आpoorti 2026

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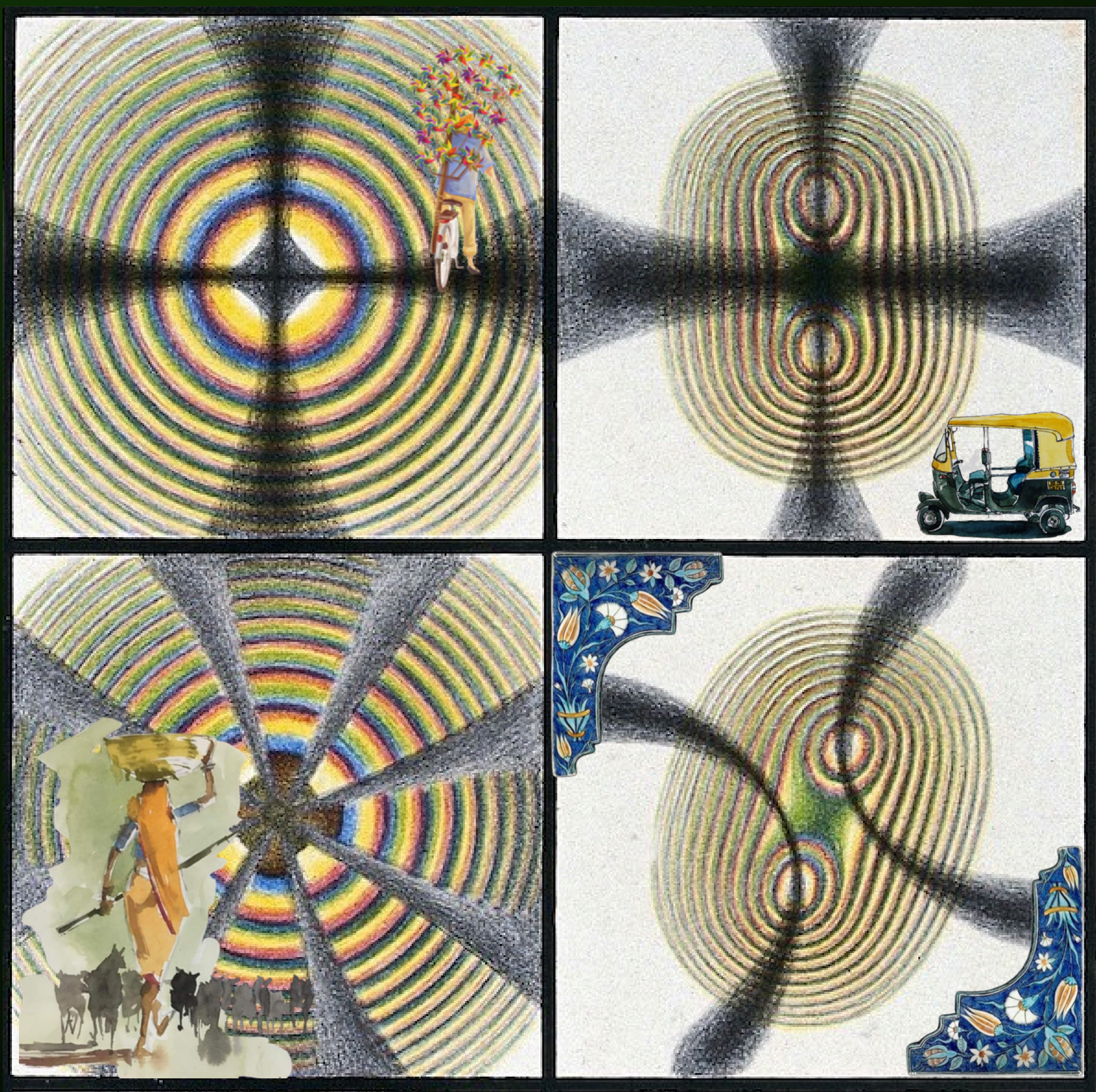

Aapoorti 2026

Labour on the Move

Aapoorti 2026
Sixteenth Edition
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About the Journal

Aapoorti is the annual, peer-reviewed academic journal of the Department of Economics of Miranda House. Established in 2010, Aapoorti has evolved into a platform integrating dialogue and reflection on issues shaping economies and societies. Each edition of the journal is centred around a distinct theme, offering readers critical perspectives on contemporary economic debates.

The word Aapoorti, meaning 'meeting wants' in Hindi, captures the very essence of economics: the effort to balance supply with demand and to understand how limited resources can best fulfil human needs. This meaning beautifully aligns with the spirit of our journal, which seeks to bridge diverse perspectives and provide a space where different schools of thought converge to address real-world issues.

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Acknowledgement

This edition of *Aapoorti* started, like all those preceding it, as a blank sheet of paper. It stands before you today as the product of many curious and generous minds. And there were many. It takes a village.

We extend our heartfelt gratitude to our Faculty Advisor, Dr. Navpreet Kaur, whose constant and ever-ready support made this journal possible. We thank the Teacher-in-Charge, Dr. Sutapa Das, and the faculty as a whole, all of whom have left their imprints on this edition through their involvement in the Faculty Advisory Board, their mentorship of our research, and for lighting the path when we couldn't see it ourselves.

We also extend our thanks to the Arthashastra team, in particular to Suryanshi Pathak (President) and Anvi Chawla (Vice President). As always, we are in awe of the Design and Marketing Team for this beautiful and evocative cover, one that encapsulates the idea and scope of this edition's theme, *Labour on the Move*, so well.

Our gratitude extends to our esteemed interviewees, Mr. Ramit Singh Chimni, Professor Jayan Jose Thomas, and Professor Rosa Abraham, for their generosity with their time and knowledge for the benefit of our readers. We thank all guest contributors for their excellent contributions, and a special mention goes to Dr. Annavajhula J. C. Bose, whose constant support and ideas have been invaluable throughout the years.

We would be remiss not to thank the entire editorial team, which has worked tirelessly to bring this issue to life.

This journal is, in part, a selfish undertaking. It teaches us to read more closely, think more carefully, and question more honestly. But whatever light we gather here does not belong to us. It finds its meaning in being read, tested, and taken further. Thus, finally, to you, our dear readers and friends: without you, these pages are just paper, and this is only half a conversation.

With heartfelt gratitude and much love,

The Editorial Board

Editors' Note

Dear readers,

After a rigorous yet fulfilling journey, it is with immense pride and joy that we bring to you the sixteenth edition of Aapoorti, the annual economics journal of Miranda House. This edition rests on the foundation laid by those before it, and we carry forward their legacy with deep gratitude for the trust placed in us by Arthashastra, the Department of Economics, and the extended Miranda House fraternity.

Our theme this year is *Labour on the Move*, a subject we believe is not only timely but urgent. The idea of movement is both literal and figurative. It captures the physical migration of workers across geographies, as well as the transitions of labour across sectors, technologies, and platforms in response to structural and technological change. Our in-house research papers seek to map a few of the many landscapes of work in motion, through studies on migration and crime, climate-induced informality, and the everyday realities of e-rickshaw drivers in Delhi.

As always, *Aapoorti* 2026 includes guest contributions in the form of research papers, articles, and book reviews from undergraduate students across prestigious institutions. Overall, this edition reflects the richness and rigour of student-led research. These are joined by expert voices offering diverse perspectives on the theme. Professor Jayan Jose Thomas speaks on industrialisation and structural change, with a comparative eye on China. Professor Rosa Abraham explores social identity and employment, with a focus on gender. And Mr. Ramit Singh Chimni shares insights on dignity of labour, drawing from Cuba and India's northeast.

