a steady increase over the period, reaching ₹341.09 in June 2018)

Source: Labour Bureau, Government of India. Retrieved from CEIC Data.

The blacksmith community is facing a tough time due to various reasons. Among them are the unavailability of cheap, mass-produced items, lack of Government support, and incapability to compete with modern machinery. The younger generation is not interested in learning the trade, as they see it as a low-paying job with little scope for growth.

Blacksmiths today are facing significant economic challenges, primarily due to the high cost of raw materials such as wood, wrought iron, and steel. Additionally, the demand for many of their traditional products has declined. These issues are not limited to blacksmiths alone—other traditional industries in the region are similarly impacted. Craftsmen across various sectors are finding it increasingly difficult to sustain their businesses under these fiscal pressures.

They argue that the industry is dying due to the increased use of modern agricultural equipment such as tractors and power tillers. These machines have replaced many traditional tools that were once crafted by blacksmiths, such as ploughs, hoes and other farming equipment.

The decline of the blacksmith industry has raised concerns about the loss of traditional knowledge and skill. It has also affected the village economy, as the blacksmiths were an integral part of the community, providing employment and contributing to the overall development of the locality.

Blacksmiths and metal workers also face a lot of health hazards and risks due to their work such as getting exposed to extreme heat, loud noises and other contaminated particles which are present in the air. One of the most common risks is thermal burn from direct contact with heated metal.

Working with forges involves high temperatures, and if not monitored carefully, there is a risk of unintended fires.

Another common risk is exposure to excessive noise. Increasing noise intensity, duration of work, and duration of exposure can cause hearing loss because the inner hair cells and supporting cells are damaged. Longer working periods often leads to increased noise exposure.

Eye injury is a very common concern in blacksmithing. At times it can generate flying sparks and debris, which becomes a threat to the eyes. Wearing safety glasses or goggles that are designed for high-temperature environments can become essential tools for preventing these hazards.

Additionally, improper ventilation in the workspace can lead to the accumulation of toxic fumes, posing respiratory risks. Poor ventilation in a blacksmith's workshop can lead to a range of health risks, including respiratory problems, headaches, dizziness, and even long-term health concerns such as lung damage and cancer. The main culprit is carbon monoxide, a toxic gas produced when burning fossil fuels.

Consequently, blacksmithing also has severe environmental impacts. Heating metal can release pollutants that are toxic, including carbon monoxide and nitrogen oxides which can lead to air pollution. The pollutants can get into water streams when cooling metal contaminating the water, making it harmful to aquatic life.

Possible Solutions

In order to improve the overall working conditions of the metal workers, several strategies can be implemented.

1)Kogi, Phoon, and Thurman (1989) emphasise that "significant improvements can be made in conditions of work and occupational safety and health at very low cost."

The authors talk about several methods to improve lighting, ventilation, and noise control. Simple measures, such as installing skylights or using portable fans, could create a more comfortable and safer work environment. The authors also explain about the significance of providing basic health facilities, such as first-aid kits and clean drinking water, to promote worker well-being

2)Forming worker cooperatives can empower workers and improve their conditions. Kerswell and Pratap (2018) highlight that "cooperatives represent a viable strategy to build working class power in the 21st century in India, and elsewhere."

Trade unions have formed cooperatives for production and service provision. These cooperatives have been essential in providing workers with greater control over their labor conditions and economic outcomes. Kerswell and Pratap emphasize that such models can serve as possible strategies for building working-class power in the modern era

3)Comprehensive labor policies are essential. The National Commission for Enterprises in the Unorganised Sector (2008) emphasizes the need for measures "to ensure minimum work conditions and promotions of livelihoods for both the agricultural and nonagricultural laborers."

4)And lastly, keep flammable materials away from the forge and always have a fire extinguisher or a bucket of water nearby.

By implementing these solutions, we can provide a better working condition for the blacksmiths.

Conclusion

India's rural blacksmith industry is now at the verge of extinction due to increased technological innovations, industrialization and

mass production. Lack of government engagement also takes away their motivation to continue this culture.

And hence, if this culture has to be preserved and protected, it is essential that the blacksmiths are provided with several training programs and skill development assistance to revive the industry. Offering subsidies on raw materials like iron and coal or providing low-interest loans for setting up small-scale industries could also encourage them to make the profession more sustainable in the modern economy.

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BEHIND THE VEIL

Shedding Light on the Unsung Heroes of India's Wedding Industry

AASHNA DHINGRA (Researcher)

Introduction

India's wedding industry, valued at billions of dollars, is a multifaceted sector that involves numerous professionals working behind the scenes to create memorable celebrations. Their work, ranging from food preparation to crowd management, supports the seamless flow of the wedding and fuels the growth of India's wedding-related economy. By shedding light on these unsung heroes, this article emphasises the value of their contributions, advocating for greater recognition of their essential roles within India's vibrant wedding industry.

There are over 1 crore weddings annually in India - the 4th largest industry in the country, currently valued at a staggering \$130 billion. It creates employment for about 10 million people, from wedding planners to photographers, caterers, makeup artists, artisans, and entertainers. (Bhaisora, S. S. (2024))

The rapid expansion of the wedding industry has given rise to several ancillary sectors. These range from event management companies, wedding planners, and catering services to niche sectors such as wedding photography, makeup artists, wedding technology solutions, and even destination wedding services. One of the more visible and economically significant sub-industries is the wedding apparel sector, which includes both traditional clothing and Western-style garments, along with accessories such as shoes and cosmetics. The increased demand for designer clothing, bridal wear, and ready-made fashion has pushed local manufacturers and global brands to create wedding-specific lines, contributing to a multi-billion-dollar market.

Other notable emerging sectors include luxury travel services that cater to the new trend of having destination weddings. Additionally, wedding-focused digital platforms, such as websites for wedding planning, online jewelry stores, and photo-sharing services, are rapidly gaining traction as well. These platforms not only make the process of planning weddings more efficient but also serve as crucial contributors to the economy, with millions of consumers engaging in online wedding shopping, from booking venues to buying gifts and decorations. The rising trend of destination weddings has also boosted the hospitality and tourism industries, pushing both regional and international service providers to innovate and tap into this lucrative market.

Makers of Indian Wedding Industry/Key Participants and Industry Trends

As per Republic World, the \$50 billion Indian wedding market is predicted to expand at a 30% annual rate in the upcoming years. In the meantime, the \$53 billion wedding business in the USA is predicted to decrease by 2%.

What are the key growth drivers of the Indian Wedding Industry?

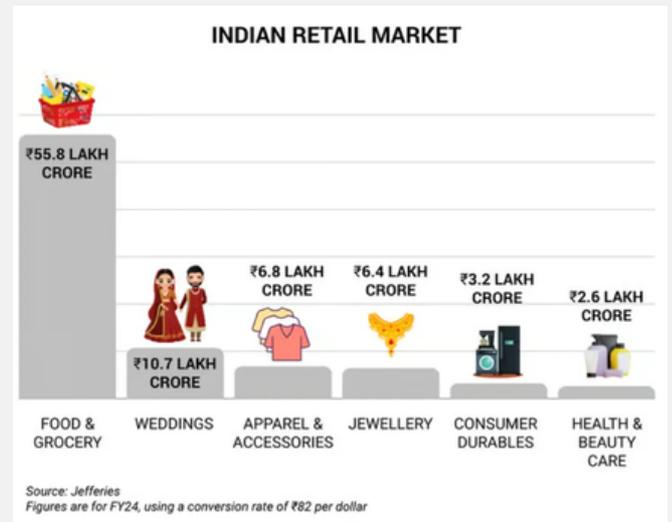
Firstly, rising household incomes have led families to invest more in extravagant weddings that showcase their social standing, transforming these occasions into lavish celebrations. Secondly, the influence of celebrity culture, particularly Bollywood and high-profile weddings, has shaped trends in fashion, décor, and overall wedding aesthetics. These glamorous events inspire couples to seek similar luxury experiences,

fueling demand for premium services. Lastly, government initiatives like 'Wed in India' are positioning the country as a premier destination for weddings. Combined with increased disposable income and the growing impact of social media, destination weddings are becoming more popular and accessible. Together, these factors are reshaping the wedding landscape in India, making it one of the largest and most dynamic markets globally.

Let's step behind the scenes and discover the hands and minds driving India's grand wedding economy.

While the spotlight often rests on the couple or the grandeur of the event, it's the tireless work of countless professionals that powers the great Indian wedding show. From caterers preparing elaborate menus under pressure to makeup artists starting their day at dawn for back-to-back bridal sessions and photographers capturing fleeting moments across sprawling venues—these individuals ensure perfection behind the scenes. Artisans, florists, light crews, decorators, drivers, security teams, and logistics managers all contribute their skills, often working through the night to create seamless experiences. Their collective labor fuels not just the wedding day magic but entire sectors of the economy—from fashion and food to tourism and tech—making them vital, if often unrecognized, pillars of this booming industry.

The wedding sector is valued at ₹10.7 lakh crore and second to only food and grocery. Other significant sectors related to weddings include apparel & accessories, home decor, jewelry, consumer durables and health & beauty care. (Bhaisora, 2024b)



Challenges and Limitations/Barriers to Growth in India's Wedding Sector

Many of these workers operate in a largely unorganized and vulnerable segment of the market. The industry's informal nature means that a significant portion of behind-the-scenes professionals—such as local caterers, junior stylists, helpers, and support staff—lack formal contracts, social protections, or consistent pay structures. Their livelihoods are often dependent on verbal agreements, seasonal demand, and inconsistent employer accountability. Despite its rapid expansion, India's \$50 billion wedding industry remains largely unorganized. (KPMG, 2023)

This lack of regulation limits transparency and exposes these workers to exploitation, including sudden cancellations, delayed payments, and unsafe working conditions. Moreover, the benefits of the wedding boom are often concentrated in metropolitan areas, leaving small-town professionals struggling to compete with large-scale event companies. Without formal recognition or worker protections, these unsung heroes remain the most indispensable yet overlooked part of the wedding economy—powering celebrations but rarely celebrated themselves.

India's economy, now the fifth largest globally, has led to lifestyle shifts and increased consumer spending, especially on weddings. Heavily

influenced by Bollywood trends, these events have become symbols of social status, often marked by extravagant spending. According to a study conducted by WedMeGood, the average wedding budget in 2024 is ₹36.5 lakh (a 7% increase from 2023), while destination weddings average around ₹51 lakh (Hindustan Times, 2024). While this is a personal expenditure, it often comes at the cost of long-term financial security. Families may deplete savings for one-time celebrations, compromising essential investments in healthcare, education, or housing for their own futures. This pattern is also deeply rooted in societal values, where lavish weddings are viewed as a measure of prestige, often prioritised over quality education or prudent financial planning. Consequently, many families experience financial stress or debt to meet social expectations. This trend undermines sustainable economic growth, emphasising the need for a m

While the sector contributes to significant revenue, the benefits are often concentrated in metropolitan areas and among the wealthiest segments of society. This urban-centric growth results in regional disparities and can exacerbate income inequality. The booming luxury wedding sector mainly serves high-income families, while smaller service providers, such as local caterers and artisans, face financial strain as they struggle to compete with large-scale operations that dominate the market.

The growing demand for lavish Indian weddings has raised concerns about their environmental impact, which contributes significantly to waste, carbon emissions, and environmental degradation.

Indian weddings, often elaborate affairs, generate enormous amounts of waste. According to the NGO Feeding India, 10–20% of the food served at Indian weddings ends up being wasted. In addition to that, industry experts estimate that an average three-day Indian wedding produces approximately 700 to 800 kilograms

of wet waste and about 1,500 kilograms of dry waste. (Everything Experiential, 2024).

The carbon footprint of such weddings is considerable, with large-scale events involving hundreds or even thousands of guests, often requiring long-distance travel. For example, the transportation of guests and wedding-related goods contributes to significant carbon emissions, especially in the case of destination weddings or weddings held at remote venues.

While sustainability is gaining traction among Indian consumers, with many couples considering eco-friendly options in their wedding planning, the transition toward greener practices in the wedding industry is still slow. The culture of extravagance and opulence, deeply ingrained in Indian wedding traditions, often leads to the use of non-sustainable materials and practices. However, there is a growing movement towards more sustainable choices, with initiatives like using organic flowers for decorations, opting for sustainable wedding attire, and reducing plastic waste. Despite these positive shifts, the widespread adoption of sustainable practices faces challenges due to the deeply rooted desire for grandeur and the vast scale of these weddings, which often conflict with environmental concerns.

Shaping the Future of Wedding Economics

A new market for "Instagrammable" weddings is being created by the tendency of these celebrities to develop a "wedding aesthetic." Spending money on pre-wedding photo shoots has increased in popularity. This shift towards visually curated weddings creates a demand for specialized services and products, driving employment opportunities and fostering creativity within the wedding industry. Additionally, the influence of social media has globalized the market, allowing Indian wedding vendors to reach international clients, further expanding their businesses.

The increasing spending on these visually-driven celebrations not only benefits the wedding sector but also contributes to the broader economy by supporting a wide range of related industries and boosting tourism for destination weddings. This digital shift has effectively positioned the wedding industry as a dynamic, economically vibrant sector.

The Indian wedding industry, traditionally dominated by the unorganized sector, is experiencing a significant shift due to the rise of startups. A key driver of this transformation is the integration of technology, which enhances consumer experience and affordability. Startups like Shaadi Squad, which organises high-profile Bollywood weddings, offer a range of services, from supplier management to logistics, providing a streamlined and personalized experience. These companies are reshaping the industry by offering flexible, tiered pricing that caters to various budgets, ranging from ₹3 lakh for 400 guests to ₹7-8 lakh for premium venues. Additionally, companies like SanKash are introducing innovative embedded finance solutions such as the “Marry Now, Pay Later” (MNPL) plan and EMI schemes. This shift towards more organized, affordable, and flexible wedding solutions is democratizing access to high-quality wedding services while also fostering greater competition and efficiency within the sector, contributing to its growth and formalization.

Conclusion

India's wedding industry thrives not only because of the grandeur of the events but also due to the significant economic contributions of the many unsung heroes working behind the scenes. From caterers and makeup artists to logistics teams and decorators, these professionals drive the success of each wedding, contributing to the growth of various sectors and industries. As the demand for elaborate weddings continues to rise, the employment and economic

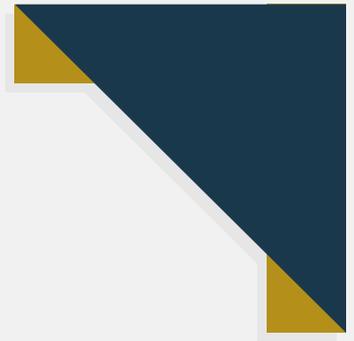
opportunities generated by these roles become increasingly vital.

The economic impact of these behind-the-scenes workers extends far beyond just the wedding day itself; it fuels local businesses, creates job opportunities, and strengthens supply chains, ultimately driving growth and generating wealth within India's rapidly expanding wedding market. As India's wedding industry continues to dazzle, it's time we shift the spotlight to those who labor behind the curtain. True celebration lies not just in lavish events but in honoring the millions whose silent efforts make them possible.

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From the
***Creative
Desk***





Blooms and Toil

The Unseen Keepers of India's Floral Economy

DHWANI SONI

Flowers hold a deep cultural and economic significance in India. While we admire their beauty, we rarely acknowledge the workforce behind them. The floriculture industry in India is largely driven by informal labor, where workers—often from economically weaker sections—engage in flower cultivation, garland weaving, and wholesale distribution. For them, this trade is not about aesthetic value but economic survival, providing a fragile yet essential livelihood. Their lives are woven into the very fabric of the market, their routine dictated by seasons, religious festivals, and the ever-changing demands of an industry that deals in fleeting beauty.