We firmly believe that this edition has something for everyone. Whether you are a student of economics, a curious reader, or someone navigating the changing world of work yourself, we hope these pages deepen your understanding and invite you to think more holistically about labour in motion.

Warmly,
Rama and Urvika
Editors-in-Chief

Faculty Advisor's Note

The sixteenth edition of *Aapoorti* focuses on the "Labour on the Move". The issue includes in depth research articles by both external contributors and editorial board. These articles bring out timely interventions in the recent economic development in India, pertaining to climate change and employment.

Issues of labour and employment, as explored in the magazine, constitute an arena of constant evolution that impacts both the Indian and global economy. The student contributors have demonstrated an excellent grasp of current economic trends and the implications of various policy decisions, providing insightful perspectives on the impact of these on the population.

Studies drawing on primary data highlight the precarious nature of work structures. These articles elucidate the socio-economic impacts of informal employment in India. Along with these, the current issue has detailed interviews with the experts in the area of labour discussing the conditions of work and the future of work.

Other than the research articles, the present issue also includes short opinion pieces by researchers and faculty members on economic issues. The magazine encourages us to think in depth about informal labour. I suggest the readers to engage with the articles, reflect on the issues presented, and continue to foster the discussion to enhance the learning process.

I would like to express my sincere gratitude to our Principal and the faculty members of the department for their unwavering encouragement and support. This issue has been made possible through the commendable efforts of Urvika and Rama, along with the entire editorial team.

Dr. Navpreet Kaur
Department of Economics
Miranda House

Teacher-in-Charge's Note

It gives me immense pleasure to introduce the sixteenth edition of our journal, *Aapoorti*, centered on the most relevant theme: Labour on the move. We are introducing our current edition amid a time when the world economy is dealing with various issues ranging from the erratic imposition of tariffs in large magnitude by the largest economic power, which is hampering world businesses on a large scale to the involvement of the superpowers in wars in different parts of the world, e.g., the day-by-day escalating war between Russia and Ukraine, the war between the United States-Israel and Iran has made political and economic repercussions uncertain. As students of Economics, we can foresee a potential surge in oil prices, disruptions in the supply of oil and gas for industrial, commercial, and household consumption, and a slowdown in manufacturing, which is likely to cause higher inflation and rising unemployment. The new developments in global economic and political power dynamics are likely to shape and guide international labour migration as well as its living conditions, safety, and security.

The research papers incorporated in this edition have gone beyond the issues of migration arising from the productivity and wage differences to address their geographic, environmental, and socio-economic dynamics. Our in-house articles have explored and analysed the nexus between migration and the incidence of crime, migration and the growing informal sector, and most interestingly, the seasonality in migration in the sample regions of India. Both internal and external research papers have largely addressed the issues of the grassroots-level migratory workforce who have migrated from an economically or regionally disadvantaged background and engaged as seasonal and temporary workers in the informal sector in high-income generating cities like Delhi, Surat, Bangalore, etc. Apart from that, in this edition, we have book reviews and interviews of eminent professors discussing the labour market in light of structural reform and through a lens of social, gender, and dignity perspectives.

Our budding researchers keep surprising us with their diversified research ideas, and the analysis using a socio-economic dimension makes their contribution to social science research commendable.

We wish our readers an insightful and thought-provoking journey throughout.

Dr. Sutapa Das
Teacher-in-Charge
Department of Economics

Editors' Desk

Migration and the Incidence of Crime in Indian Cities: An Analysis of Delhi and Surat

Tanya Rajesh, Prapti Mukherjee, Jigisha Sharma, Sidra Abbas

Abstract

Recent decades have seen a marked proliferation of inter-state migration in India. With increasing urbanisation and population density, various socioeconomic factors are affected. This paper aims to investigate the relationship between migration and crime in two Indian metropolitan cities, Delhi and Surat. Migration data is calculated using Vital Statistics Reports from the Economic Survey of Delhi, Census Reports on Vital Statistics, and the Surat Municipal Corporation, and crime data was sourced from the National Crime Records Bureau of India (NCRB). Analysis was conducted for a range of crime heads capturing violent crimes, property crimes, and economic crimes, as well as an aggregate Crime Harm Index. Non-parametric tests have been utilised to engage in exploratory analysis, revealing heterogeneous relationships that stem partly from comovement with time, and are linked to demographic characteristics. Our findings emphasise the possible role of temporal dynamics in suggesting a relationship between crime and migration. Data limitations in the availability of city-wise per year population estimates necessitate caution in the interpretation of results. Our findings aim to contribute to the limited empirical literature on city-level crime-migration patterns in India.

Keywords: Crime, Urbanisation, Inter-state migration

1. Introduction

Human mobility has been a defining characteristic of evolution and development throughout history. From the prehistoric dispersal of *Homo Sapiens* across ecological landscapes, to the rapidly increasing diversity in urban cities, migration has played a crucial role in the dissemination of ideas, knowledge and culture. Over the last few centuries in particular, migration has been at the forefront of the drive towards modernization, with expanding trade networks and globalisation restructuring labour settlement patterns.

Despite this historically crucial role, present-day discussions tend to frame migration in terms of increasing social disorder. This is largely driven by a sociological "othering"[1] of migrants due to differences in culture and ethnicity, and a perceived threat to resource control and social organization. This is reinforced by legal frameworks being defined in terms of "dominant interest groups" which are usually the native residents, leading to increased marginalization of migrants. Further, the migrant population tends to live in poor neighbourhoods, work in informal sectors, and enjoy a lower level of inclusion in society and access to political rights, all of which may place them at a higher risk of being involved in crime.

India has had a long history with internal migration, starting with the 1947 partition which left 14 million[2] people displaced between India and Pakistan. A large share of migration draws from social reasons such as marriage and family movement. As per the 2011 Census, nearly 50% of total migration was due to marriage, while 10.22% was for economic reasons. The latter creates a contest for resources, including employment opportunities, which can lead to further alienation of the migrant population.

The reasons for migration are broadly divided into two categories: push and pull factors. Push factors are those which influence the decision to move out of the original place of residence. Places marked by negative conditions such as war, poverty, famine, joblessness, political unrest, and natural disasters drive people to seek better opportunities elsewhere. For example, coastal regions in Odisha are prone to devastating cyclones, which is a push factor that encourages residents to migrate elsewhere. Pull factors, on the other hand, are attractive characteristics of a destination that incentivise people to migrate to the new place of residence. These may include better employment opportunities, higher wages, improved education and healthcare, making urban cities a major destination for migrants.

[1] Prakash, A. (2018). Identity, migration and crime : conceptual underpinnings and select evidence from India [JD]. Rivista Degli Studi Orientali, XCI, supplemento. https://doi.org/10.19272/201803824011
[2] Pravin Visaria, 1969. "Migration between India and Pakistan, 1951–61," Demography, Springer; Population Association of America (PAA), vol. 6(3), pages 323-334, August.

In recent decades, urbanisation in metropolitan cities has been driven by the establishment of industries that rely on unskilled labour from neighbouring states. In this paper, we analyse the relationship between migration and crime in two Indian metropolitan cities, Delhi and Surat.

1.1 Contextualizing Delhi and Surat

Delhi first became the capital of India in 1911, and has since experienced a steady increase in population. The most significant demographic change occurred following the 1947 partition, with a sharp influx of refugees from West Punjab. Since 1950, Delhi has continued to attract migrants due to its political centrality, expanding service sector, and concentration of employment opportunities. The net decadal migration to Delhi has been increasing in absolute terms[3], with nearly 40% of the increase in population being due to migration as of 2001. The sustained reliance on migrant inflows for urbanization, combined with it consistently being the city with highest incidence of crime in India, makes Delhi a primary focus for the present study.

Surat, Gujarat is a major economic hub, and holds much historical significance despite the irregular migration pattern of the past decade. Portuguese traveler Duarte Barbosa described Surat in 1513 as a port frequented by many ships from Malabar. In 1573, the city was a vital port for trade and commerce, as well as a part of the journey taken for Hajj. During the colonial period, many would have had reason to migrate to Surat as it was once again a bustling port, after a brief period of stagnant growth caused by the development of railways by the British, primarily exporting textiles. It remains a major trading centre, and is among the largest diamond processing cities in the world, thus attracting a sustained inflow of migrant workers.

2. Literature Review

There are various mechanisms through which migration may affect the incidence of crime in an area. First, there exists a purely mechanical population effect. Migration may increase the number of crimes committed simply because it increases the population. Hazra (2020) finds that for every one unit increase in population density, crime rate increases by almost 0.11 units in India. Second, crime rates may also be affected by the composition of the migrant population.

[3] As per data available at https://ncrpb.nic.in/pdf_files/05_chapter%202_cma.pdf

The Social Disorganization Theory proposed by Shaw, C., McKay, H (1942) that higher levels of residential mobility, diversity, and poverty result in increased propensity of crime. Hirschi and Gottfredson (1983) observe that arrest rates rise with age, peak in the mid to late teens or early twenties, and subsequently fall. Hence, an influx of migrants in their twenties may increase crime rates.

Literature examining the effect of international immigration on crime rates report mixed results. Spenkuch (2010) finds that in the United States the effect of immigration on crime is stronger for crimes motivated by financial gain, for instance theft, but not for “crimes of passion”, such as rape or aggravated assault. Additionally, a 10% increase in the share of immigrants in the United States is estimated to lead to an increase of approximately 1.2% in the property crime rate, while the rate of violent crimes remains essentially unaffected. Similar findings were shown by Kollamparambil (2018), where the foreign-immigrant ratio in South Africa did not impact crime rate in any of the crimes analysed with the exception of crime relating to property.

Butcher and Piehl (2007) suggest that the process of migration selects individuals who either have lower criminal propensities or are more responsive to deterrent effects than the average native, as an explanation for the improvement in immigrants' relative incarceration rates in the United States during the period of 1980-2000.

Bianchi et al. (2012) find that neither the overall crime rate nor the number of most types of criminal offense are significantly related to the size of the immigrant population for the provinces of Italy between 1991 and 2000. Egger (2021) finds that a 10% increase in low-skill internal migrants relative to the local population resulted in an increase of 9.4% in the homicide rate in Brazilian microregions on average between 2005 to 2010.

Lee et al. (2001) studied the cities of El Paso, Miami, and San Diego to find the impact of recent immigration on urban homicide. Their results show no overall increase in homicide, except for higher Black homicide rates in San Diego, which they attribute to intergroup conflicts and immigrant settlement patterns in high-crime neighborhoods. By contrast, Haitian immigration in Miami was associated with reduced homicide rates in predominantly Black areas.

Ozden et al. (2017) examine economic immigration to Malaysia and find a sizable negative causal impact of economic immigration on property and violent crime rates. They note that access to the labor market, which is the primary motive for economic immigration, reduces the benefits and increases the costs of engaging in criminal activities.

Another school of thought approaches this relationship in reverse, investigating whether crime influences migration. Using a survey of approximately 49,000 respondents residing in 17 countries in 2002, 2003, and 2004, Wood et al. (2010) found that the probability of considering family migration to the United States was approximately 30% higher among respondents who reported that they or a member of their family was a victim of a crime in the year prior to the survey. Nunziata (2015) employed Monte Carlo simulations on European data, finding that an increase in immigration did not affect crime victimization, but was associated with an increase in the fear of crime. Additionally, this fear was found to be consistently and positively correlated with the natives' unfavourable attitude toward immigrants.

In the Indian context, Debnath and Roy (2013) find no significant association between interstate migration and odds of crime. Instead they find that economic deprivation as captured by poverty ratio has a significant positive impact on crime while factors like the strength of civil police force, adult literacy rate, and urbanisation all have negative impact on crime.

Bhagat and Keshri (2020) note the gendered pattern of migration in India where female migration is almost entirely driven by marriage whereas male migration is largely due to the combined effects of education and employment.

Gazala and Jha (2025) observe that urban migration in India does not affect all regions equally and has a more pronounced impact in states already struggling with crime, likely due to infrastructural stress, socioeconomic exclusion, and weak urban planning. They note that urban migration has no significant effect in low-crime states. States with robust institutions and employment opportunities experience weaker links between migration and crime, while those with weaker governance structures and higher inequality see intensified effects.

3. Methodology

Secondary data sources on migration and crime in major metropolitan cities in India (Delhi and Surat) were used to investigate our research question. The variables used to represent migration and crime were drawn from pre-existing frameworks to ensure reliability, and analysis was carried out by means of descriptive statistical tools and small-sample tests.

3.1. Data Collection : Migration

We first estimate the yearly in-migration to our selected cities, Delhi and Surat. The 2021-22 Economic Survey of Delhi[4] conducted by the The Planning Department, Government of NCT of Delhi calculated this trend of migration using the following formula :

Migrated population = Increased population - Natural increase

where,

Natural increase = Total births - Total Deaths

The increase in population from year to year was measured using the estimated mid-year population.This is the population in a given year as of July 1st, and is derived by the National Commission of Population between census years. In addition to the data for Delhi for the years 2002 - 2022 taken directly from the Economic Survey described above, a similar table was constructed for Surat using the above formula and mid-year estimated population from Vital Statistics available on the Surat Municipal Corporation[5] website. Birth and Death rates were extracted from annual Civil Registration System reports on the Vital Statistics of India.[6] This allowed for calculation of migration data for the years 2010 - 2021.