From before the first light of dawn, the Ghazipur Mandi comes to life—not with the chatter of businessmen in suits, but with the calloused hands of these laborers who unload trucks, sort flowers, and weave garlands with precision. The same flowers that signify joy and prosperity for customers represent endless toil for those who sell them. The marigolds that brighten wedding mandaps and the jasmines that adorn temple offerings pass through their hands—hands too busy to pause and admire their work. Many of these vendors remain unaware of where their flowers eventually reach. Ironically, while these flowers find their way to lavish hotels, temples, and corporate offices, those who trade them earn only a modest living.

The laborers at Ghazipur Flower Mandi may not be the face of India's booming economy, but they are its heartbeat. Each garland strung, each basket of flowers sold, is more than just a transaction; it is a story of those who have built their lives among petals and thorns.



Beauty & Chaos in Over Crowding

The lanes of Chandini Chowk

ESHANA BANSAL

Established by Shah Jahan and designed by his daughter Jahanara Begum, Chandni Chowk is one of India's largest wholesale and retail markets and a major economic hub in one of the most important cities in India, Delhi. Known for its narrow lanes, street food, and its ability to nurture Asia's largest spice market, Khari Baoli, Chandni Chowk is a complex market located in the heart of Delhi, pumping out money, employment, and development.

Chandni Chowk is a perfect example of classical economic theory, which states that markets operate best when left alone with minimal government intervention and that people acting in their self-interest will naturally promote economic growth through the "invisible hand." It is filled with small and large, known and lesser-known artisans, vendors, and business owners. Even selling just a handful of grain or a cup of tea affects the whole working of the market in both obvious and not-so-obvious ways.

We all know how wholesale vendors have a huge impact on businesses all over the city, states, and countries, but at the same time, it's the small vendors who support the large vendors. Chandni Chowk might be perceived as backward, undeveloped, and a hub for pickpocketing and disputes, but it has been home to many generations of business owners and sellers who are the backbone of our Indian economy, protecting our tradition and culture.

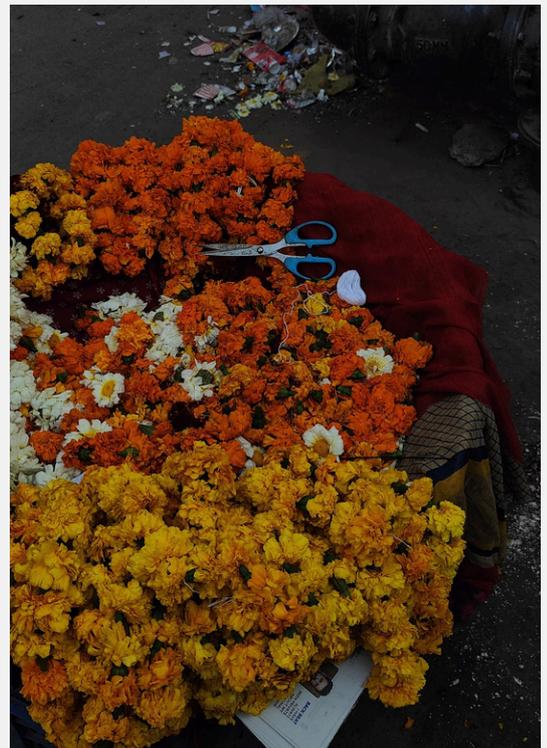


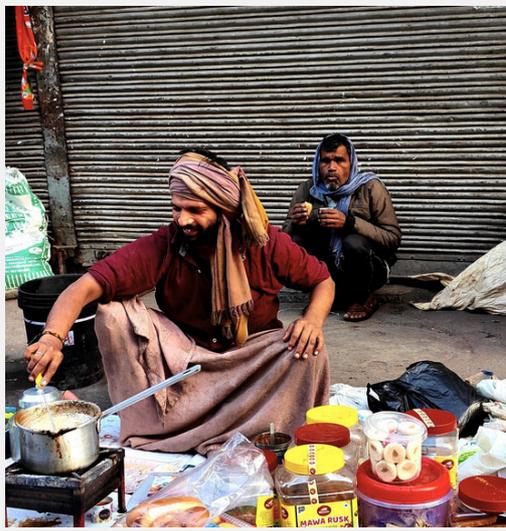
Unsung Rhythms: A Photo Essay on the Soul of India's Informal Economy

JANHVI

This photo essay offers a visual tribute to the quiet resilience and unyielding dedication of individuals who form the backbone of India's informal economy. Their contributions are neither celebrated in headlines nor honored with awards, yet they sustain entire communities with their labor. Captured through creative visual motifs—shadows, reflections, silhouettes, patterns, and illusions—each image reveals a moment of dignity and determination within the ordinary. These are the faces and hands behind India's daily rhythm: the weaver spinning culture into cloth, the chaiwala pouring stories into steaming cups, the vendor coloring the dawn with warmth and sustenance. In tracing their everyday worlds, we celebrate not just survival, but a persistent spirit of self-reliance and quiet heroism.

Within the frame of soft sunlight and a riot of threads, a lone weaver sits hunched over his loom. His hands, rough with age yet graceful with skill, dance across warp and weft, creating intricate patterns that tell stories older than time. Every strand carries the weight of heritage, passed down through generations, woven into saris, shawls, and tapestries that grace markets across the country. Yet, the world seldom pauses to recognize him. He is part of an unacknowledged army of artisans whose work fuels a significant portion of India's cottage industry. These weavers sustain not just local economies, but the very soul of Indian identity, blending tradition with livelihood. In his quiet corner, with nothing but thread and tenacity, the weaver preserves culture, empowers community, and silently holds up a fading but vital legacy. Through his hands, history continues to breathe. Nestled at the edge of a chaotic street, a battered kettle simmers steadily on a makeshift stove. Wisps of steam curl upwards, mixing with the morning haze as the chaiwala prepares his first brew. The frame captures him mid-pour, eyes focused, movements fluid—a master of his humble craft.





His stall may be small, but it stands as a symbol of sustenance for daily wage workers, students, office-goers, and wanderers alike. What he sells is more than tea; it's routine, community, and warmth in a paper cup. Though he may lack legal registration or social security, his role in the economic web is undeniable. Millions like him operate in the informal sector, generating livelihoods and energy for the nation without fanfare or formal support. Each cup he serves is an act of resilience—a small, steaming testament to the spirit of India's working class. The chaiwala is not just a vendor; he's a storyteller, an anchor, and a quiet revolution brewing at every street corner.

As the city stretches awake under a pale blue sky, a solitary vendor sets up his modest tea stall against the shuttered backdrop of sleeping shops. A large pot bubbles gently over a coal stove. Nearby, glass jars filled with rusks and sweets catch the morning light, glinting with invitation. His presence transforms an empty footpath into a place of gathering—a brief haven where people sip, chat, and begin their day. Behind the simplicity of the scene lies a daily struggle: to earn, to serve, to survive. This man, like countless others, operates outside the formal structure of employment, without insurance, contracts, or guarantees. Yet, his enterprise reflects initiative, adaptability, and grit. He is not just selling tea; he is crafting connections, creating employment for himself, and providing comfort to many.



In his daily routine, we see the pulse of India's informal economy—quiet, persistent, essential. His story, though rarely told, is a powerful reminder of how ordinary people fuel extraordinary systems, often with nothing more than a bubbling kettle and unshakable resolve.

Behind the everyday hum of India's cities and villages are individuals whose work rarely makes headlines but is deeply woven into the nation's progress. Their stories—often overshadowed by statistics and policy debates—reveal a truth we cannot ignore: that the backbone of the Indian economy rests on millions of silent, persistent efforts. The weaver's loom, the chaiwala's kettle, the vendor's table—all represent more than just livelihood; they reflect pride, endurance, and an unwavering spirit. These are not just workers; they are quiet architects of stability and culture. By stepping into their world through this photo essay, we are invited to see value where it is so often overlooked. Acknowledging their role is not charity—it's justice. In honoring these unsung heroes, we begin to reshape how we define success, contribution, and the true face of economic strength in India.



India's Silent Heroes

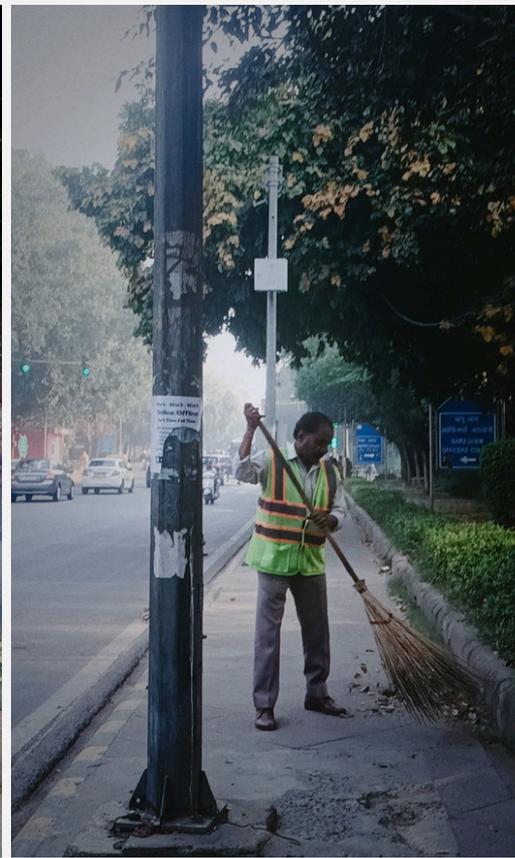
ANANYA SIROHI

Every day, millions of street vendors and small sellers bring life to India's bustling streets. They may not have big shops or fancy branding, but their hard work keeps cities running. The fruit seller wakes up before dawn to get the freshest produce, arranging his cart with care. The chaiwala brews endless cups of tea, giving tired workers and students a much-needed break. The vegetable vendor pushes his cart through busy lanes, greeting regular customers who trust him for their daily needs.

Street food vendors fill the air with the smell of sizzling snacks, serving delicious food that brings people together. Handicraft sellers keep India's traditions alive with their handmade jewelry and fabrics, while second-hand booksellers make knowledge affordable for everyone. Despite their importance, life isn't easy for these vendors. They face daily struggles—harassment, unstable earnings, and no safety net. Yet, they keep going with determination, adapting to challenges and building personal bonds with customers.

They are more than just sellers; they are the heartbeat of our streets. They make our cities vibrant, affordable, and full of life.

So, the next time you buy a banana, a cup of chai, or a handmade craft from a roadside vendor, remember—you're not just making a purchase. You're supporting the unsung heroes of India's economy.



Holding Up the Everyday

MADHAVI KAPOOR

Amidst the skyscraper realm of GDP graphs, startups, and stock indexes, there lies a backbone never spoken of — the unseen workers that keep India moving, literally. This is a photo essay of the men and women who wake up the sun and labor well into the night, unseen pillars maintaining the infrastructure and well-being of millions. They are not front-page news, but they are the very backbone upon which our economic structures lean.

With the city slowing down and streets becoming empty, security guards fall into place. Under the pale light of a streetlamp and a big blue umbrella, a few guards huddle around a makeshift table, scanning logbooks and leading late-night patrons. They are the first line of faith for hundreds of homes, offices, hospitals, and malls. Their job is not only to protect — but to make sure that places stay secure so that economic enterprise can keep going without interruption. Without security, banks would not open on schedule, warehouses would not keep running, and all-night clubs would not be brave enough to stay open. Their presence steadies the very heartbeat of the urban economy.

In another picture, a single guard stands proudly upright, arms crossed as he protects a slumbering city. His uniform is plain yet proud, marking the presence — unspoken promise — of someone watching at all times. It's not work, but rather an assignment requiring readiness, control, and subtle toughness. Just as he readies for any unexpected accident, the sanitation worker readies the space itself, so that the residue of daily life does not devolve into chaos. Both of them control not only risk and sanitation, but the beat of daily operations — one before the day starts, the other while it rests.

And yet, even as they guard these spaces during the evening hours, another largely unheralded hero is about to step in at daybreak — the sanitation worker. With his broom and purpose in stride, he starts to sweep away yesterday's congestion. His labor makes not only clean but operational. Offices may open, markets may flourish, and citizens may travel without hesitation. A safe place is of little use if it is not also clean and livable. In that sense, the sanitation worker and the security guard are tacit partners — one holding watch over the night's order, the other clearing the stage for the day. The two are more closely connected than coincidence in time. Sanitation and safety, together, provide the most basic but fundamental requirements for efficiency: protection and cleanliness. Imagine a hospital that must be sterile and protected, or a school that must be clean and safe so that children can thrive. These workers construct an invisible scaffolding, making it possible for businesses to flourish, employees to work harmoniously, and customers to freely engage with public and private space. Their work may not appear on a balance sheet directly, but without it, there would be no balance sheets to speak of.

These workers are unlikely to appear in textbooks or TED Talks. Their stories might not go viral on the web, and they might not be part of boardroom discussions. But for their hard work without which our cities will fall apart — economically, socially, and morally. They are the unseen engines of India's success, unheard in figures but visible in every well-maintained road, safe corner, and functional workplace. It is time we cease looking at them in isolation and start looking at the ecosystem they maintain — an ecosystem where every guard and every sweeper forms the first, and often strongest, line of defense in our economy.

NIGHT SHIFT

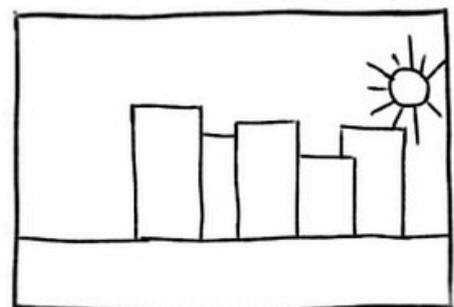
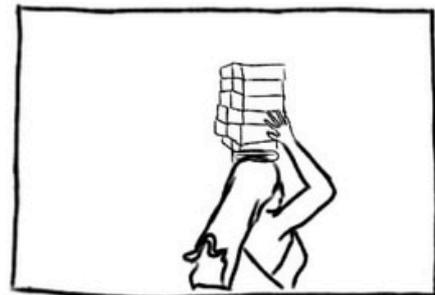
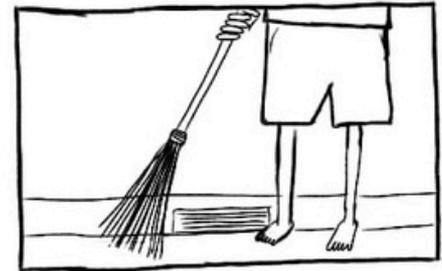
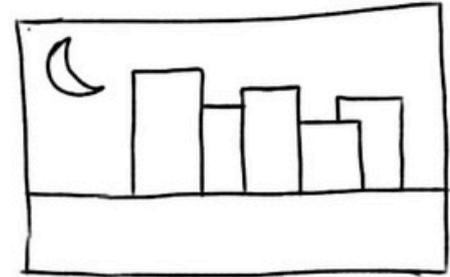
CHRISTA TRESSA TOMY

Our cities are these bustling hubs of activity, but it's easy to overlook the work that happens behind the scenes, when everyone's asleep. My comic tries to highlight some of these unsung heroes – the people who keep things running smoothly while the city rests.

We wake up to clean streets, timely deliveries and a functioning city. But that doesn't happen automatically. There are people out there all night, working in conditions we probably wouldn't want to face. The sweeper in the dark, making sure our mornings are pleasant. The delivery person navigating empty streets so we get our late-night snacks. Security guards, watching over our buildings. These are just a few examples.

They're not in it for the glory. In contrast, they're dehumanised for the way they earn their living. They do their jobs quietly, and are taken for granted. They're an essential part of the economy, even though they don't always get the recognition they deserve. They're the ones who make our comfortable urban lives possible.