Year	Estimated Mid-Year Population	Increased Population Over Previous Year	Total Birth	Total Death	Natural Increase	Migration
2002	142.1	2.7	3.01	0.86	2.15	0.55
2003	144.86	2.76	3.01	0.88	2.13	0.63

[4] Accessed in Statement 19.14 Trend of Migration in Delhi at https://delhiplanning.delhi.gov.in/sites/default/files/Planning/e19_demography.pdf

[5] Accessed under Vital Statistics at a Glance https://www.suratmunicipal.gov.in/departments/birthdeathregistration

[6] Accessed under Tables for Number of Births (Deaths) Registered - States/Union Territories/Districts in year-wise reports at https://censusindia.gov.in/census.website/en/data/VSREPORT

2004	147.68	2.82	3.06	0.85	2.21	0.61
2005	150.54	2.86	3.24	0.94	2.3	0.56
2006	153.47	2.93	3.23	0.99	2.24	0.69
2007	156.45	2.98	3.22	1.01	2.21	0.77
2008	159.49	3.04	3.34	1.08	2.26	0.78
2009	162.58	3.09	3.54	1.12	2.42	0.67
2010	165.74	3.16	3.59	1.24	2.35	0.81
2011	169.14	3.4	3.53	1.12	2.41	0.99
2012	172.92	3.78	3.6	1.05	2.55	1.23
2013	176.7	3.78	3.7	0.97	2.73	1.05
2014	180.47	3.77	3.74	1.21	2.53	1.24
2015	184.25	3.78	3.74	1.25	2.49	1.29
2016	188.03	3.78	3.79	1.42	2.37	1.41
2017	191.82	3.79	3.67	1.36	2.31	1.48
2018	195.61	3.79	3.63	1.46	2.17	1.62
2019	199.4	3.79	3.66	1.45	2.21	1.58
2020	203.19	3.79	3.02	1.43	1.59	2.2
2021	207.03	3.84	2.72	1.71	1.01	2.83
2022	210.96	3.93	3	1.28	1.72	2.21

Table 1. Delhi Migration (Source: Office of Chief Registrar, Births & Deaths, Government of NCT Delhi.)

Year	Estimated Mid-Year Population	Increased Population Over Previous Year	Total Birth	Total Death	Natural Increase	Migration
2009	4523022		67254	16747		
2010	4786002	262980	70632	18628	52004	210976
2011	4462002	- (324000)	68559	18681	49878	-(373878)
2012	4662078	200076	72719	18740	53979	146097
2013	5051908	389830	76178	20310	55868	333962
2014	5164332	112424	75824	21383	54441	57983
2015	5395852	231520	76443	22569	53874	177646
2016	5637750	241898	77671	23190	54481	187417
2017	5890493	252743	77747	22589	55158	197585
2018	6078457	187964	76289	24577	51712	136252
2019	6352273	273816	79735	25145	54590	219226
2020	6637703	285430	68502	32650	35852	249578
2021	6936534	298831	68515	36690	31825	267006

Table 2. Surat Migration (constructed using data sources : Surat Municipal Corporation, Census Reports on Vital Statistics based on the CRS)

3.2. Data Collection: Crime

The National Crimes Record Bureau (NCRB) publishes annual data in various formats including a summary of the number of incidences categorized by crime heads for each metropolitan city[7]. Six crimes were selected for the purpose of our study, namely Murder (Sec. 302 IPC), Attempt to Murder (Sec. 307 IPC), Kidnapping & Abduction (Sec.363 IPC), Rape (Sec. 376 IPC), Theft (Sec. 379), Dacoity (Sec.395 - 398 IPC), Robbery (Sec. 392 - 394, 397, 398 IPC), Burglary (Sec. 449 - 452, 454, 455, 457 - 460 IPC), Arson (Sec.435, 436 & 438 IPC). These were selected as they are among the crimes with the highest social costs as estimated by Heeks et al. (2018), who assess the economic and social costs of crime, by including costs incurred in anticipation of, as a consequence of, and in response to crime. Further, the crime heads selected exhibit broadly analogous counterparts under UK Law to facilitate cross-jurisdictional indexing.

To create an index of the selected crime heads, the Cambridge Crime Harm Index (CCHI) was used. Weights are attached to crime heads based on the length of sentence that would be served by a given individual if they were to hypothetically commit each of the crimes. A temporary Indian index has been formed by the Cambridge Centre for Evidence-Based Policing team, by transpositioning each crime in the Indian Penal Code (IPC) to a counterpart used by the Sentencing Council England and Wales and using corresponding weights.

Crime	Section under IPC	UK Offence matched to	UK CCHI 2020 score
Murder	302	Murder	5475
Attempt to Murder	307	Attempt murder	3285
Rape	376	Rape	1825
Kidnapping & Abduction	363	Kidnapping	1460
Theft	379	Theft	2
Dacoity	395 - 398	Robbery professionally planned commercial	730
Robbery	392 - 394, 397, 398	Robbery	365

[7] Accessed under IPC Crimes (Crime Head-Wise and City-Wise) under Summary (Metropolitan Cities) for years 2014 onwards, and under Incidence & Rate of Cognizable Crimes (IPC) under different Crime Heads (State, UT & City-wise) for prior years at https://www.ncrb.gov.in/crime-in-india-table-content.html

Burglary	449 - 452, 454, 455, 457 - 460	Burglary	19
Arson	435,436, 438	Arson	5

Table 3. Cross-jurisdictional construction of a Crime Harm Index (data source : Cambridge Centre for Evidence-Based Policing[8])

Using the UK CCHI weights, the following formula was created to index our selected crimes into an aggregated index:

Crime Harm Index = 5475*(Murder) + 3285*(Attempt to Murder) + 1460*(Kidnapping & Abduction) + 1825*(Rape) + 2*(Theft) + 730*(Dacoity) + 365*(Robbery) + 19*(Burglary) + 5*(Arson)

Year	Migration (lakhs)	Murder	Attempt to murder	Kidnapping and Abduction	Rape	Theft	Dacoity	Robbery	Burglary	Arson	Crime Harm Index
2002	0.55	438	373	1086	320	15626	42	432	2027	52	6051280
2003	0.63	401	330	968	406	14332	22	372	1566	54	5644283
2004	0.61	401	439	1066	457	17894	30	403	1586	36	6263072
2005	0.56	369	387	1302	562	1826	23	451	1826	42	6438101
2006	0.69	396	448	1272	533	16524	12	480	1767	29	6720351
2007	0.77	411	458	1460	524	15962	30	501	1868	26	7114966
2008	0.78	451	343	1317	396	17528	17	493	1721	36	6501790
2009	0.67	444	327	2149	404	20088	33	473	1566	26	7646730
2010	0.81	453	260	2629	414	21373	30	554	1355	48	8221006
2011	0.99	438	323	3007	453	21095	28	473	1226	33	8934784
2012	1.23	408	369	3274	585	20218	23	522	1483	72	9569923
2013	1.05	430	502	5406	1441	27982	26	1103	2395	85	15049374
2014	1.24	472	675	6016	1813	71937	65	5847	8839	166	19387910
2015	1.29	464	674	6630	1893	96924	61	6766	11121	182	20809192
2016	1.41	479	601	5925	1996	126467	38	4560	13346	171	19089513
2017	1.48	400	557	5203	1168	161818	32	2838	8859	127	15299547
2018	1.62	416	473	5124	1080	178953	24	2154	3591	110	14513860

[8] Accessed at the ICCHI 2021 spreadsheet at https://www.cambridge-ebp.co.uk/the-icchi-2021

2019	1.58	416	473	5124	1080	178953	24	2154	3591	110	14513860
2020	2.2	461	562	4011	967	178228	9	1946	2168	68	13105828
2021	2.83	454	752	5475	1226	199327	25	2315	2622	87	16499052
2022	2.21	501	781	5318	1204	205545	18	1802	6189	105	16470216
Mean	1.2	433.476	481.286	3512.476	901.048	76600	29.143	1744.714	3843.429	79.286	11611649.43
Median	1.05	438	458	3274	585	21373	26	554	2027	68	9569923
Std. Dev.	0.623	32.890	148.564	2012.985	541.089	75969.807	13.69	1873.779	3602.581	49.713	5117028.333

Table 4. Delhi Migration, selected IPC Crime-Heads, and aggregated CHI

Year	Migration (lakhs)	Murder	Attempt to Murder	Kidnapping and Abduction	Rape	Theft	Dacoity	Robbery	Burglary	Arson	Crime Harm Index
2010	2.10976	87	19	82	23	1712	12	80	273	7	747041
2011	-(3.73878)	100	38	112	36	1830	12	78	356	4	949224
2012	1.46097	98	26	91	40	1886	6	68	333	3	867134
2013	3.33962	99	30	309	76	1570	11	56	364	6	1268971
2014	0.57983	85	41	263	94	1315	14	30	257	4	1184293
2015	1.77646	101	17	247	43	1168	18	33	240	4	1080016
2016	1.87417	102	44	270	121	1174	5	63	201	7	1350862
2017	1.97585	89	103	332	32	1905	20	159	325	8	1451410
2018	1.36252	108	132	373	46	2087	29	181	378	12	1752101
2019	2.19226	108	132	373	46	2087	29	181	378	12	1752101
2020	2.49578	116	82	163	27	1358	3	36	220	9	1213996
2021	2.67006	121	74	270	52	1555	10	39	199	11	1423146
Mean	1.508	101.167	61.5	240.417	53	1637.25	14.083	83.667	293.667	7.25	1253357.917
Median	1.925	100.5	42.5	266.5	44.5	1641	12	65.5	299	7	1241483.5
Std. Dev.	1.793	11.011	42.165	104.645	29.4	331.493	8.533	57.065	69.552	3.223	317616.504

Table 5. Surat Migration, selected IPC Crime Heads, and aggregated CHI

3.2. Quantitative Analysis

Due to the limited size of the sample for both Delhi and Surat, our analysis will be largely exploratory in nature. We began by constructing scatter plots for each crime head and the aggregated CCHI against migration. Scatter plots allow for pairs of data points to be mapped, revealing an underlying pattern of comovement. Correlated variables fall along a trend line, with higher correlation leading to points more tightly clustered along this line.

Next, the coefficient of Spearman's rank correlation, which measures the strength and direction of a monotonic relationship between two variables, was calculated for migration and each crime head and the aggregated index using RStudio. Represented by rho (ρ), this statistic can take values between -1 to +1, with positive values indicating a positive correlation and negative ones indicating a negative correlation. The presence of a relationship is tested for against the following null hypothesis:

H_0 : $\rho = 0$ (no monotonic association between crime and migration)

Spearman results may be a result of migration and crime heads having strong trends, so the Mann-Kendall test is conducted to test for the presence of monotonic trends of each variable with time. This statistic (represented by tau, τ) measures the monotony of a variable with time, varying between -1 and 1; it is positive when the trend increases and negative when the trend decreases. This allows for the analysis to distinguish between co-movement between migration and crime levels and the independent temporal trends in crime incidence. This distinction is essential, as a variable may exhibit a statistically significant trend over time even in the absence of a strong contemporaneous association with migration, thus overestimating the coefficient of correlation. Here the null hypothesis is given by,

H_0 : $\tau = 0$ (no trend of given variable with time)

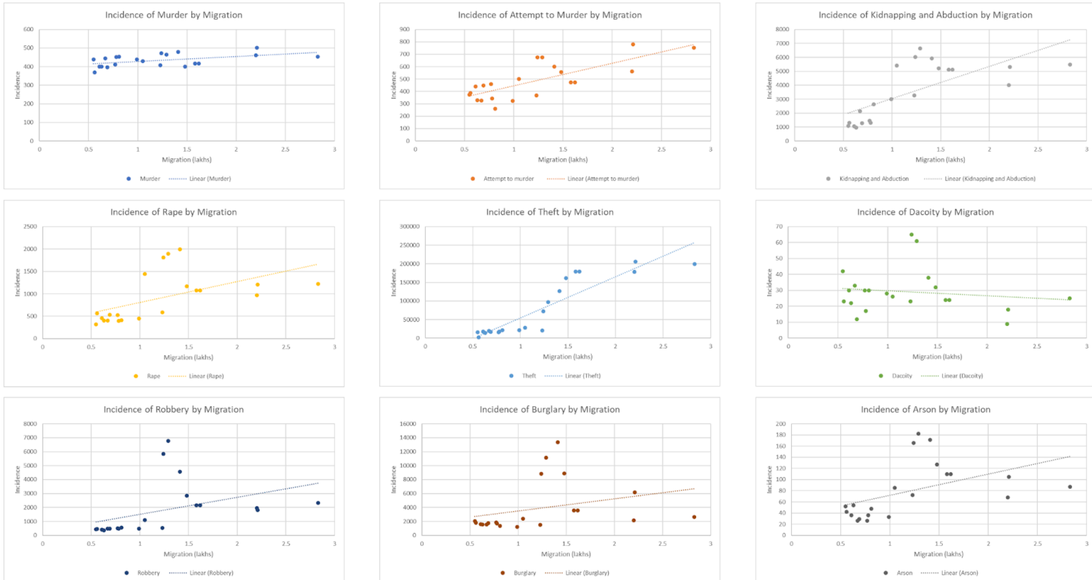
The Mann-Kendall test and Spearman's rank correlation are both non-parametric in nature, meaning they do not require assumptions about the distribution of underlying data, and are applicable for relatively small samples ($N > 10$ recommended) making them suitable for the present analysis.

4. Results

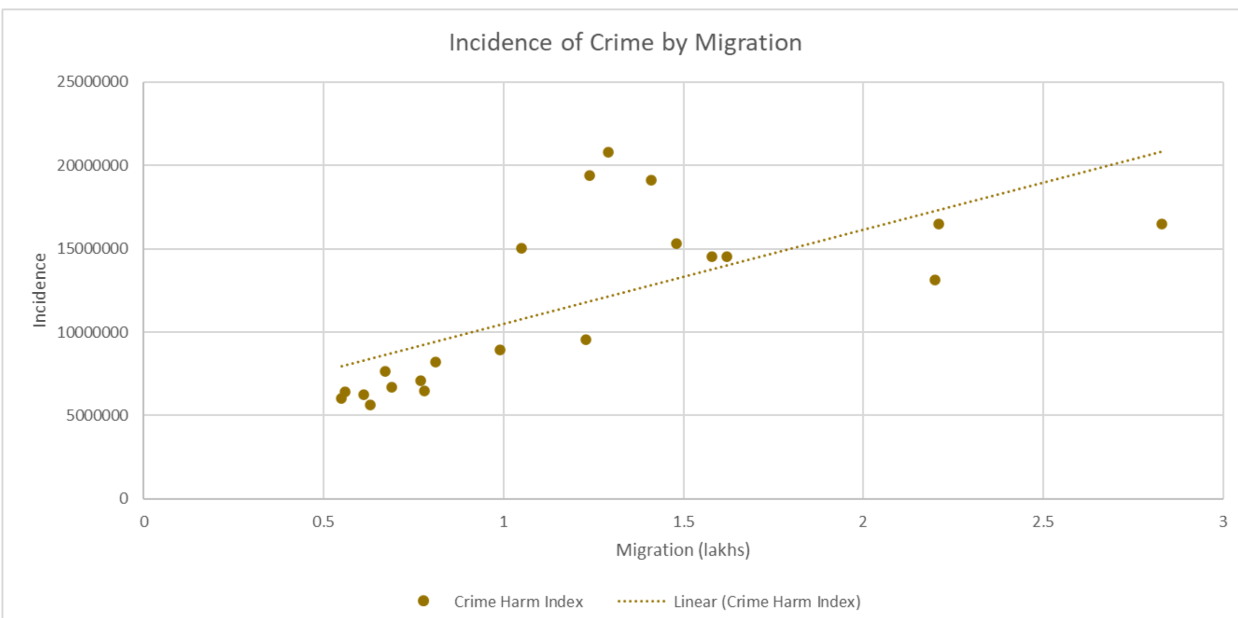
A combination of the descriptive analytics and small sample non-parametric tests reveals that while crime and migration exhibit positive correlation on both aggregated and disaggregated terms in Delhi, this is in part a result of each variable independently trending upwards with time rather than bivariate association. Further, no statistically significant correlation is found between crime and migration in Surat, despite the presence of upward trends in some crime heads, highlighting the role of demographic factors in determining the relationship between crime and migration.