So, maybe next time you see a worker spending their day at your service, take a moment to notice, engage, and appreciate those people. They're the quiet force that keeps the city alive. They're the unsung heroes who deserve our respect. They're a reminder that even when the city sleeps, there's a whole other world working to make our lives easier.



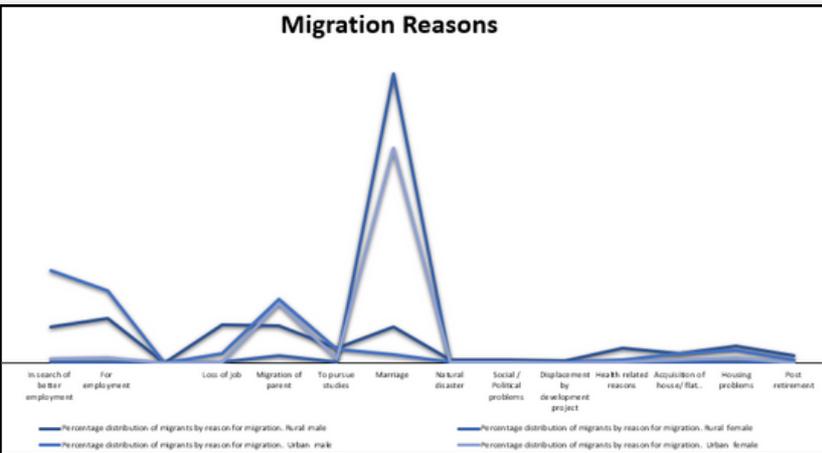


From the
Data
Team



WHY THEY MOVE, WHERE THEY WORK: MAPPING THE MIGRANT WORKFORCE

KANIKA GUPTA

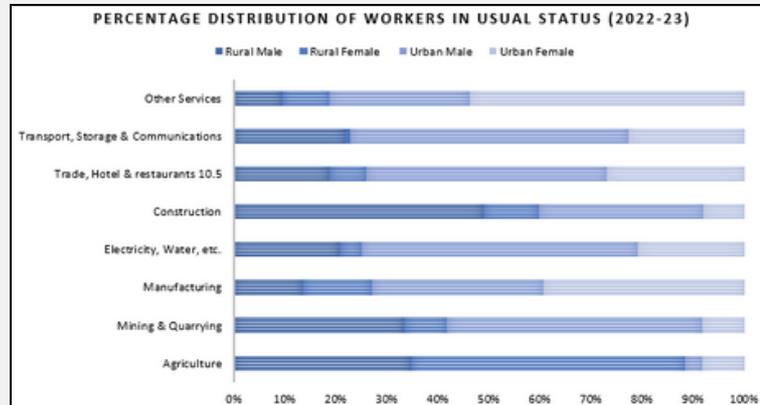


The graph shows that self-employment dominates rural areas (57.1%), while regular wage or salaried jobs are much higher in urban areas (46.6%). Casual labour is more common in rural regions compared to urban ones. Overall, self-employment remains the largest employment type across India.

Source: Periodic labor force survey (Migration in India 2020-2021)

The chart shows the reasons for migration across India (rural + urban) in 2020-21, separated by gender. For males, migration was mainly driven by better employment, work transfers, and education, while marriage overwhelmingly dominated as the primary reason for females.

Other factors like family migration, health, and housing issues contributed modestly for both genders, with males in a darker blue and females in a lighter blue.

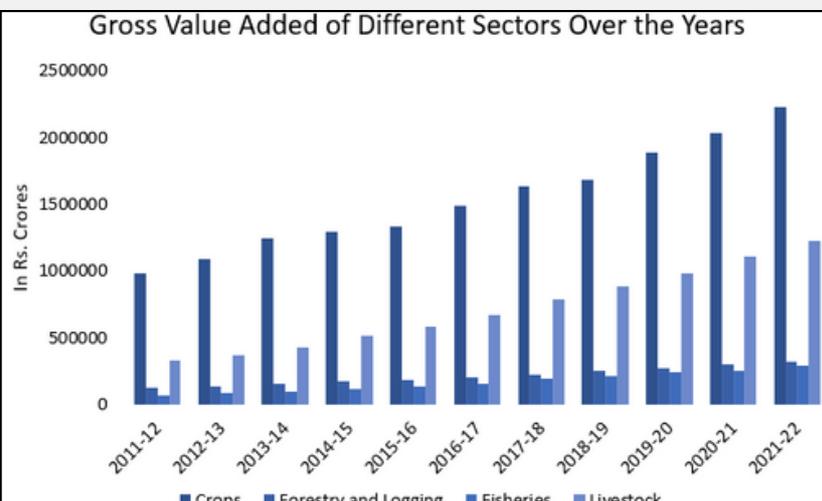


Source: Periodic labor force survey (Migration in India 2020-2021)

SOWING SUCCESS:

THE RISING STORY OF INDIA'S AGRICULTURAL SECTORS

SRISHTI TRIPATHY

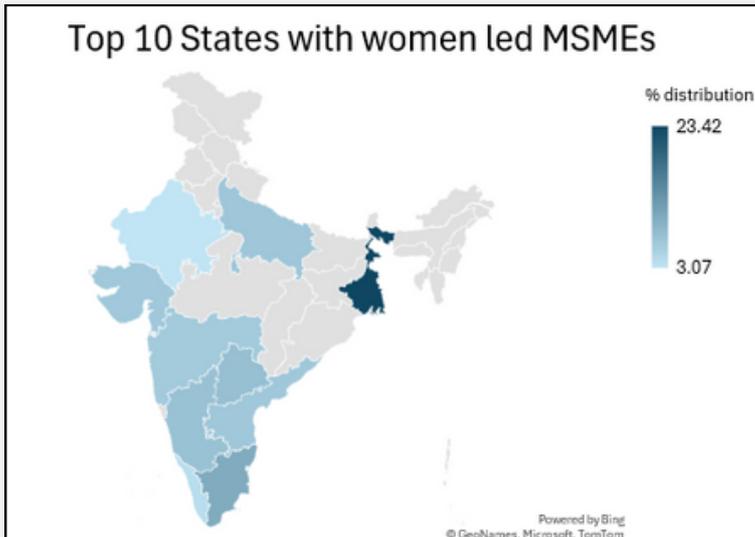


The graph highlights the growth trends in India's agricultural and allied sectors — including Crops, Forestry and Logging, Fisheries, and Livestock — from 2011-12 to 2021-22. All sectors show consistent growth over the decade, with Crops maintaining the lead, while Livestock and Fisheries record particularly strong gains, showcasing the sector's overall expansion.

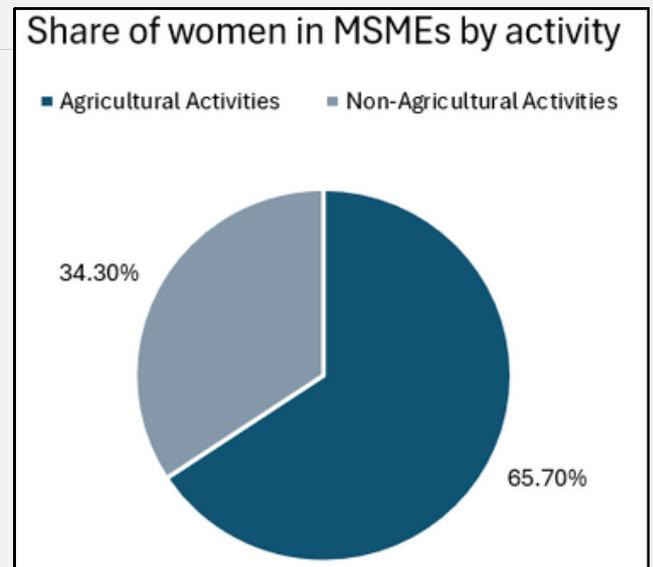
Source - Ministry of Statistics and Program Implementation, GOI

BREAKING BARRIERS: HOW WOMEN-LED MSMEs ARE SHAPING INDIA'S ECONOMY, ONE SECTOR AT A TIME

RICHA CHOUDHARY



The pie chart illustrates the distribution of women-led MSMEs based on their area of activity. A significant majority, 65.7%, are engaged in agricultural activities, indicating the crucial role women entrepreneurs play in the rural economy. Meanwhile, 34.3% operate in non-agricultural sectors, reflecting a growing presence in diverse industries such as manufacturing, trade, and services.



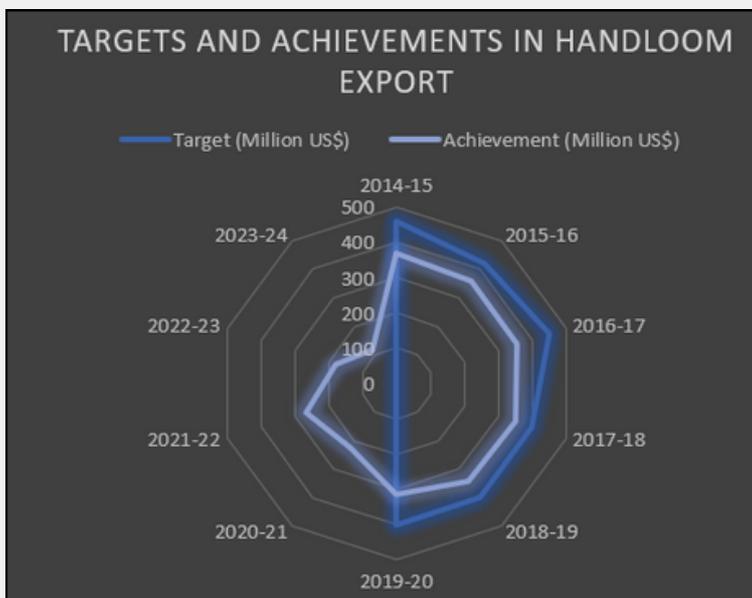
Source - MoMSME Annual Report - 2021-22

The filled map shows the state-wise distribution of women-led Mo-MSMEs in India. West Bengal leads with over 23% of the total, followed by Tamil Nadu, Telangana, and Karnataka. The deeper shades highlight states with higher shares, reflecting regional patterns of women's entrepreneurship across the country.

Source - Sixth Economic Census - 2015 - 16

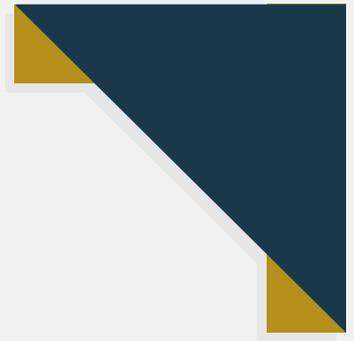
A DECADE OF HANDLOOM EXPORTS: RISING AMBITIONS, DECLINING OUTCOMES.

SRISHTI TRIPATHY



The radar chart illustrates the trends in handloom export targets and achievements from 2014-15 to 2023-24. Initially, annual targets were set and achievements closely followed, though always lower. From 2020-21 onwards, no formal targets were fixed, and export achievements continued to decline sharply, reflecting the increasing challenges faced by the handloom sector in maintaining global competitiveness.

Source - Ministry of Textiles, Handloom Census



From the
***Research
Cell***



GENDER PAY GAP IN INDIA'S GIG ECONOMY

EVIDENCE FROM RIDE-HAILING DRIVERS

KAVYA GOYAL, ADITI LAKRA, SHREYA SINGH

Abstract

This paper examines income disparities between male and female drivers in India's ride-hailing gig economy. Using OLS regression, it reveals a persistent gender earnings gap, not explained by experience or work hours. Qualitative findings highlight structural barriers—such as algorithmic bias, customer discrimination, and safety concerns—that limit women's access to high-paying opportunities. Together, the mixed-methods analysis uncovers how digital platforms reinforce offline gender inequalities. The study underscores the need for transparent algorithms, inclusive platform design, and supportive policy measures to foster equitable participation for women in the gig economy.

Introduction

The gig economy with its short-term arrangements, freelancing, and on-demand provision through digital platforms has transformed the labour market globally. Workplaces like Uber, Amazon Mechanical Turk, and Instacart provide flexible employment that is attractive to a diverse workforce. India's gig economy is transforming quickly, fueled by the growth of digital platforms that provide flexible, on-demand services in sectors such as ride-hailing, food delivery, and home-based services. As of 2022, India's gig economy had around 7.7 million workers, which is expected to reach 23.5 million by 2030, adding around 4.1% to the workforce (NITI Aayog, 2022). However, this new work trend comes with its own complications, especially regarding gender equity. This growth is fueled by the increasing demand for flexible labour and digitization of

service delivery. While the gig economy promises autonomy, flexibility, and income generation, especially for underrepresented groups such as women, it simultaneously presents significant challenges, particularly regarding gender equity. Despite the perception that gig platforms level the playing field by reducing entry barriers and offering work-from-anywhere opportunities, women remain significantly underrepresented in India's gig workforce. In delivery and ride-hailing platforms, fewer than 1% of employees are women (Safetipin, 2024). Social norms, mobility restrictions, caregiving roles, and safety are among the major determinants limiting the entry of women into these occupations (Nanda & Ray, 2023). The gendered division of labour continues to shape the kinds of gig work that women do, which tend to be restricted to caregiving work, beauty, and domestic services—sectors that tend to have lower pay and fewer benefits. Moreover, wage gaps remain an urgent concern. A JPMorgan Chase Institute study (2018) found that female gig workers are paid 7% less per hour than men. Such incoherence is not simply an algorithmic or rating disparity outcome but is also based on inherent systemic social and economic disparities. Female Workers tend to shorten their workday due to family duties, steer clear of late-night work or high-turnover sections in order to escape risk, and encounter discrimination on the part of customers all, of course, decreasing earnings (Zipperer et al., 2022). The issue is especially acute in ride-hailing platforms, where the mobility and visibility of the job cross over

with gender concerns. Attitudes in society against women drivers, unavailability of driver training, and car ownership are added to by safety risks, further deterring women's entry into this arena (Khosla, 2022). Efforts Such as the Azad Foundation's "Women on Wheels" initiative have attempted to tackle these issues by educating women as professional drivers, but the overall presence of women in ride-hailing is still negligible (Azad Foundation, 2021). This study aims to investigate the structural and societal constraints that restrict women's involvement in the gig economy in India, with a specific emphasis on ride-hailing platforms. It will look at how gendered attitudes, safety concerns, technological monitoring, and policy shortcomings contribute to persisting inequalities. Through the use of qualitative and quantitative data, this research seeks to offer actionable recommendations for platform designers, policymakers, and labour rights activists to design inclusive and gender-sensitive gig spaces. Finally, comprehension and redress of these disparities are essential to realizing the complete potential of the gig economy and guaranteeing equal labour engagement in India's changing workforce. This paper aims to investigate how algorithmic bias, customer discrimination, and platform design perpetuate gendered income disparities among ride-hailing drivers in India.