4.1. Scatterplots

Scatterplots constructed for both cities reveal the bivariate relationship between migration and the selected crime heads as well as the aggregated crime harm index. For Delhi, visual inspection suggests a positive relationship between most violent and property crimes, with the exception of Dacoity. The strength of association varies widely between crimes, with Theft exhibiting a far steeper gradient than Murder, which has a fairly moderate dispersion. The scatterplot of migration and the crime index also exhibits an upward sloping trend line. However, there is significant deviation of datapoints away from the trend line. Interesting to note here is the marked peak in incidences of most crimes (with the exception of Murder) around the median level of migration (1.05 lakh).



Scatterplots (Delhi - Individual crime heads)

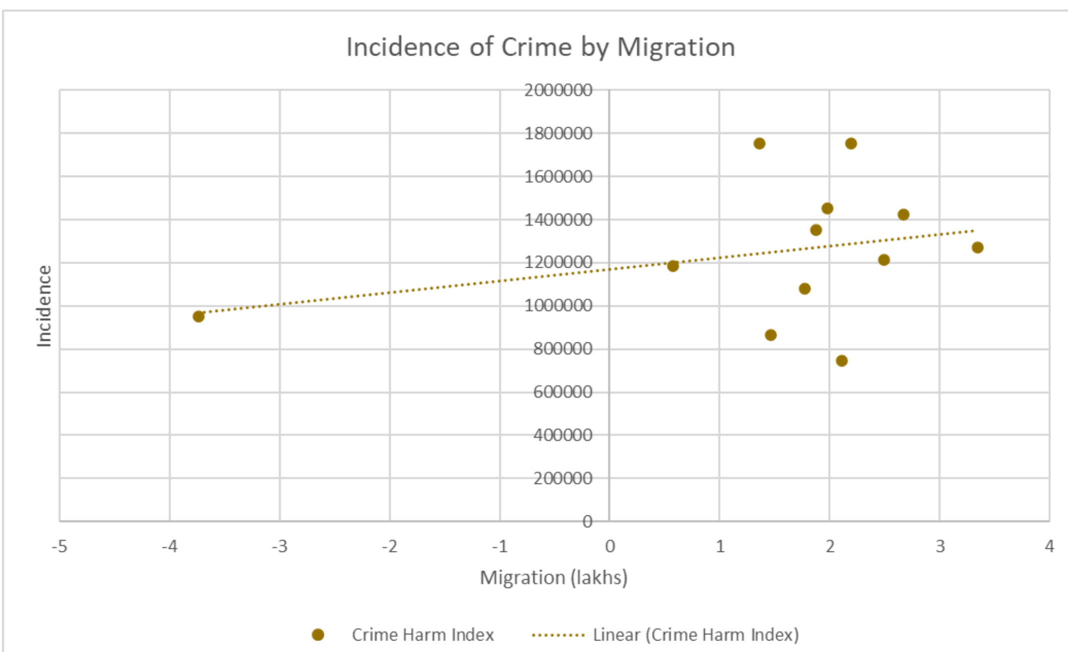


Scatterplot (Delhi - Crime Harm Index)

A similar assessment of the scatterplots derived from the data for Surat puts forth the first piece of evidence toward the heterogeneity in results across demographic contexts. The graphs suggest a weaker and less consistent pattern across crime heads. Murder and Rape show mild upward trends, and while Kidnapping and abduction, and Arson show mild positive trends, the dispersion is far wider than the Delhi data. The trend lines for Murder, Dacoity, and Robbery are nearly flat.

The composite crime index exhibits a slightly upward trend, however, observations are widely dispersed around the median level of migration (1.925 lakh).

Scatterplot (Surat - Individual crime heads)



Scatterplot (Surat - Crime Harm Index)

4.2. Spearman's Rank Correlation Test

Consistent with the graphical observations, the results from Spearman's Rank Correlation test also led to distinctly different results for Delhi and Surat. While nearly all the crime heads exhibit statistically significant positive associations with migration in Delhi, the corresponding coefficients for Surat are smaller in magnitude and statistically insignificant.

Crime	Spearman_rho	p_value
Murder	0.5167373	0.0164622
Attempt to Murder	0.7112699	0.0003003
Kidnapping & Abduction	0.8061059	0.0000103
Rape	0.7177655	0.0002489
Theft	0.9542060	0.0000000
Dacoity	-0.1268708	0.5836803
Robbery	0.8252114	0.0000041
Burglary	0.6042886	0.0037156
Arson	0.6850832	0.0006107
Crime Harm Index	0.8294901	0.0000033

Spearman's Rank Test for Delhi

With the exception of dacoity, all the crime heads exhibit statistically significant positive associations with migration, rejecting the null hypothesis. The strongest correlations are observed for Theft ($\rho = 0.954$, $p < 0.001$), Robbery ($\rho = 0.825$, $p < 0.001$), Kidnapping and Abduction ($\rho = 0.806$, $p < 0.001$), and the Crime Harm index ($\rho = 0.829$, $p < 0.001$). Weaker positive correlations are also found for attempt to Murder ($\rho = 0.71$, $p < 0.001$), Rape ($\rho = 0.72$, $p < 0.001$), Burglary ($\rho = 0.60$, $p < 0.01$), Arson ($\rho = 0.69$, $p < 0.001$), and Murder ($\rho = 0.52$, $p < 0.05$). Dacoity exhibits a weak and statistically insignificant ($p > 0.5$) negative relationship with migration.

Crime	Spearman_rho	p_value
Murder	0.37128	0.23474
Attempt to Murder	0.13310	0.68006

Kidnapping & Abduction	0.22807	0.47588
Rape	-0.00701	0.98276
Theft	-0.06305	0.84566
Dacoity	-0.29123	0.35841
Robbery	-0.06305	0.84566
Burglary	-0.19615	0.54121
Arson	0.46646	0.12636
Crime Harm Index	0.28722	0.36537

Spearman's Rank Test for Surat

In line with the scatterplot results, the Spearman correlations are substantially weaker for Surat. None of the estimated coefficients are statistically significant at zero ($p > 0.1$ across crime-heads and CHI) and the calculated coefficients are small and heterogenous across crimes. While Arson displays a moderate positive correlation ($\rho = 0.466$), it is not statistically significant ($p = 0.126$) Thus the weak associations illustrated by the scatterplots and calculated Spearman coefficient of correlations are statistically insignificant, and the null hypothesis of no association between crime and migration cannot be rejected for Surat.

Although the correlation analysis above suggests co-movement between migration and crime for Delhi, it cannot distinguish between association driven by common temporal dynamics and independent trends. Accordingly, Mann-Kendall tests are employed to assess monotonic trends in both migration and crime heads for Delhi and Surat.

4.3. Mann-Kendall Test

Migration is found to have a strong and statistically significant upward trend ($\tau = 0.914$, $p < 0.001$), indicating growth in migration to Delhi over the period of study, 2002 - 2022. The aggregated CHI also exhibits an upward trend ($\tau = 0.692$, $p < 0.001$). Further, a strong positive monotonic trend is detected for Theft ($\tau = 0.874$, $p < 0.001$), and moderate but statistically significant upward trends are detected for the remainder of the crimes with the exception of Dacoity, which exhibited a minor downward, but statistically insignificant trend ($\tau = -0.082$, $p > 0.5$).

These results suggest that the observed Spearman correlation is likely driven by the strong upward trend with time in migration as well the crimes. Thus, we cannot comment on independent association but rather observe evidence of shared temporal movement across the variables.

Variable	Mann_Kendall_tau	p_value
Migration	0.91428572	0.0000
Murder	0.38849926	0.0156
Attempt to Murder	0.48210162	0.0025
Kidnapping & Abduction	0.66348636	0.0000
Rape	0.51074129	0.0014
Theft	0.87351084	0.0000
Dacoity	-0.08193365	0.6281
Robbery	0.59330821	0.0002
Burglary	0.34450155	0.0319
Arson	0.39809182	0.0132
Crime Harm Index	0.6921261	0.0000

Mann-Kendall Test for Delhi

For Surat, the null hypothesis of no trend in migration cannot be rejected ($p > 0.05$). However, the CHI shows an upward trend ($\tau = 0.626$, $p < 0.01$). Statistically significant upward trends are observed for Murder ($\tau = 0.657$, $p < 0.001$), Arson ($\tau = 0.583$, $p < 0.05$), Attempt to Murder ($\tau = 0.565$, $p < 0,05$), and Kidnapping and Abduction ($\tau = 0.583$, $p < 0.05$). Rape, Theft, Dacoity, Robbery, and Burglary do not have statistically significant trends ($p > 0.05$). This suggests that while the aggregated index of crime exhibits upward movement with time, there is heterogeneity among the crime heads.

Variable	Mann_Kendall_tau	p_value
Migration	0.39393935	0.0864712
Murder	0.65650767	0.003891349
Attempt to Murder	0.56490195	0.013344646

Kidnapping & Abduction	0.49236596	0.032694459
Rape	0.19847906	0.409478188
Theft	0.04580286	0.890660286
Dacoity	0.12309149	0.629606366
Robbery	-0.01526762	1
Burglary	-0.19847906	0.409478247
Arson	0.58312923	0.012343407
Crime Harm Index	0.62597245	0.005970955

Mann-Kendall Test for Surat

5. Conclusion

This study aims to explore the relation between crime and migration in two Indian metropolitan cities, namely Delhi and Surat. We employ non-parametric statistical tests to examine the association between migration and crime across aggregate and disaggregated crime categories.

Surat shows no statistically significant correlation between migration and crime, even though certain crimes indicate increasing trends. In Delhi, while non-parametric tests indicate a positive correlation between migration and crime on both aggregated and disaggregated terms, further analysis suggests that this association is largely driven by the independent upward trends of both variables over time, rather than a direct causal or bivariate relationship.

These findings suggest that crime may be better understood by taking into context broader city-specific urban, socio-economic, and institutional factors rather than migration alone.

6. Limitations and Scope for Future Study

The results of our study are bound by limitations, primarily arising from constraints in data availability. Firstly, migration data could not be reliably constructed for major metropolitan cities such as Mumbai, Kolkata and Chennai. While birth rates and death rates for all metropolitan cities were available on Census Reports on Vital Statistics based on the Civil Registration System (CRS), city-wise estimated mid-year populations are not consistently available. In particular, no data was available for Kolkata, official records for Mumbai's population were estimated using a constant annual increase, and data for Chennai was sporadic, preventing the creation of a continuous time-series dataset. As a result, the sample size for this study is relatively small, limiting the feasibility of conducting meaningful regression. The empirical analysis is therefore limited to descriptive statistics and small sample correlation tests.

These methods themselves are further limited due to potential plausible autocorrelation, particularly in migration data. Mann-Kendall tests are more likely to conclude the presence of a trend when there is autocorrelation, which may affect the interpretation of our results.

Additionally, official statistics on crime must be interpreted with caution, as they are reliant on accurate reporting of crimes. Owing to the lack of India-specific research on the social harm of crimes, this study draws on European research which operates within different sociopolitical contexts. In addition, the crime harm indexing approach used is not based on Indian institutional processes, once again for the lack of existing literature. We have made use of the temporary harm index calculated by Neyroud (2021) in the absence of a more recent index.

A more accurate indexing of crimes under IPC would be possible if data on the length of sentence served under different crime heads in Indian prisons was made available. While NCRB Prison statistics report the length of sentence on an annual basis, this is not categorized across crime heads. Future research would also benefit from the updated Census scheduled to be released in 2027, and consequent derivations of mid-year population estimates by city.

References

1. Bhagat, R. B., & Keshri, K. (2020). Internal Migration in India. In *Internal Migration in the Countries of Asia* (pp. 207–228). https://doi.org/10.1007/978-3-030-44010-7_11
2. Bianchi, M., Buonanno, P., & Pinotti, P. (2012). Do immigrants cause crime? *Journal of the European Economic Association*, 10(6), 1318–1347. https://doi.org/10.1111/j.1542-4774.2012.01085.x
3. Butcher, K., & Piehl, A. M. (2007). Why are Immigrants' Incarceration Rates so Low? Evidence on Selective Immigration, Deterrence, and Deportation. https://doi.org/10.3386/w13229

4. Debnath, A., & Roy, N. (2013). Linkage between internal migration and crime: Evidence from India. *International Journal of Law, Crime and Justice*, 41(3), 203–212. https://doi.org/10.1016/j.ijlcj.2013.06.001

5. Devy, G. N. (2021). Thinking of Crime: The State, Migrant Population and the Missing Justice. *Social Change*, 51(2), 151–159. https://doi.org/10.1177/00490857211012102

6. Egger, E. (2021). Internal migration and crime in Brazil. *Economic Development and Cultural Change*, 71(1), 223–259. https://doi.org/10.1086/714740

7. Gazala, S., & Jha, N. (2025) Urban Migration, Crime, and the Sustainability Paradox in India. *Tenth International Conference on Economic Growth and Sustainable Development: Emerging Trends*, SDMIMD

8. Hazra, D. (2020). What does (and does not) affect crime in India? *International Journal of Social Economics*, 47(4), 503–521. https://doi.org/10.1108/ijse-03-2019-0206

9. Hirschi, T., & Gottfredson, M. (1983). Age and the Explanation of Crime. *American Journal of Sociology*, 89(3), 552–584. https://doi.org/10.1086/227905

10. Imran Khan, M., Alharthi, M., Haque, A., & Illiyan, A. (2023). Statistical analysis of push and pull factors of migration: A case study of India. *Journal of King Saud University - Science*, 35(8), 102859. https://doi.org/10.1016/j.jksus.2023.102859