Literature Review

The gig economy, which involves freelance and short-term contract employment through digital platforms, has transformed the contemporary labour market. Though providing unprecedented flexibility, the gig economy also creates new issues surrounding worker monitoring, privacy, pay inequality, and gender disparity. An increasing amount of literature has started to address the implications of monitoring technologies in gig work and their interaction with gendered experience, especially in developing nations such as India. Characterized by short-term contracts, freelance jobs,

and flexible hours, the gig economy has been driven by digital platforms such as Uber, Instacart, Amazon Mechanical Turk (AMT), and Upwork. While these platforms offer autonomy and flexibility, they also introduce complex challenges related to monitoring, worker rights, and gender inequality. This literature review focuses on how digital surveillance technologies affect worker behavior, explores the gender pay gap within gig platforms, and highlights the unique challenges faced by women in India's gig economy. Monitoring, or digital surveillance, is increasingly deployed in gig work environments to address the issue of information asymmetry between employers and workers. Employers often have limited control over gig workers beyond contractual boundaries, leading to concerns about work progress and performance. In response, platforms such as Upwork and Freelancer use tracking tools automatically capturing screenshots, logging work hours, and recording user activity to ensure accountability and facilitate payment protection. This use of monitoring aligns with traditional efficiency wage theory (Akerlof, 1984; Stiglitz, 1987), where compensation is tied to verified effort and output. However, these surveillance methods are not without controversy. Gig workers, especially on platforms like Amazon Mechanical Turk (AMT) and Prolific, often view such practices as invasive. Research indicates that workers are less willing to accept monitored jobs due to heightened privacy concerns, with transparency and control playing mediating roles (Gandy, 1993; Malhotra et al., 2004). Lowering monitoring intensity and offering control (such as deleting sensitive screenshots) may alleviate discomfort, yet these methods are not always effective when surveillance is extensive. Notably, transparency about low-intensity monitoring improves acceptance, but such transparency becomes ineffective when the intensity is high. A study examining workers' willingness to accept monitored jobs found that AMT and Prolific workers demanded approximately \$1.8/hr

and \$1.6/hr extra respectively to offset privacy intrusions—roughly 37.3% and 28.5% of their average wages. These findings reflect a hidden cost of monitoring and highlight the complexity of designing ethical and effective surveillance policies in gig work. Interestingly, the study also uncovered gender-based differences in attitudes toward monitoring: female gig workers were more likely than males to accept monitored jobs. This was attributed to their higher perception of payment protection and relatively lower privacy concerns. These insights illuminate the trade-offs in designing worker-friendly monitoring systems and bring attention to underlying gender dynamics. Despite its gender-blind promise, the gig economy is not immune to the structural inequalities embedded in traditional labour markets. Research reveals that women consistently earn less than men on digital platforms, often due to lower pay expectations and inherited wage disparities from the conventional job economy. A gender-blind online work environment failed to mitigate this, as women's ingrained lower pay expectations translated directly into reduced earnings. Further, gig work often mirrors traditional norms. For instance, studies show that female gig workers in the U.S. earn 7% less than male counterparts, a gap explained by differences in platform experience, geographic work preferences, and safety considerations—rather than intensity of labour or time invested (Cook et al., 2020). These disparities persist even though men and women work similar hours and perform equivalent tasks. In India, where the gender gap is already pronounced, gig work poses both opportunities and risks for women. India's gig economy is poised to grow exponentially—projected to contribute 1.25% to GDP by 2030 and potentially employ 23–25 million workers. Yet, women represent less than 1% of app-based ride-hailing and delivery drivers. Structural barriers such as limited access to resources, safety concerns, social norms, and the burden of unpaid caregiving restrict their participation (Kasliwal,

2020; Ghosh et al., 2022). Women in India engage in freelance and micro-tasking gig roles, often with limited labor protections like minimum wage guarantees or health insurance (Zipperer et al., 2022). The gig economy can potentially empower women by offering flexible schedules that align with family responsibilities. However, societal and infrastructural challenges—including low digital literacy, patriarchal norms, and inadequate safety measures—undermine this potential (NIPFP, 2019). Safety concerns are particularly acute. Female gig workers report incidents of harassment and lack effective redressal mechanisms. Programs like the Azad Foundation's "Women on Wheels" seek to empower women through skill development and training, but such efforts are relatively limited in scale. Research underscores the need for targeted policies that address discrimination, improve access to finance, promote safe working environments, and support systems such as childcare (ODI, 2020; OECD, 2021). Importantly, digital monitoring can serve a dual purpose for women: while it may intrude on privacy, it can also offer payment protection and safety assurance. The gendered response to monitoring, as noted earlier, suggests that women may tolerate surveillance if it ensures fair compensation and job security. However, this does not imply that surveillance is a universal solution. Monitoring must be paired with worker control, transparency, and platform accountability to create inclusive environments. The objective of this paper is to address the research gap on how digital labour platforms, particularly in the Indian ride-hailing sector, reproduce and intensify offline gender inequalities through algorithmic design and customer behavior, an area that remains underexplored in existing gig economy literature.

Data and Methods

The paper is based on secondary data, which includes the Labour Bureau of India, the



International Labour Organization (ILO), and the Periodic Labour Force Survey (PLFS) from the Ministry of Statistics and Programme Implementation (MoSPI) for 2022–24. Besides, various journal articles, reports, and Books are used in it. The simulated micro-level dataset of 1,200 drivers, reflective of national-level aggregates reported by the Labour Bureau of India, is for analysis. To better understand income disparities in India's ride-hailing gig economy, this study uses Ordinary Least Squares (OLS) regression. This method helps estimate the specific impact of gender on monthly earnings while accounting for important factors like driving experience and hours worked per week. By doing so, the analysis aims to see if a gender pay gap still exists even when key work-related inputs are similar. This approach moves beyond surface-level explanations and looks at deeper structural issues, like algorithmic bias or customer discrimination, that may hold women back. By focusing on these systemic barriers, the study fills an important gap in existing research and sheds light on how digital platforms might reinforce old inequalities in new ways.

Key variables include:

- Gender (binary; 0 = Male, 1 = Female)
- Monthly Earnings (INR)

Driving Experience (in years)

- Weekly Working Hours
 - Number of High-Value Trips (e.g., airport, surge pricing)
- The model specification follows a standard Ordinary Least Squares (OLS) regression:

$$\text{Monthly_Earnings} = \beta_0 + \beta_1(\text{Female}) + \beta_2(\text{Experience}) + \beta_3(\text{Hours_Worked}) + \epsilon$$

This model estimates the impact of gender on monthly earnings while controlling for productivity proxies such as experience and labour input. All assumptions for OLS were verified, and the model demonstrated strong explanatory power (R-squared = 0.72). Narratives were selected from secondary ethnographic

research and media reports covering ride-hailing drivers across five Indian metro cities—Delhi, Mumbai, Bengaluru, Hyderabad, and Kolkata. Interview themes include ride cancellations, safety experiences, access to high-value trips, and perceptions of algorithmic fairness. Thematic analysis was employed to extract key patterns related to structural bias, safety-induced self-restriction, and algorithmic discrimination. These qualitative insights contextualize the earnings gap and underscore the lived experiences behind the statistical trends.

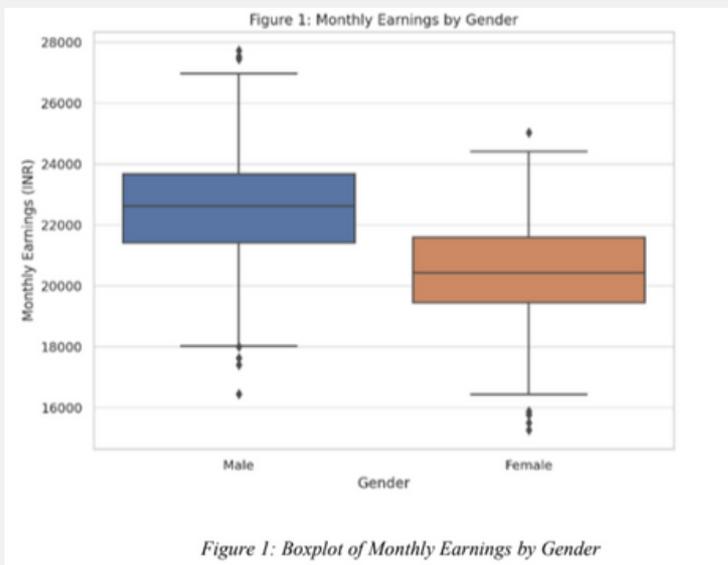
Results and Discussion

OLS Regression Results (N = 1,200)

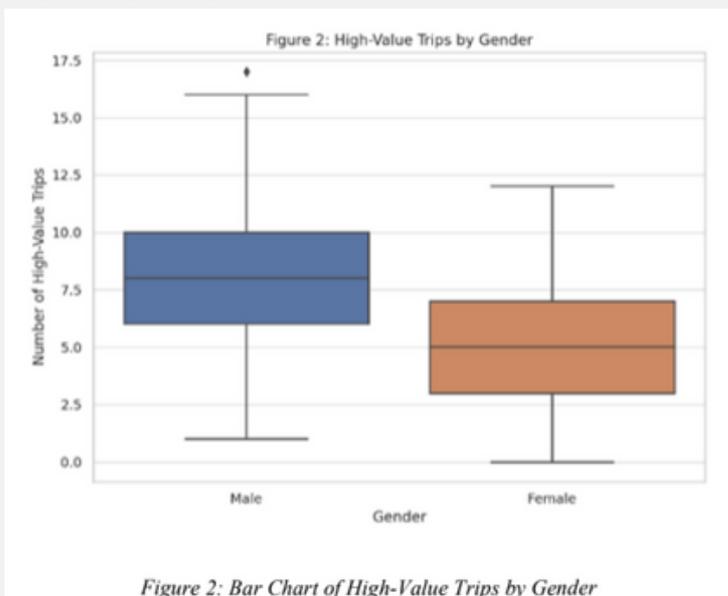
Variable	Coefficient	Std. Error	t-Stat	p-Value
Intercept	₹15,170	167	91.03	0
Female	-₹2,122	71.5	-29.68	0
Experience	₹499	14.7	33.85	0
Hours/Week	₹96.35	2.94	32.79	0

The regression analysis shows a clear and statistically significant income gap. Female drivers, on average, earn ₹2,122 less per month than male drivers, controlling for experience and working hours. Each additional year of experience adds ₹499 to earnings, and each extra hour of work per week contributes approximately ₹96.35. All variables are significant at the 1% level, and the model's R-squared value of 0.722 indicates a strong fit.

These findings are visually supported by a boxplot of monthly earnings, which reveals that women earn less and experience lower income variability, implying fewer high-paying opportunities. A bar chart comparing high-value trips further highlights that male drivers dominate in airport pickup and surge-fare rides.



A boxplot of monthly earnings by gender illustrates a lower median income for female drivers and a compressed income distribution, suggesting that women earn less and miss out on higher-paying outliers.



Complementing this, a bar chart of high-value trips (such as airport or surge-fare rides) shows that male drivers overwhelmingly dominate these lucrative categories. These figures suggest that platform dynamics or customer biases may be skewing access to higher-paying opportunities in favor of men.

Thematic analysis shows that:

- **Customer Discrimination:** Female drivers frequently reported ride cancellations after customers recognized their gender, leading to income loss.
- **Restricted Access to Lucrative Routes:** Women are often excluded from airport pickups or late-

night trips by choice (due to safety) or algorithmic preference.

- **Safety and Platform Design:** Women drivers preferred working shorter hours or specific time slots/zones due to safety concerns, indirectly affecting earnings. Some cited a lack of effective platform-level support for female drivers. The combined quantitative and qualitative evidence robustly supports the hypothesis that female ride-hailing drivers earn significantly less due to systemic and algorithmic biases. The regression analysis confirms statistically significant disparities, while interviews provide grounded, narrative-based validation of the mechanisms driving these differences.

The findings emphasize the need for platform transparency, proactive gender-inclusive algorithmic design, and targeted policy interventions to reduce the structural earnings gap in the ride-hailing sector.

Causes: Algorithmic Bias and Customer Discrimination

The persistence of gender disparities in India's ride-hailing gig economy stems largely from algorithmic bias and customer discrimination, compounded by deep-rooted socio-cultural constraints.

Algorithmic bias arises when platform algorithms unintentionally reproduce historical inequalities. Ride-hailing platforms like Uber and Ola use automated systems to assign rides, evaluate driver performance, and determine incentive structures. These systems often rely on historical data that reflects existing gender imbalances. For example, if male drivers have historically received more lucrative rides, such as airport transfers, the algorithm may continue favoring them, further marginalizing female drivers (Lambrecht & Tucker, 2019). Moreover, algorithms that reward drivers for availability, long working hours, and low cancellation rates may inadvertently penalize women, who often face constraints related to safety, caregiving responsibilities, and restricted mobility (Bansal, 2023). At the same time, customer discrimination plays a significant role in

shaping earnings and work opportunities. The study revealed that riders frequently cancel trips upon seeing that the assigned driver is a woman, citing concerns about safety or driving ability. These cancellations negatively affect a driver's rating, ride frequency, and income potential. Studies have also found that female drivers are often assigned fewer high-revenue trips, contributing to an overall pay gap (Fairwork, 2023; Ge et al., 2016). Finally, offline socio-cultural norms reinforce these digital inequities restricting women's gig work participation. Gendered expectations, concerns around harassment, and lack of access to night-time work further reduce the pool of female drivers, leading to a self-reinforcing cycle of exclusion (AI Equality Toolbox, 2023).

Conclusion and Suggestions

Addressing gender disparities in India's ride-hailing gig economy requires a multi-pronged policy approach that tackles platform-level design and broader systemic constraints. Two immediate areas of intervention include platform accountability mechanisms and targeted support for female drivers. Firstly, mandatory gender pay audits should be introduced as part of regulatory oversight for gig platforms. These audits would require companies like Uber and Ola to publicly disclose disaggregated data on driver earnings, ride assignments, and performance ratings by gender. Such transparency can identify pay gaps and create pressure for corrective action. Similar measures in the UK and EU have shown that public pay disclosures can influence organizational behavior and reduce gender inequality (European Institute for Gender Equality [EIGE], 2020).

Secondly, platforms should adopt inclusive design policies, such as a "Women Rider Preference" feature, which Uber has already piloted in India. This feature allows female drivers to accept rides exclusively from female passengers, improving safety and participation (Fairwork, 2023). In addition, incentive schemes tailored to female

drivers, such as flexible working hours, fuel discounts, and vehicle leasing programs, can help reduce entry barriers and support sustained participation (Bansal, 2023).

Beyond safety features, financial incentives such as subsidized vehicle leasing, low-interest loans, and platform-specific bonuses can encourage more women to take up ride-hailing as a viable livelihood. These are especially important given that many women lack vehicle ownership or credit access, particularly in lower-income urban and peri-urban areas (Bansal, 2023). Additionally, platforms could introduce flexible shift options and childcare credits to accommodate domestic responsibilities, which disproportionately fall on women. In South Korea and parts of Latin America, platform companies that offered flexible payout options and maternity support observed improved gender participation rates (World Bank, 2021). Governments and municipal authorities can also collaborate with platforms to provide safe transit hubs, access to affordable driving schools, and awareness campaigns that normalize female drivers in public spaces. These interventions would reduce occupational segregation and challenge entrenched gender norms. In sum, policy solutions must focus on embedding equity into the design and governance of platform economies, ensuring that digital innovation contributes to, rather than detracts from, gender-inclusive growth.

India's gig economy, particularly within the ride-hailing sector, represents both opportunity and challenge for women workers. While the digital platform economy promises flexibility, autonomy, and increased income avenues, it also reproduces and amplifies existing gender disparities. This study has shown that women continue to be significantly underrepresented in ride-hailing platforms, earning less and facing greater constraints due to systemic, algorithmic, and social barriers. These patterns point to a broader structural issue within the platform economy where digital systems are not neutral but often mirror offline hierarchies. The study



calls for a multidimensional response to bridge this gender gap. Platform companies must move beyond surface-level interventions and commit to deeper structural changes that embed equity in design and implementation. Transparent data-sharing mechanisms, such as gender-disaggregated pay and ride allocation audits, are essential. Without platform-level transparency, it is difficult to identify disparities, hold platforms accountable, or design effective solutions. Moreover, inclusive features like women-rider preference options, flexible incentives, subsidized vehicle access, and safety infrastructure can significantly improve women's participation. Public policy must also play a supporting role, creating enabling environments through regulatory oversight, financial inclusion schemes, and gender-sensitive urban planning. Ultimately, realizing the inclusive potential of the gig economy requires centering women's voices, addressing algorithmic discrimination, and making transparency a core principle of platform governance. Only then can digital labor platforms evolve into equitable spaces that support all workers in a rapidly transforming economic landscape.

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BEYOND BORDERS

TRACING INDIA'S MIGRATION FROM SURVIVAL TO STUDENT EXODUS

ANYA BHAGAT, JYOEETA ALEX

“Migration is an expression of the human aspiration for dignity, safety and a better future.”

— Ban Ki-moon

Migration has long been a part of India's social and economic history, taking different forms across time. From people moving out during colonial times in search of work and survival, to today's students heading abroad for degrees and better opportunities, the reasons may have changed—but the desire for a better life remains constant. In recent years, one of the most noticeable shifts in India's migration pattern has been the rise in student migration. As educational opportunities within India face limitations in terms of quality and career prospects, many Indian students seek higher education in foreign countries, particularly those with advanced educational systems, better career opportunities, and higher living standards.

This article traces the evolution—from the struggle for livelihood to the modern student exodus—situating it within broader historical and economic contexts. It examines the core drivers of the surge in overseas education, highlights its consequences—from household financial strain to brain drain—and proposes policy solutions to harness its potential for both personal growth and national development.

Background

Migration from India has been happening since the beginning of civilization. In the past, it was primarily limited to merchants and sailors. However, over the last two centuries, it has evolved in both scale and nature.

Though migration became a common phenomenon during the pre-independence period, the proportion of the migrants returning back to their home country was also not less. Of the 30 million migrants who had left the country before independence, an estimated 24 million returned to the country. There are various causes attributed to their massive return; unfamiliar cultural environment and hostility from the natives are cited as some of the important causes (Vertovec 1995, Thiara 1995).

The migration during the pre-independence period can be segregated into different phases. The initial phase was constituted by the indentured labour migration primarily to Mauritius, Natal, and Fiji during the period 1834–1910. More than a million Indians were deported to these colonies as cheap and unskilled labourers to support their primary cultivation of sugar. According to Thiara (1995), there exists a crucial connection between British expansionism and the international commoditization of Indian labour. The introduction of landlordism, excessive revenue demands, commercialization of agriculture, change in rent in kind to rent in cash, decline in indigenous handicrafts, discriminatory taxation on Indian goods, and persistent famines and pestilence were among the many reasons for migration, which offered the only avenue of hope to many. While all sectors of the Indian society were affected by these profound changes, it was the lower agricultural classes, which predominated among the recruits, which were the worst affected (Rajan, 2010). This system of indentured labour was finally abolished in 1920.

The system that succeeded this indentured labour was the kangani system which constitutes the second phase of pre-independence migration from 1910-1935. This system usually included a short-term contract, which was primarily oral rather than written and was partially under the control of the kangani, or the head man, who was both the recruiter and the field foreman. One effect of this method of securing Indian labour was to encourage the transplantation of Indian culture to new regions. In Ceylon and Malaya, the south India coolie acquired a paternalistic security that he did not have in India, which enabled him to live within his own community, among neighbours and relatives from his homeland, without greatly disturbing his native customs (Rajan, 2010). By 1936, the Kangani system was formally abolished. Though the third phase of pre-independence migration is said to be started from 1936, there always existed a parallel stream of individual migration. Unlike the other two systems, free or passage migration was completely voluntary and was undertaken by educated, technological professionals and the trading classes. All of this indicates that during the colonial period, the economic needs of the imperial powers determined the direction of the flow of migrants.

The movement of people during the post-colonial period has been influenced by the economic benefits accruing to both migrants and their hosts in the country of destination. While Indian migration during the colonial period was involuntary, it became voluntary following independence. During post-independence, there were three major channels of migration, namely, low- and semi-skilled migration, mainly to the Middle East; migration of the highly skilled to developed countries, especially to the US; and cross border student mobility to seek higher education and to remain in the host countries to become part of the Indian diaspora (Varghese & National Institute of Educational Planning and Administration, n.d.).

In the recent past, study abroad programmes have been an important route for migration of professionals. One of the characteristics of Indian students abroad is that they prefer to work in the host country after graduation. The return plans of doctoral graduates from US universities revealed that nearly 90% of Indian students would prefer to stay in the US (Kapur and McHale, 2005). A more recent survey by the US National Science Foundation revealed that about 80% of students from India and other Asian countries choose to remain in America after completing their graduate and doctoral studies. Furthermore, students from India accounted for 14% of all temporary visa holders earning doctorates at US colleges and universities in 2015 (Zong and Batalova, 2017). These surveys reinforce earlier findings that cross-border education, especially student mobility, has become fertile ground to recruit the highly skilled workers of the future in many developed countries (Tremblay, 2002).

Migration during pre-independence times to pursue higher education was very rare and primarily included internal migration which involved students seeking higher education, often in European-style institutions established by the British, with destinations like Bombay, Calcutta, and Madras, and later, to other cities within India. Even during the initial years after independence, student migration was not that common. However, during the later years, we see the graph shooting up to millions of students migrating in a year. Nearly 305,000 Indian students were pursuing higher education abroad in 2018, with the country's share of international students increasing from 2.3% in the year 2000 to 6% in 2015. The US, Australia, Canada, the UK, UAE and New Zealand host more than 70% of Indian students abroad (Varghese, 2017).

Post-study visa facilities and employment opportunities are the main factors influencing students' decisions in choosing a destination country (Varghese, 2013). This is evident from the decline in the student flow to the UK when the post-study visa rules changed and the fact that the flow increased dramatically when the country revised these rules in 2019 (Varghese, 2019). It shows that a foreign degree enhances employment opportunities (Naukri.com, 2023) and returns on investment when the student is employed in the host country.

Drivers of Student Migration

The decision to pursue overseas education among Indian students is shaped by a complex interplay of domestic push factors and attractive pull factors from host countries. On the domestic front, limited quality job opportunities—particularly in Tier 2 and Tier 3 cities—often leave graduates underemployed (NSSO, 2023; World Bank, 2023) or in low-paying roles, despite holding advanced degrees. Additionally, a persistent mismatch between academic curricula and industry demands pushes students to seek global education that promises better skill alignment and employability. For many families, especially in Punjab and parts of southern India, sending a child abroad is also a symbol of upward mobility and a strategic path to citizenship in developed countries. The scarcity of seats in premier Indian institutions like the IITs and IIMs further fuels this trend, making international education a desirable alternative for middle- and upper-middle-class households. On the other hand, destination countries offer compelling incentives—world-class institutions such as MIT, Stanford, and the University of Toronto provide high-quality education, while generous post-study work visas in countries like Canada and Australia allow for valuable job experience and smoother transitions into permanent residency. A foreign degree also significantly boosts global

employability, with an estimated 35% increase in job prospects within competitive fields like consulting and finance (Naukri.com, 2023).

Destinations and Regional Trends

According to ICEF Monitor (2024), Indian student preferences in 2024 are concentrated in five major study-abroad destinations. The United States is the leading destination (42%), followed by Canada (28%), Australia (12%), the United Kingdom (10%), and other countries (8%). The domestic distribution of student migration shows significant regional patterns. Punjab leads with 35% of outbound students, a trend attributed to the ongoing agrarian crisis driving youth exodus (Ministry of External Affairs [MEA], 2024).

Andhra Pradesh and Telangana collectively account for 22%, reflecting their status as IT and pharmacy education hubs. Maharashtra contributes 10%, characterized primarily by urban elites targeting MBA programs abroad.

Economic and Social Consequences

The outflow of Indian students for overseas education carries significant economic costs at both macro and micro levels. One of the most prominent concerns is the phenomenon of brain drain. With nearly 72% of IIT postgraduates emigrating, India is witnessing the large-scale loss of top-tier talent (George, 2023; AISHE, 2023), especially in critical STEM fields. This exodus exacerbates the country's existing research and innovation gap—India's investment in R&D remains at 1.8% of its GDP, well below the US's 3.5%, curbing its potential for technological advancement. George (2023) quantifies the annual fiscal loss due to non-returning STEM graduates at \$3.2 billion, underscoring the scale of this structural deficit. While remittances and diaspora entrepreneurship—18% of Indian unicorn startups are founded by diaspora members—provide partial economic offsets, the domestic labor market suffers in key sectors.



For instance, despite remittances contributing nearly 20% to Kerala's state GDP, skilled vacancies in agriculture remain as high as 30%. At the household level, the financial burden is acute. Families borrowed an estimated \$6.8 billion in education loans in 2023, with 14% becoming non-performing assets (RBI). Many of these loans are backed by gold or family property, intensifying financial vulnerability among middle- and lower-income households. In states like Punjab and Kerala, the reliance on high-interest informal credit further entrenches families in long-term debt cycles. Moreover, Brezis (2016) notes that while academic prestige is a key driver for international migration, the returns on this investment are not always linear. 12% of returnees report that their foreign qualifications are underrecognized in the Indian job market (AISHE, 2023), particularly in regulated sectors like law, medicine, and education. In addition to economic strain, the social consequences of large-scale student migration are profound and often under examined. The emotional and psychological toll of long-term separation from one's family, culture, and home environment leads to acculturation stress, identity conflicts, and a diminished sense of belonging. Existing research suggests that such stress reduces return rates by 15–20%, but the absence of standardized metrics—such as a “Homesickness Index” or adaptation scale—hampers comparative assessment and policymaking (George, 2023). In high-migration communities like rural Punjab, these effects are compounded by declining youth engagement, disrupted family dynamics, and a hollowing out of local entrepreneurship ecosystems. The aspirational nature of international education reinforces a symbolic hierarchy where domestic institutions are viewed as fallback options, thereby undermining the legitimacy of Indian higher education. Furthermore, Assari and Zare (2024) highlight that socioeconomic disparities—especially caste-based—continue to shape the migration experience.

Their study finds that Scheduled Castes derive significantly lower economic returns from higher education than Upper Castes, suggesting that the benefits of overseas migration are unevenly distributed and may reinforce existing social inequalities. Collectively, these insights point to the urgent need for a multidimensional policy framework that not only improves financial access and institutional recognition but also supports the emotional well-being and equitable reintegration of returning students.

Future Directions and Policy Pathways

Addressing the multifaceted consequences of student migration requires innovative policy solutions rooted in sound economic theory. One promising model is the Human Capital Contract (HCC), commonly operationalized through Income Share Agreements (ISAs). Under this mechanism, private investors finance students' education in return for a fixed share of their future income over a specified period. This structure mitigates household debt burden by shifting risk from families to investors, while maintaining strong incentives for student success. Purdue University's “Back a Boiler” program is a notable success, reporting an impressive 85% repayment rate, and India is poised to experiment with this model—State Bank of India's 2025 pilot for STEM students may mark a turning point in higher education financing.

A second strategy involves the creation of Diaspora Knowledge Bonds, sovereign instruments targeting Non-Resident Indians (NRIs) who wish to invest in India's development. These tax-free bonds, offering attractive returns of 5–7%, could channel dormant diaspora capital into critical sectors like research and innovation. The Israeli experience—having raised \$50 billion through diaspora bonds since 1951, funding nearly 30% of its tech sector—demonstrates the transformative potential of such initiatives.

In the Indian context, these funds could support the development of “Innovation Corridors” in hubs like Bengaluru and Hyderabad, further incentivized by tax breaks and repatriation benefits for returning professionals.

To reduce the volume of outbound student migration and associated foreign exchange losses, India could strengthen Import Substitution in Education. The National Education Policy (NEP) 2020 has laid the groundwork for inviting prestigious global universities to establish campuses within India. If just 20% of potential migrants opt for these domestic branches, the country could retain approximately \$2 billion annually in foreign exchange (NITI Aayog, 2024). Deakin University’s upcoming campus in GIFT City, Gujarat, offering MBA programs at nearly half the cost of its Australian counterpart, serves as a viable proof of concept for this strategy.

Finally, India could explore Skill Bonds with Repatriation Clauses, modeled on Singapore’s tuition grant system. These would mandate students who receive government subsidies or scholarships to contribute 2–3 years of service to Indian institutions post-graduation. Such a policy could help recover 30–40% of public investments in education while ensuring a temporary return of skilled talent. While preserving the individual’s right to international mobility, this mechanism reinforces a social contract that balances national investment with equitable contribution. Together, these strategies offer a multi-pronged framework to manage the economic, developmental, and demographic implications of India’s growing education migration trend.

Conclusion

For many Indian students today, overseas education is more than just a degree—it’s a ladder to upward mobility, a ticket to global opportunity, and often, a family’s collective dream. Yet, it also comes with a price—both financial and emotional—that’s not always visible at first glance.

Seen through the broader lens of India’s migration history, this wave of student migration is both a continuation and a departure. Where past generations left home in search of labour and survival, today’s youth leave in pursuit of global exposure, professional growth, and a certain prestige that comes with foreign credentials. But behind these aspirations lie deeper questions—who truly gains from this journey? Who is able to make it, and who is left behind in the race? And more importantly, what is the real cost—to families, to communities, and to the nation’s future? This shift calls for more than celebration; it demands reflection.

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THE MATERNAL EQUATION

EMPLOYMENT, EMPOWERMENT, AND THE NUTRITIONAL FUTURE OF INDIA'S CHILDREN

AYUSHI LADDA, SANVI KHANDELWAL, IRENE MARIAM JOHN, MILIN MARY MATHEW AND DR. SHYMA JOSE

Abstract

The research investigates the relationship between maternal well-being and child nutrition in India, focusing on maternal autonomy, their mental health and household income. Based on existing literature and national datasets such as National Family Health Surveys, the paper analyses the socioeconomic and psychological aspects of maternal well-being that influence child nutrition. The findings suggest that as maternal employment increases, women's autonomy over decision making and financial stability has improved but the opportunity cost for this has been reduced caregiving time due to absence of supportive workplace policies. In a similar vein, constrained household financial resources impede the maternal dietary intake, thereby exerting an indirect influence on child health outcomes. Maternal mental health issues such as postpartum depression, significantly hinder the delivery of sufficient care and nutrition. The research emphasizes the imperative for gender-sensitive, nutrition-focused, and cohesive employment policies. Addressing these challenges is vital for enhancing child nutrition and achieving sustainable development objectives pertaining to health, gender equity, and the reduction of poverty.

JEL Classification Code: J13, I14, I18

Introduction

Child nutrition is a fundamental indicator in determining broader developmental progress. It acts as the barometer and benchmark of public health and human capital formation.

India continues to have high rates of child undernutrition, stunting, and low birth weight and continues to remain prevalent despite significant efforts undertaken for alleviating poverty and empowering women.

Maternal health shapes a child's nutrition, as it is intrinsically related to the mother's autonomy, employment status, mental health, and household income. Current national surveys, such as the National Family Health Survey (NFHS) -4 and the subsequent NFHS-5, reveal enhancements in the authority and decision-making capabilities of women; however, it is vital to acknowledge that enduring challenges and systemic obstacles persist in the effective actualization of these advancements into tangible improvements in health outcomes for both mothers and their children.

Against this backdrop, the paper tries to answer three main research questions: (1) Does maternal employment enhance or hinder child nutrition outcomes and the financial stability of women? (2) In what manner does maternal mental health affect caregiving behaviours and the nutritional outcomes for children? (3) What importance does household income hold in the assessment of maternal nutritional health and, as a result, the nutritional status of a child?

The investigation employs a qualitative and review-oriented methodology using the National Family Health Surveys (NFHS-4, NFHS-5) alongside secondary literature from both the Indian and international contexts.

The paper is organised in five sections. Section 2 amalgamates findings from pre-existing literature. Sections 3 and 4 concentrate on a distinct determinant of maternal welfare and its association with child nutrition. Lastly, the concluding section 5 offers policy recommendations grounded in the aggregated insights derived from all three dimensions.

Literature Review

The United Nation's Sustainable Development Goals (SDGs) have brought women's empowerment to the forefront of development reforms. The benefits of women's empowerment are not limited to increased financial stability and autonomy, they extend to child nutrition as well. Empowered women allocate more resources to health and nutrition (Santosa et al., 2019). Higher maternal income increases women's control over household resource allocation (Bennett, 1988). The degree of autonomy in health and dietary decisions is significantly associated with improved nutritional status among children (Shroff, 2009). In India, there has been an upward trend in women's participation in financial decision-making (NFHS-4 & NFHS-5), suggesting a beneficial correlation between maternal autonomy and nutritional outcomes for children.

Although maternal employment fosters financial security and autonomy, it simultaneously impacts exclusive breastfeeding (EBF) practices and child nutrition, particularly within low-income contexts. Informal employment disrupts EBF due to inadequate workplace support, while formal employment reduces breastfeeding duration as a result of insufficient maternity protections (Chowdhury et al., 2021). Socio-economic inequalities linked to nutritional inadequacies among lactating mothers affect child nutrition, raising risks of malnutrition and stunting, particularly for the youngest (Gupta et al., 2024). While flexible work arrangements could improve childcare, they often result in decreased earnings

(Debela et al., 2021). Kimbro (2006) highlights the necessity of gender-sensitive workplace policies to facilitate caregiving and professional duties. Such measures can alleviate the adverse impacts of maternal employment on child nutrition.

Unemployment and mental health issues further aggravate these challenges. Existing literature emphasises that improving maternal nutrition necessitates strategies that extend beyond mere knowledge dissemination. A comprehensive policy framework is important, one that enhances food assistance systems, promotes nutritional education, and tackles systemic disparities in income and food access. Maternal mental health, while a significant determinant of child nutrition, is highly neglected. Research demonstrates that women are more vulnerable to common mental disorders such as anxiety and depression during the perinatal period (Khan, 2004). Wilson (2022) posits that approximately one in five individuals giving birth worldwide face perinatal mental health challenges, a scenario exacerbated by racial and socioeconomic inequities in healthcare. Women in both developed and developing countries experience maternal mental health challenges that are linked with financial stress (Jungari 2024). Wickham (2017) reports that transitions into poverty heighten parental stress and socio-emotional difficulties in offspring. The Alberta Pregnancy on Outcomes and Nutrition (APrON) study indicates that maternal stress and poor nutrition during pregnancy can adversely affect child development. (Leung et al., 2019)

The long-term repercussions of unaddressed maternal mental health issues disrupt mother-infant bonding, breastfeeding practices, and emotional growth, emphasising the importance of focused mental health interventions during and post-pregnancy.

Another important factor that affects maternal and child nutrition is food insecurity among expectant mothers, which represents a critical

global health concern, shaped by a myriad of socioeconomic and structural determinants.

Research conducted in Dhaka reveals that despite nutritional awareness, economic volatility and escalating food prices result in poor diet quality among women (Diamond-Smith et al., 2016). This predicament is evident even in high-income countries. NHANES data (2007–2018) from the United States disclosed that more than 95% of women of childbearing age were deficient in vital nutrients, with food-insecure women facing an increased susceptibility (Pathak et al., 2007).

Qualitative research has highlighted the difficulties encountered by low-income mothers, which encompass elevated stress levels, restricted time for meal preparation, and inefficiencies within food assistance programs (Kapil et al., 2002). In India, rural pregnant women experience critical micronutrient deficiencies, attributable to poverty, insufficient dietary diversity, and limited access to health services (Choudhary et al., 2007).

Based on the extensive review, the paper hypothesises that greater maternal autonomy and decision-making power are positively associated with improved child nutrition outcomes. Increased maternal employment is linked with a decrease in child nutritional outcomes. Through our analysis, we also test whether poor maternal mental health correlates with lower child nutrition outcomes due to disrupted caregiving behaviours. Another issue we gauge is whether higher household income enables better maternal nutrition during lactation, which positively affects child health.

Mother's Autonomy and Employment Effect on Child Nutrition

Maternal autonomy and employment are key indicators of women's empowerment, yet their influence on child nutrition is varied. Autonomy encompasses various dimensions, including financial control, mobility, healthcare access, and independent agency. NFHS in India indicate a rise in women's involvement in household

decision-making, particularly in healthcare and purchasing matters (Table 1).

The correlation between autonomy and child nutrition is complex and not linear. Limited financial control for women is linked to inadequate child nutrition. Paul (2022) indicates that maternal autonomy correlates with reduced child malnutrition, including stunting, wasting, and underweight statuses. For instance, according to NFHS-5, states like Uttar Pradesh and Meghalaya rank the lowest in child nutritional outcomes. Evidence suggests regions exhibiting lower levels of women's financial autonomy have documented an increase in the prevalence of food wastage, underweight conditions, and stunting. However, analysing the NFHS-5 shows that Meghalaya is an anomaly as higher maternal autonomy is not positively associated with child nutrition status. Maternal employment not only impacts autonomy, but it also impacts child nutrition. Between NFHS-3 (2005–06) and NFHS-5 (2019–21), maternal employment declined from 35.4% to 25.4%, and during this time, exclusive breastfeeding rates (EBF) rose, underweight and stunting prevalence decreased, and children receiving adequate diet increased (Table 1). Maternal employment is positively related to stunting and underweight. An increase in EBF is inversely correlated with stunting and underweight, thereby suggesting its protective effects. This implies that a reduction in maternal employment, when not backed by appropriate workplace support, may enhance nutritional outcomes by extending the duration of breastfeeding. These outcomes are also influenced due to the employment type. Formal employment offers stability and security, but reduces EBF duration due to a lack of appropriate maternity provision. In contrast, informal employment offers flexibility but lacks maternity benefits, eventually compelling mothers to allot limited time towards child nutrition. While maternal autonomy is crucial for improving child

nutrition, its effect depends on the context—employment type, childcare facilities, and maternity benefits.

Table 1- Employment, Autonomy and Child Nutrition Indicators

Indicator	NFHS-3 (2005-06)	NFHS-4 (2015-16)	NFHS-5 (2019-21)
Maternal Employment (%)	35.4	24.6	25.4
Women with autonomy to take decisions regarding household purchases (%)	53	73	80
Women with greater control on money and credit (%)	45	42	51
Children under 6 months exclusively breastfed (%)	46.3	54.9	63.7
Stunting (height-for-age) in children under 5 (%)	48	38.4	35.5
Underweight (weight-for-age) in children under 5 (%)	42.5	35.8	32.1
Children (6-23 months) receiving adequate diet (%)	8.8	9.6	11.3

Mother's Mental Well-Being Influence on Child Nutrition

Mothers' caregiving relationships are shaped not only by their work, autonomy, and economic security, as previously noted, but also by a highly significant—yet often overlooked—determinant of child nutrition: maternal mental health.

Depression, anxiety, and stress are just some of the maternal mental health conditions that will interfere with critical feeding and care procedures necessary for regular child development. Aside from extending complementary meal introduction and restraining exclusive breastfeeding, poor maternal mental health during this time also distorts feeding mealtime patterns and puts children at a greater risk for malnutrition and delayed development.

Stressors like economic insecurity, social isolation, and poor access to healthcare will affect mental health and diet. Economic insecurity, as per research, has been connected with heightened parental stress that is manifested in inappropriate feeding and poor nutrition. For instance, the APrON study found that maternal stress and poor nutrition during pregnancy can erode the physical and cognitive development of children.

Frustration and low energy may lead to inadequate care, feeding delays, and inadequate nutrition. This becomes a cycle wherein poor maternal health affects child nutrition negatively. These issues are especially worse in low-resource environments, when economic troubles and bleak treatment of mental health, along with the absence of a support system, compound on child and maternal effects. Maternal mental illness problems are usually not diagnosed and treated, due to stigma and poor integration of maternal and mental health services.

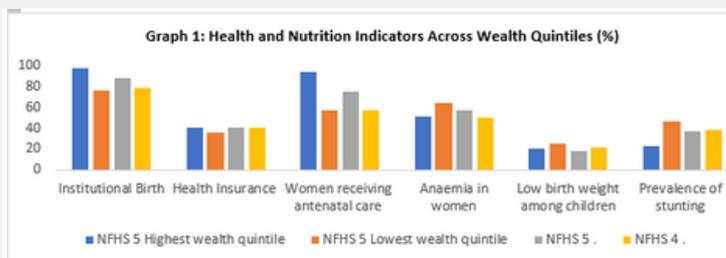
Maternal mental health is a public health issue that has long-term consequences for infant feeding. To enhance the health of mothers and children, there is a requirement for a joined-up approach that brings together psychological health and improved nutrition. Household Income Effect on Mother's and Child's Nutrition Maternal and child health are both highly vulnerable during pregnancy. Health is largely decided by nutrition, and nutritional access depends on household income. In India, access to nutritious food and supplements such as iron and folic acid, especially during the antenatal period, is varied due to economic inequalities. NFHS-5 also indicates that high-income households (HIH) experience better health outcomes, better access to healthcare resources, including institutional births, health insurance and antenatal care, etc. Households with low income experience inadequate nutrition and thereby face further consequences. All of these significantly impact maternal and child nutrition. We see that HIHS, indicated by the highest wealth quintile has better nutritional outcomes, that is, a lower percentage of anaemia in women, better birth weight and reduced prevalence of stunting when compared to the lowest wealth quintile (Graph 1). Low-income families have limited access to iron-rich foods, thereby anaemia is more prevalent among rural women (54.9%) as compared to urban women (45.1%)



Nutritional deficiency results in delivery complications and hindered fetal development, indicating that enhancing economic status can positively influence maternal health outcomes.

The lack of structural factors essential for better nutritional outcomes for both mother and child exacerbates health disparities. Significant variations in structural supports—such as institutional births, health insurance coverage, and access to antenatal care—exist between the lowest and highest wealth quintiles (Graph 1). Addressing these gaps is critical for improving maternal nutrition and overall health outcomes.

Moreover, households in higher income brackets (HIHs) have greater access to nutrient-dense diets, while low-income households often rely on staple foods that lack essential micronutrients. These nutritional disparities are particularly stark, with only 44.1% of women consuming adequate iron and folic acid during pregnancy—especially in disadvantaged rural areas. Such inequalities heighten the risk of low birth weight and developmental challenges in children.



Source: NFHS-5 & 4

Conclusion and Policy Perspective

In summary, improving child nutrition requires a multi-dimensional approach that goes beyond household income or food availability alone. While maternal autonomy plays a significant role in enhancing children's nutritional status, it is not the only factor. Other critical determinants include maternal education, household wealth, employment status, and mental health. Data from the NFHS and other studies indicate that women with greater control over financial decisions and mobility are more likely to provide healthier diets for their children.

However, regional outliers—such as Meghalaya—highlight the need for context-specific strategies and deeper structural interventions.

Maternal employment also influences children's diets, with variations depending on the formality of employment and the presence or absence of supportive workplace systems, such as accessible childcare and flexible working arrangements. Similarly, maternal mental health is closely linked to child nutrition. Conditions like depression and anxiety can negatively affect feeding practices and access to nutritious food, especially under economic stress.

To address these challenges, policy interventions must adopt an integrated approach. This includes:

- Embedding maternal mental health services within maternal and child health programs;
- Providing affordable, accessible childcare so that maternal employment does not come at the cost of a child's nutrition;
- Promoting flexible work options during a child's early development to ensure uninterrupted caregiving;
- Extending paid maternity leave;
- Integrating maternal nutrition education into community outreach programs;
- Strengthening social safety nets like the Public Distribution System (PDS).

Programs like Poshan Abhiyaan must shift from a calorie-centric approach to one that emphasizes dietary diversity, maternal well-being, and equitable access to nutrition. By putting maternal health, both physical and mental, at the forefront, India can make genuine attempts towards bringing up healthier generations in the coming years.

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THE EAST-ASIAN DEMOGRAPHIC CRISIS

LESSONS FOR INDIA AMIDST THE DEBATE OF 90 HOURS
WORK WEEK

SRISHTI TRIPATHY AND TANYA SINGLA

Abstract

The study examines the essential correlations between extended work hours and unbalanced work-life balance which lead to lower fertility intentions within East Asian countries particularly China Japan and South Korea. Recent studies demonstrate that structural barriers including rigid work settings and gender imbalances stop people from having children despite pro-natalist policies being in place. The research demonstrates concerning population trends through sub-replacement birth rates combined with aging populations due to cultural factors and economic pressures. This paper evaluates the demographic situation of India which holds a demographic dividend right now. The paper promotes proactive strategies to stop the predicted pattern by recommending gender-inclusive policies and flexible work arrangements and comprehensive family support systems. The proposal demands for a shift of focus from population control to family-friendly environments and gender norm transformation and regional development funding for sustainable demographic growth. The paper demonstrates the importance of combining social resilience efforts with long-term economic strategies for achieving both population stability and future generational well-being.

Introduction

The research conducted by Meiduo Zhou, Xu Zhao, and Ziyi Dong (2021) provides key insight into the extent to which long working hours and lack of work-life balance are closely associated with declining fertility intentions in China.

Their research illustrates that structural constraints like rigid job environments, insecure work, and women's career penalties erode family planning choices even when there are pronatalist policies like the three-child policy. The inability to balance work and family obligations has become the central explanation for China's population stagnation, highlighting that without reforms at the workplace, fertility never will pick up. This is the starting point for an examination of whether similar forces are at play in the rest of the East Asian countries and what this means for India. The relationship between extended working hours and declining birth rates is a debated topic in highly aging economies. Japan, South Korea, and China, for example, are experiencing alarming population issues characterized by sub-replacement fertility levels, declining workforces, and increasing dependency ratios. In these cultures, overwork culture has been questioned as one of the contributors to declining fertility. Japan has witnessed population decline since the year 2008, while experts such as Inoue et al. (2021) attribute compound drivers to be the urban-rural gaps, poor marriage levels, and curbs on immigration. Likewise, South Korea clocked the globe's lowest record fertility rate at 0.72 in the year 2023, against various government programs aiming to raise the birth level (Medwid, 2021). Zhou et al. (2021) further substantiate that excessive working hours, employment insecurity, and inadequate family support systems strongly discourage fertility plans in China.

These patterns indicate that unless governments reverse the cultural and structural obstacles to family life like gender inequality, lack of adequate parental leave, and unbending work norms population decline will continue. India, though now reaping a demographic dividend, runs the risk of repeating these trends if it imitates similar work patterns. The current debate surrounding suggestions such as a "90-hour workweek" is a warning sign. Learning from East Asia's experiences, India needs to give importance to work-life balance, gender-sensitive labor policies, and family support infrastructure in order to ensure long-term demographic and economic sustainability.

Literature Review

Research on the Effect of "Work-life Balance" on Fertility Intention of Child-bearing Age Population Meiduo Zhou¹, Xu Zhao^{1,*} and Ziyi Dong¹

The research study by Meiduo Zhou, Xu Zhao, and Ziyi Dong (2021) investigates how work-life balance capabilities affect the fertility desires of Chinese adults who can have children. Through research the authors analyze how work arrangements together with family planning policies affect reproductive choices in a context of declining birth rates and aging population. Better work-life balance shows a positive relationship with stronger fertility intentions because managing work and family responsibilities leads adults to desire children. The actual expenses from work-life conflict including difficulties in reemployment and career consequences after childbirth create negative effects on fertility willingness especially among women. The combination of expensive living costs and uncertain employment conditions prevents couples from having more children which weakens the 2021 "three-child" policy implementation. The authors propose multiple policy interventions which should include better childcare infrastructure combined with flexible workplace programs and expanded parental leave benefits.

The authors stress that cultural changes toward equal child care responsibilities will help reduce the childcare burden experienced by women. Future studies should evaluate the performance of work-life balance policies and conduct comparative assessments between countries which have succeeded in raising fertility rates through supportive policy reforms. The research demonstrates that China requires complete solutions to overcome economic limitations together with workplace barriers and cultural obstacles which prevent population growth.

Exploring the impact of depopulation on a country's population geography: Lessons learned from Japan Takashi Inoue¹ | Shiro Koike² | Masakazu Yamauchi³ | Yoshitaka Ishikawa⁴

Inoue et al. (2021) examine the population decline in Japan by reviewing literature from 2008 to the present which explores its impact on spatial demographic structures. Their study shows depopulation follows specific patterns which demonstrate major disparities between rural and urban areas because Tokyo's immigration influx creates more regional disparities. The primary cause of low birth rates stems from delayed marriages and economic limitations yet nuptiality decline stands as the primary factor rather than a decline in fertility during marriage. Young adults move toward urban areas for education and work opportunities resulting in older adults being stranded in rural areas where aging populations intensify. The implementation of strict immigration regulations blocks new residents from overseas migration who could offset population decline. This study highlights the increasing need for demographic analysis to use analytical tools including GIS and population census microdata. Population geographers should direct their future research toward studying the extensive effects of population decline and developing specialized analytical tools to study shrinking populations and actively shaping policy responses according to the authors.

The East Asian Fertility Crisis: Causes, Consequences, and Policy Responses - Jessica Daisy Medwid (2024)

This paper by Jessica Daisy Medwid (2024) investigates the fertility crisis in China Japan and South Korea by studying both the root causes and social consequences alongside the implemented policy measures. The study demonstrates how specific demographic patterns in these countries disrupt typical demographic theories while assessing previous and existing fertility policy outcomes. The fertility crisis develops because of three main factors which include past governmental policies together with economic challenges and cultural traditions. Previous anti-natalist policies created long-lasting demographic and socioeconomic effects according to the text. Birth rates stay low after pro-natalist policy implementation because societal and economic factors force women to decide between professional success and family commitments. Medwid supports gender equality policies which should redistribute household work and promote father involvement in childcare responsibilities. The implementation of effective cultural transformations regarding marriage and family roles is essential for achieving success. The article recommends additional research about cultural perspectives on work-life balance and gender dynamics and effective pro-natalist approaches used by other nations. The article stresses the importance of developing integrated policies which address both social barriers and cultural impediments to fertility.

Understanding the phenomenon of childlessness in Japan: causes and potential solutions Yueyue Wang 1,* 1 School of Social and Political Science, University of Edinburgh, Edinburgh, EH8 9YL, the United Kingdom (2023)

Yueyue Wang (2023) investigates Japan's growing childlessness by studying both economic elements and cultural and social factors that lead to workforce and economic stability

challenges due to declining birth rates. The analysis incorporates both literature review findings and empirical research to reveal patriarchal gender attitudes as major obstacles which prevent family planning because traditional societal roles assign men the role of financial provider and women the role of home manager. The gender wage gap and restricted career growth prevent women from achieving work-life balance even though they have achieved higher educational and professional goals. The combination of economic challenges that include prolonged economic stagnation and expensive living costs drives couples away from parenthood because young adults focus on achieving financial independence and career development. The cultural trend of anime and gaming has led to extended adolescent development which causes people to focus less on relationships and family creation. Research data shows that Japan experiences elevated suicide rates because of work-related psychological stress and social performance demands. Wang suggests implementing family-friendly policies and cultural changes toward gender equality and international best practices to fight childlessness. Multiple strategies uniting economic aid with policy adjustments and cultural modifications are needed to handle the fundamental obstacles facing childbearing. Future investigations need to examine low-fertility countries comparatively while studying immigration as a potential answer.

Systemic Causes and Consequences of Spatially Mediated Depopulation¹ V. N. Leksin*

V.N. Leksin's study (2021) responds to today's depopulation dynamics in Russia, underlining the territorial dimension of demographic decline. As opposed to the majority of current literature concerned with general population decline, Leksin's study underlines the unevenness of depopulation and relates it to socioeconomic conditions, labor migration, and regional development policies.

Central conclusions indicate that although rural and small-town populations undergo huge losses, large cities receive migrants in search of improved economic prospects. Internal migration intensifies worker shortages for declining rural areas and puts a strain on urban infrastructure. The efficacy of the classic state-organized pronatalist policies, for purposes of promoting childbirth, is questioned as they have done very little to reverse declining birth rates. Furthermore, the research addresses how domestic as well as global migration patterns benefit economically advanced regions, with no ability to reverse overall population loss. Leksin criticizes the weaknesses of statistical methods for gauging migration and depopulation and advocates better measures for determining accurate population mobility. He demands that policies be initiated for long-term employment generation in less-developed areas as well as for rebalancing labor migration policies to ensure balanced demographic development. Finally, the study highlights the multifaceted nature of Russia's depopulation crisis and the need for multi-faceted policy interventions.

The Process of Depopulation in Central and Eastern Europe – Determinants and Causes of Population Change between 2008 and 2019
Submitted 12/08/22, 1st revision 11/09/22, 2nd revision 22/09/22, accepted 15/10/22 Tadeusz Truskolaski¹, Łukasz Karol Bugowski

The research by Tadeusz Truskolaski and Łukasz Karol Bugowski (2022) explores population decline in Central and Eastern Europe between 2008 and 2019, examining the main drivers of this trend, specifically the contributions of natural processes (births and deaths) and migration. The results show that natural changes in population contribute more to decline than migration, with natural causes contributing 53.14% of the decrease against migration's 24.65%. Throughout the period of the study, almost three-quarters of the provinces suffered from population decline, most notably Bulgaria, Romania, and Lithuania. Although migration has served to keep some of the cities, such as

Warsaw and Prague, populated, it has not mitigated the general trend of decline. The authors also go on to speak of the long-term economic and social repercussions of this fall, including pressure for labor markets and pension systems from low birth rates and ageing populations. They warn that unless large-scale immigration, the population will decline even further, deepening labor shortages and economic unbalance. Future studies are advised to emphasize policies that would turn around population decline, specifically those targeting attracting and retaining youth, and assessing long-term effects of population trends on regional economies. The study calls for solid, long-term solutions to remedy the population crisis in the area.

Methodology

This exploratory research uses qualitative literature review method to analyze the relationship between excessive work hours and falling birth rates in East Asian nations including Japan, South Korea, and China while providing implications for India. The review combines evidence from peer-reviewed articles and government reports and demographic studies to analyze labor market structures and gender roles and fertility behaviors. Recent research evaluating policy interventions with parental leave and childcare support receives priority in source selection. The research includes Zhou et al. (2021) for China and Inoue et al. (2021) for Japan together with South Korean publications related to fertility.

Data Analysis

To provide a quantitative context to the discussion, we analyzed available data on government expenditure on education (% of GDP), Health expenditure (% of GDP), total fertility rate, and mean weekly hours actually worked per employed person. Descriptive statistics, including mean, median, and mode, were calculated to summarize these trends.

Table 1: Descriptive Statistics of Key Demographic Indicators

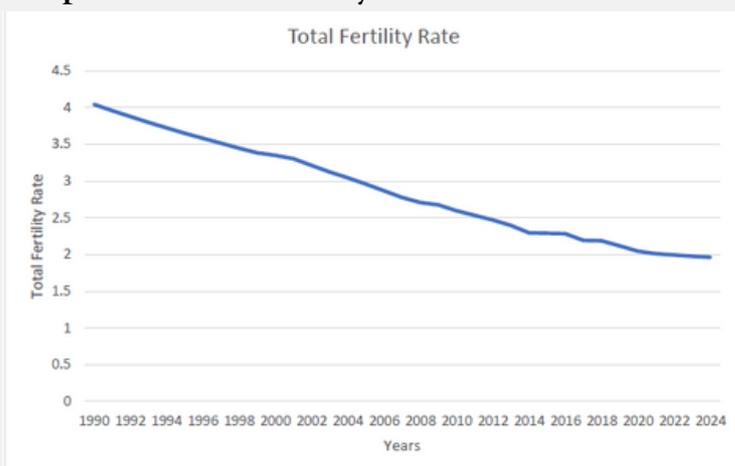
Statistic	Govt. Exp. on Education (% of GDP)	Exp. on Health (% of GDP)	Total Fertility Rate	Mean Weekly Working Hours
Mean	13.91	3.55	2.87	39.88
Median	13.81	3.52	2.78	40.34
Mode	N/A	N/A	N/A	N/A
Standard Deviation	1.90	0.39	0.66	2.38
Minimum	11.19	2.86	1.96	36.24
Maximum	17.16	4.26	4.04	42.36
Data Range (Years)	1997-2022	2000-2021	1990-2024	2018-2023

Table 2: Government Expenditure on Education (% of GDP) Over Time

Year	Government Expenditure on Education (% of GDP)
1997	13.32223034
1998	14.15927029
1999	16.95982933
2000	16.73051071
2003	12.41079998
2004	11.19686031
2005	11.20845985
2006	11.69371033
2009	11.19120026
2010	11.83368015
2011	13.56490993
2012	13.08770752
2013	14.05018044
2014	15.71815395
2015	16.33423042
2016	17.15530205
2017	13.54925537
2018	13.06618786
2019	14.99843025
2020	14.99098587
2021	14.64736176
2022	14.15547466

Table 2 presents the data for government expenditure on education as a percentage of GDP for selected years between 1997 and 2022. The data shows considerable fluctuation in government expenditure on education during this period. The expenditure ranged from a low of 11.19% in 2004 and 2009 to a high of 17.15% in 2016. The table indicates the variability in the government's investment in education as a proportion of the country's economic output.

Graph 1: Total Fertility Rate Over Time



Graph 1 presents the total fertility rate (TFR) in India, illustrating a clear downward trend from 1990 to 2024. In 1990, the TFR stood at approximately 4.04, indicating a relatively high birth rate. Over the subsequent decades, the TFR has steadily declined, reaching a value of approximately 1.96 by 2024. The 2024 value of 1.96 is below the replacement level, suggesting that India's population may face potential decline in the future, absent other factors such as migration. This decline has implications for the country's workforce, healthcare system, and social security, particularly in relation to an aging population. Government expenditure on education as a percentage of GDP averaged 13.91% (Median = 13.81%), indicating a relatively consistent investment over the years. Expenditure on health as a percentage of GDP averaged 3.55% (Median = 3.52%), also showing consistent investment. The total fertility rate averaged 2.87, with a median of 2.78, decreasing from 4.04 in 1990 to 1.96 in 2024, showing a significant downward trend. Mean weekly working hours, available only from 2018-2023, averaged approximately 39.88 hours (Median = 40.34), suggesting relative stability in working hours during this period.

Observations

Historical anti-natalist policies together with present-day socio-economic conditions create substantial effects on population growth in different geographical areas. The One-Child Policy implemented by China during the past remains influential through cultural and economic barriers that restrict population expansion. Studies show that strict gender roles combined with challenging work-life balance and expensive living expenses decrease childbearing plans mainly for women (Zhou et al., 2021; Wang, 2023). The combination of delayed marriages and limited immigration access with rural youth migration from urbanization creates increased demographic problems

(Inoue et al., 2021; Truskolaski and Bugowski, 2022). Pro-natalist initiatives need cultural changes that target the fundamental problems which affect population growth. Government expenditure on education as a percentage of GDP averaged 13.91% (Median = 13.81), indicating moderate variability in education investment. Government expenditure on health as a percentage of GDP averaged 3.55% (Median = 3.52), indicating moderate variability in healthcare investment. While the data pertains to India, and the referenced literature focuses on East Asia, certain parallels can be drawn. The decline in India's fertility rate from 4.04 in 1990 to 1.96 in 2024 suggests that similar underlying factors, such as work-life imbalance and economic pressures, as highlighted in studies by Zhou et al. (2021) and Wang (2023) for East Asian countries, might be influencing fertility decisions in India as well.

Conclusion

India should use the current demographic crises in East Asian economies to develop preventive measures before its population faces similar population challenges. Economic incentives by themselves prove inadequate to stop demographic decline as seen in the cases of China and Japan and South Korea who face challenges from aging populations and low birth rates and reduced workforce numbers which require fundamental cultural and structural changes. Long working hours combined with job insecurity and poor work-life balance and gender-based caregiving responsibilities create obstacles for pro-natalist policies that primarily affect women.

India, with its TFR falling below the replacement level and urban states like Kerala, Tamil Nadu, and Delhi already showing East Asian demographic patterns, the Total Fertility Rate (TFR) falling below the replacement level of 2.1 in 2021, according to NFHS-5 data, stands at a demographic crossroads. The country still enjoys a demographic dividend but only for a short while. To avoid a similar future, India

must adopt a forward-looking strategy that prioritizes inclusive, gender-sensitive, and family-supportive policies. This includes introducing flexible work arrangements, equitable parental leave, and government supported childcare services. Simultaneously, efforts must be made to challenge deeply entrenched gender norms through public awareness and education.

The government should invest in regional development programs to spread population density and minimize youth population movement from rural to urban areas. The combination of affordable housing options and marriage and child-rearing programs in urban areas will stabilize population growth intentions. India needs to shift its approach from passive to active management of its demographic situation. The dialogue needs to evolve from population control to family support and gender equality and social resilience. The immediate action is essential for both social needs and economic requirements to maintain enduring growth and balanced population structure and future generational well-being.

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MAPPING THE HEALTHCARE NEEDS AND BARRIERS OF TRANSGENDERS IN INDIA

ALANKRITI SINGH , ISHITA SRIVASTAVA, SHRILEKHA SHARMA

Abstract

Transgender people face several challenges in India. Their healthcare needs are often neglected, especially in the policy circles. Their challenges related to healthcare were shaped by historical, social, and colonial periods. While ancient India accepted the concept of third gender in its texts, studies show that colonial rule played a major role in increasing discrimination against the transgender community. Despite many legal steps taken by the Indian government, such as the NALSA Judgment (2014) and the Transgender Persons (Protection of Rights) Act (2019), access to healthcare is still inadequate. Many trans people still struggle with discrimination, especially in terms of accessibility to health services, lack of medical awareness, and financial barriers to gender-affirming care. This study uses a systematic literature review as a tool to map the progress of transgender healthcare spanning ancient text to current health policies, identifying key healthcare needs, barriers, and gaps in policy implementation. Findings indicate that despite the existing legal framework, implementing policies is still a challenge. Execution remains weak due to inadequate medical training, financial inaccessibility, and social stigma. The importance of mental health is still ignored, leading to higher rates of depression and anxiety among the Indian transgender community. Our study indicates an urgent need for inclusive healthcare policies, better training for medical professionals, and targeted policies to improve transgender health outcomes.

KEY WORDS: Transgender healthcare, India, Healthcare barriers, Policy, Social stigma, Mental health, Discrimination, Medical training

1. Introduction

A transgender (often shortened to trans) person is someone whose gender identity differs from that typically associated with the sex they were assigned at birth. In layman terms, transgender people are individuals of any age or sex whose appearance, personal characteristics, or behaviors differ from stereotypes about how men and women are 'supposed' to be. Though transgender does not have a universally accepted definition, including among researchers, it functions as an umbrella term; the definition given above includes binary trans men and trans women and may also include people who are non-binary or genderqueer. It may include people who are not exclusively masculine or feminine sometimes they are referred to as 'transvestites,' 'drag queens' or 'drag kings'; inter-sexed individuals. The term transgender should not be confused with transsexual, they are people who desires to permanently transition to the sex or gender with which they identify, they usually seek medical assistance (including gender affirming therapies, such as hormone replacement therapy and gender affirming surgery) to help them align their body with their identified sex or gender. The term transsexual is a subset of transgender but some transsexual people reject the label of transgender.

1.1 Importance of Transgender Healthcare

Transgender health is a very critical issue in India due to various reasons such as they face severe stigma and discrimination which makes them hesitant to seek medical care, many doctors lack adequate knowledge about transgender health issues which leads to misdiagnosis, inappropriate treatment, and difficulty accessing gender-



affirming care like hormone therapy or surgery, the social exclusion and discrimination faced by transgender people often lead to high rates of depression, anxiety, and suicidal thoughts, making mental health support crucial for them. Apart from this National AIDS Control Organisation (NACO) shows a disproportionately high rate of HIV among transgender individuals in India due to various reasons such as lack of awareness highlighting the need of medical intervention and easy accessible healthcare.

1.2 Existing Policies & Gaps in Transgender Healthcare in India

India has made progress in transgender healthcare through policies like the NALSA Judgment (2014), which recognized transgender individuals as the "third gender" and directed the government to ensure healthcare access. Transgender Persons (Protection of Rights) Act (2019) which mandates non-discrimination in healthcare. Initiatives like Ayushman Bharat provide free medical treatment but lack trans-specific provisions. Despite these efforts, significant gaps remain. Gender-affirming care, including hormone therapy and sex reassignment surgery, is limited and often unaffordable. Discrimination in healthcare settings persists due to a lack of sensitization among medical professionals, leading to stigma and denial of care. Mental health support remains inadequate, leaving many transgender individuals without psychological assistance for gender dysphoria and social exclusion. Additionally, most insurance policies do not cover transgender-related treatments making healthcare financially inaccessible. The National Transgender Policy (Draft, 2017) proposed comprehensive reforms but its lack of implementation further hinders progress. While legal protections exist, enforcement remains weak highlighting the need for systemic reforms to ensure inclusive and accessible healthcare for transgender individuals in India.

1.3 Motivation for the Study

This study is significant because it addresses a

critical and often overlooked aspect of healthcare—the specific needs of the transgender community. Despite legal protections, the healthcare system continues to fail many transgender individuals due to systemic barriers, lack of awareness, and insufficient training among healthcare providers. By analyzing these issues and offering recommendations, this research will contribute to creating a more inclusive healthcare environment, where transgender individuals can access the care they need without fear of discrimination or bias. The purpose of this study is to understand the unique healthcare needs of the transgender population in India, identify the barriers they face in accessing healthcare services, and assess the effectiveness of current policies and training programs aimed at improving healthcare access for transgender individuals. By exploring these aspects, the research aims to provide insights that can inform policy improvements, training initiatives, and healthcare system reforms.

2. Research Problem and Research Objectives

Despite the awareness regarding transgender health and their rights, access to proper healthcare remains a challenge for them in India. Existing research on transgender healthcare in India is fragmented, lacking a comprehensive, historical-to-modern analysis of their evolving healthcare needs and barriers. This study aims to bridge this gap by systematically reviewing literature from ancient times to the present, identifying key trends, persisting challenges, and potential solutions. Research objectives are as follows :

- To trace the historical evolution of transgender healthcare in India, from ancient times to modern-day policies.
- To identify the key healthcare needs of transgender individuals across different periods in Indian history.
- To analyze the barriers (social, legal, economic, and medical) that restrict transgender

access to healthcare.

- To evaluate existing healthcare policies and initiatives aimed at the transgender community in India.
- To provide recommendations for improving transgender-inclusive healthcare policies and practices.

3) Methodology

In this study we aim to examine the needs and barriers faced by transgender individuals in India across different periods through Systematic Review of Literature. This study follows a systematic approach to reviewing academic literature, policy documents, and historical texts related to transgender healthcare in India. The review focuses on understanding the evolution of healthcare needs, persisting barriers, and the effectiveness of existing policies. The literature was sourced from different academic databases (Google Scholar, ResearchGate, PubMed), government and NGO reports, historical text, legal documents, and grey literature, which includes unpublished studies and news reports.

A total of 1000 research papers were initially reviewed, out of which 150 studies were selected based on direct and indirect relevance to our research topic. After applying inclusion-exclusion criteria, 30 studies were selected for in-depth analysis of literature. The key-words based strategy was used which included terms like "*transgender healthcare India*," "*historical perspectives on transgender health*," and "*barriers to healthcare for transgender individuals*." This review is limited by the availability of historical records and potential biases in existing literature. However, efforts were made to ensure a diverse selection of sources for a holistic understanding.

4. Literature Review

Transgender people in India continue to encounter considerable challenges in accessing appropriate public healthcare facilities. Systemic discrimination, societal stigma, and a lack of training among healthcare providers aggravate

these issues. Furthermore, despite policy improvements such as the Transgender Persons (Protection of Rights) Act, ineffective implementation hampers significant positive changes. This review synthesizes existing research to investigate the transgender population's healthcare needs, challenges they face, and the potential impact of legislation and training programs in resolving these issues.

4.1 Healthcare Needs and Barriers

The transgender population's healthcare needs are neglected due to institutional and cultural barriers. Goel et al. (2024) conducted a descriptive qualitative study in Rajasthan, India, examining healthcare requirements and challenges. The study found stereotypes, a lack of empathy from healthcare providers, and insufficient infrastructure as key barriers. Transgender people frequently have poor health outcomes as a result of discrimination in healthcare settings, which keeps them from getting timely medical care. Sarker (2019) gave more insights through a qualitative study on the Hijra community in Bangladesh, which is similar to India. The study showed the widespread stigma, verbal abuse, and exclusion that transgender people encounter when obtaining public healthcare facilities.

4.2 Policy Evolution and Implementation

Although India has made legal progress in recognising transgender rights, the execution of these policies remains inadequate. A 2024 study on the growth of transgender rights in India examined milestones like the NALSA judgement and the Transgender Persons (Protection of Rights) Act. While these efforts seek to promote equality and increase healthcare access, the survey identified major gaps in grassroots implementation. For example, efforts such as Garima Greh, which give refuge and support, frequently fail to meet the healthcare needs of transgender people due to ineffective management and lack of funds. The disparity between policy objectives and outcomes emphasises the need for greater enforcement

and monitoring frameworks. Effective implementation demands a collaborative effort among government agencies, healthcare providers, and community organisations.

4.3 Training Programs and Medical Education

Healthcare provider training is crucial for addressing the disadvantages experienced by the transgender population. Korpaisarn and Safer (2018) examined the situation of transgender-specific medical education in the United States and found a substantial shortage of training among healthcare practitioners. Although this study was conducted in the United States, its findings apply to India, where transgender health is frequently overlooked in medical curriculum. Goel et al. (2024) emphasised the importance of mandated sensitivity training for Indian healthcare providers to close these disparities. Such training programs can help providers better understand transgender health requirements, establish more inclusive communities, and ultimately improve healthcare delivery.

4.4 Research Gaps

While physical healthcare barriers are frequently highlighted, mental health needs and challenges are under-represented in Indian research. Issues such as the psychological impact of stigma, access to counselling services, and community support require further investigation. Despite the increasing research on transgender healthcare in India, important studies are lacking, especially on how well transgender-specific policies work and how effective healthcare worker training is. Although several studies recognize these policies, empirical research investigating their practical application and effect on healthcare access is lacking. Medical education and training programs designed for "transgender-all-embracing health care" remain inadequately explored and long-term evaluations of their effectiveness in reducing disparities are nonexistent. A full comprehension of transgender healthcare experiences is hampered by a lack of research into how caste, class, religion and rural-

turban differences affect this community. Stigma along with discrimination receive large attention, but the large effect of external aspects such as family acceptance, workplace discrimination, in addition to economic instability on healthcare access requires considerably more thorough analysis. At last, a limited amount of research addresses the effect of community-based interventions and grassroots organizations in reducing the healthcare disparity faced by transgender people.

5. Findings

Transgender people face complex and multidimensional healthcare challenges. Many studies highlight the meaningful healthcare needs of transgender people, such as access to gender-affirming care, mental health support and hormonal therapy (Goel et al., 2024). A qualitative study from Rajasthan points out an important need for healthcare services, stressing the demand for thorough and equitable care (Goel et al., 2024). Culturally skilled healthcare providers are urgently needed and a thorough comprehension of the specific health concerns of the transgender population is mandatory for these providers (Korpaisarn & Safer, 2018).

5.1 Barriers to receiving healthcare

Persistent barriers in healthcare, particularly in public settings, include discrimination, verbal abuse and stigma (Sarker, 2019). Sarker (2019) reports that a study of the Hijra community in Bangladesh, relevant because of several shared socio-cultural factors, found that denial of care, social marginalization, as well as economic challenges greatly limit healthcare access. Meaningful legal shortcomings and policy deficiencies obstruct transgender healthcare rights in India. Progressive court rulings have not overcome these issues (Faruk, 2024). Misdiagnosis and inadequate treatment occur because some healthcare providers lack awareness and sufficient education (Korpaisarn & Safer, 2018). Current policies are inadequate. Meaningful implementation shortcomings

further obstruct effectiveness. The 2014 NALSA judgment and several initiatives, such as Garima Greh, have sought to guarantee some social security and healthcare inclusion for transgender people (Faruk, 2024). Studies reveal a key distinction. This distinction is between policy making and its execution (Faruk, 2024). Healthcare equity requires effective implementation strategies, monitoring and community engagement (Goel et al., 2024).

5.2 Gaps in Policy Implementation

While legal measures such as the NALSA Judgment of 2014 and Transgender Persons (Protection of Rights) Act of 2019 have attempted to improve transgender people's access to healthcare, their enforcement is weak. Transgender individuals have less awareness of their rights, and administrative structures do not properly function to enforce these policies in healthcare centers (Evolution of Transgender Rights in India, 2024). Moreover, special needs of populations like the Hijras remain unfulfilled, further excluding these individuals from the healthcare system.

5.3 Meaningful flaws in medical education and training

Healthcare professionals lack transgender-specific medical education, according to a literature review (Korpaisarn & Safer, 2018). Transgender-specific curricula integration in healthcare in medical curricula and sensitization workshops play a crucial part in filling these challenges (Korpaisarn & Safer, 2018). Better implementation of policies, doctors' awareness of transgender individuals' needs, and systematic evaluation of trainings' impact on trainees are all crucial steps in providing transgender individuals access to healthcare in India.

6. Discussion

This research highlights the systemic barriers that continue to hinder equitable healthcare access for transgender communities in India, contrasting progressive legal frameworks with the persistent social and institutional challenges that undermine

them. While ancient Indic traditions recognized gender diversity, colonial-era laws and deeply rooted prejudices institutionalized marginalization, shaping the discrimination that persists in modern medical systems.

An analysis of post-independence jurisprudence, particularly the landmark NALSA judgment and the 2019 Transgender Persons (Protection of Rights) Act, reveals a significant gap between legal recognition and real-world implementation. This disconnect is most evident in clinical settings, where the lack of cultural competence training among healthcare providers leads to discriminatory practices, misdiagnosis, and the exclusion of non-binary identities from medical records. Economic barriers further exacerbate these challenges, as insurance policies systematically exclude coverage for gender-affirming procedures. The absence of trans-specific provisions in government schemes like Ayushman Bharat reflects a broader institutional failure, limiting access to essential medical care based on financial privilege. Meanwhile, mental health disparities remain largely unaddressed, with transgender individuals facing disproportionately high rates of depression, anxiety, and suicide. A key factor in this crisis is the widespread lack of mental health professionals trained in gender-sensitive and trauma-informed care. Existing research also has notable gaps, particularly in understanding how caste, geography, and economic status shape transgender healthcare experiences. There is a lack of longitudinal studies on the long-term impact of gender-affirming treatments, as well as limited evaluation of the effectiveness of community-led healthcare initiatives. While policy frameworks emphasize universal access, grassroots evidence suggests that real progress depends on empowering transgender-led NGOs and strengthening peer-support networks.

To bridge these gaps, India needs a multi-pronged approach that aligns legal mandates with international standards for gender-inclusive healthcare. Medical education must integrate

comprehensive training on transgender health, while financing mechanisms should be expanded to ensure access to gender-affirming treatments. Establishing national registries to track transgender health metrics and fostering research collaborations with queer studies scholars could help build a more inclusive and evidence-based healthcare system. Such reforms are essential not just for improving clinical outcomes but also for ensuring that transgender individuals are afforded the dignity and rights promised by the Constitution.

7. Conclusion

Ensuring equitable healthcare for transgender individuals in India is not merely a policy challenge but a moral and constitutional imperative. While legal advancements like the NALSA judgment and the Transgender Persons (Protection of Rights) Act have laid the groundwork for progress, systemic gaps in implementation continue to deny transgender communities their right to dignified and inclusive medical care. The persistent barriers—ranging from discriminatory clinical practices and economic exclusion to the neglect of mental health needs—underscore the urgent need for transformative, intersectional reforms.

By adopting a model rooted in care, dignity, and justice, India has the opportunity to lead by example, shifting from a system of exclusion to one of true inclusion. A future where healthcare recognizes and respects gender diversity is not just an ideal—it is an achievable reality, one that will not only benefit transgender individuals but also enrich the ethical and social fabric of the nation.

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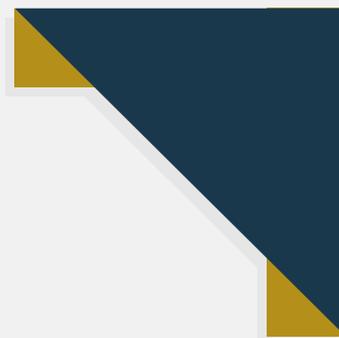
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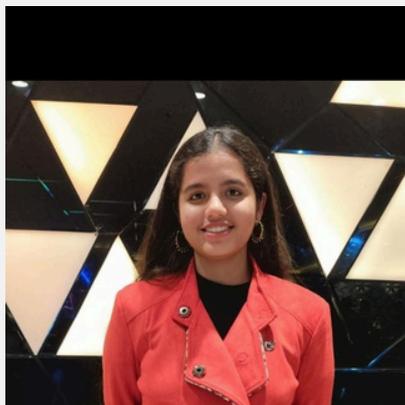


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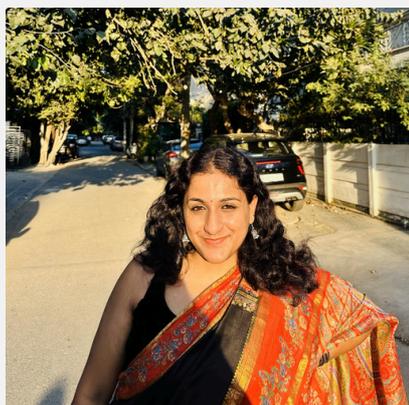


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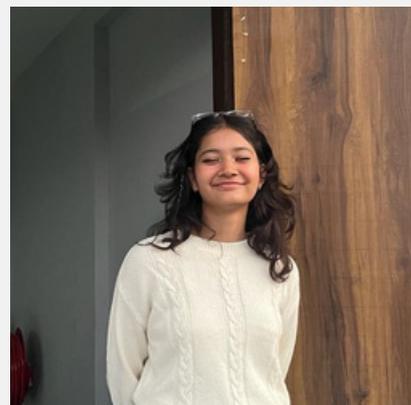
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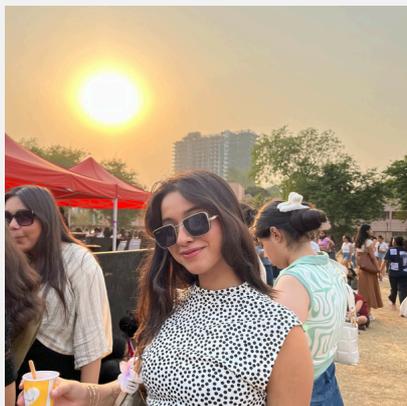
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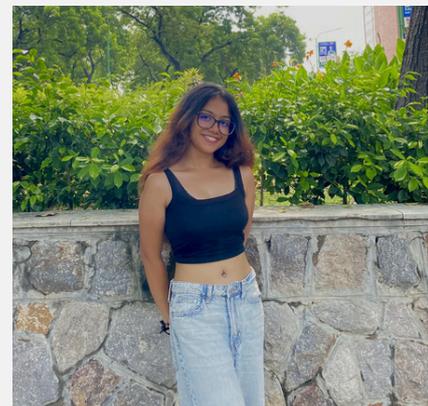
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