11. Kollamparambil, U. (2018). Immigration, internal migration and crime in South Africa: A multi‐level model analysis. *Development Policy Review*, 37(5), 672–691. https://doi.org/10.1111/dpr.12382

12. Lee, M. T., Martinez, R., & Rosenfeld, R. (2001a). Does immigration increase homicide? Negative evidence from three border cities. *Sociological Quarterly*, 42(4), 559–580. https://doi.org/10.1111/j.1533-8525.2001.tb01780.x

13. Nunziata, L. (2015). Immigration and crime: evidence from victimization data. *Journal of Population Economics*, 28(3), 697–736. https://doi.org/10.1007/s00148-015-0543-2

14. Ozden, C., Testaverde, M., & Wagner, M. (2017). How and Why Does Immigration Affect Crime? Evidence from Malaysia. *The World Bank Economic Review*, 32(1), 183–202. https://doi.org/10.1093/wber/lhx010

15. Prakash, A. (2018). Identity, migration and crime : conceptual underpinnings and select evidence from India [JD]. *Rivista Degli Studi Orientali*, XCI, supplemento. https://doi.org/10.19272/201803824011

16. Shaw, C.R. and McKay, H.D. (1942) Juvenile Delinquency and Urban Areas: A Study of Rates of Delinquents in Relation to Differential Characteristics of Local Communities in American Cities. The University of Chicago Press, Chicago.

17. Spenkuch, J. L. (2010). Understanding the impact of immigration on crime. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1612849

18. Wood, C. H., Gibson, C. L., Ribeiro, L., & Hamsho-Diaz, P. (2010). Crime victimization in Latin America and intentions to migrate to the United States. I*nternational Migration Review*, 44(1), 3–24. https://doi.org/10.1111/j.1747-7379.2009.00796.x

Climate Shocks, Human Capital, and Labour Informality: Evidence from India (1990–2020)

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Abstract

The informal economy remains a defining feature of India's labour market, employing a large share of the workforce while often being characterised by income insecurity, limited social protection, and low productivity. At the same time, climate-related disasters and disruptions in educational continuity have emerged as important challenges affecting labour market outcomes in developing economies. This study attempts to examine the relationship between climate-related disaster shocks, educational outcomes, and the size of the informal economy in India from 1990 to 2020. Using data sourced from the World Bank, disaster databases, and national education indicators, the paper analyses the correlation between the number of people affected by climate-related disasters, gross enrollment ratios, and the estimated size of the informal economy. The quantitative analysis reveals a strong negative relationship between educational enrollment and the size of the informal economy, suggesting the role of education in improving labour market outcomes. In contrast, the climate-related disaster variable does not show a statistically significant relationship at the national level, indicating the possibility of spatially concentrated effects. To further explore these dynamics, qualitative case studies across several Indian states highlight how climate shocks disrupt traditional livelihoods, trigger migration, and increase reliance on informal employment. Overall, the paper highlights the complex relationship between climate vulnerability, human capital formation, and labour market informality, emphasizing the need for policies that strengthen education systems and climate-resilient employment opportunities.

Keywords: Informal Economy, Climate Disasters, Education, Labour Markets, India

1. Introduction

The informal economy– comprising unregistered, unregulated and often unprotected forms of employment plays a central yet paradoxical role in economies around the globe. While it absorbs surplus labour, provides livelihoods in the absence of sufficient formal jobs and contributes significantly to economic output, it is also characterised by income insecurity, exploitation of labour, lack of social protection and limited skill enhancement. A persistently large informal sector also limits tax revenues, lowers labour standards and slows long-term structural transformation, adversely shaping both growth trajectories and inequality outcomes.

In the case of India, the informal economy employs over 80% of the workforce and generates nearly half of the country's surging GDP. The sector has witnessed a steep growth between 1990 and 2020 but unfortunately, this growth was shaped in part by catastrophic disasters that exploited existing vulnerabilities in rural livelihoods. Alongside this, climate change and the rising frequency of natural disasters have emerged as an alarming global concern, particularly for developing countries like India. Climate-related shocks are no longer rare or isolated events– they keep on becoming more frequent, intense and economically disruptive, making this a critical moment to examine their developmental consequences. The unforeseen natural disasters wreck farming jobs and push rural workers to urban cities for unregulated work like street vending and construction. In an agrarian economy such as India, agriculture still supports about half of our labor force and relies heavily on unpredictable monsoons– making it extremely important and extremely susceptible. Events like the 1999 Odisha supercyclone that destroyed coastal farms and killed over 10,000 people, the 2008 Kosi floods in Bihar that submerged millions of acres and the harsh 2002 and 2015 droughts in parts of the Ganga basin led to significant yield losses have proved the vulnerability of the agricultural sector in India. These shocks–over 1,000 from 1990 to 2020– not only damaged produce and displaced workers on a huge scale but also disrupted schooling in affected families, who focused on survival income instead of education. As a consequence, these natural disasters are associated with persistent low-skill informality across generations and regions. What often turns these natural disasters into social and economic disasters, often too big to contain, is how they shatter communities and livelihoods beyond just the initial strike.

This connection raises major apprehensions: it threatens India's push for the UN's 2030 Sustainable Development Goals, especially SDG 4 (quality education), SDG 8 (decent work), and SDG 13 (climate action), leaving some 500 million informal workers unprotected as climate risks grow. Efforts like the 2008 National Action Plan on Climate Change and 2015 Skill India Mission helped with tougher infrastructure and training, but their impact remained limited,

inaccessible and unequal . For India, with its young population and rising climate threats, this is a pressing socio- economic concern as it risks trapping millions in low-productivity jobs, slowing overall growth and widening inequality in an already divided economy.
Our study asks: How do climate-related disaster shocks and education outcomes shape the size of India's informal economy from 1990–2020? Climate is chosen as a driver here because its shocks cause sudden, clear disruptions – unlike gradual, structural changes–making it possible to trace cause and effect with case studies and detailed qualitative analysis. Education is central to this analysis as it is a key determinant of human capital formation and one of the three core components of the Human Development Index (HDI), alongside health and income. Disruptions to education during disaster periods can have long-term effects on labour productivity and mobility while also adversely affecting employment quality. Climate disasters can disrupt rural incomes, often leading to migration without adequate skills to access formal employment, while education losses in disaster areas push families into a vicious cycle of poverty by limiting human capital. Methodologically, this study adopts a mixed approach, combining qualitative analysis with a linear regression framework to provide supporting macroeconomic evidence.

Our study finds that improvements in educational access are strongly associated with reductions in labour market informality, while the impact of climate shocks appears more localised and mediated by regional conditions. It argues for integrated policy interventions that combine climate resilience, education reform and targeted skill development to enable a transition toward more secure and formal employment.

2. Literature Review

Through the lenses of migration due to natural calamities rummaging in different states of India and its effects on educational continuity of the population native to the state, the informal sector economy has been deeply studied. The study can be divided under two headings – Effects of climate and Impact of education.

2.1 Why informality matters?

India is home to the world's largest informal economy. As per National Accounts Statistics, the informal sector contributed about 45% to the total GDP of the economy in FY 2022-23. The informal sector faces a lot of precarity due to the nature of its job and lack of formalised recognition. The workers face significant challenges on grounds of safety, security and stability of their jobs. Moreover, natural disasters or climate related changes result in shifting of workers to other formal or informal sectors and their vulnerability to the circumstances leave them in an uncertain position in the economy. Their acceptance rate depends on a lot of factors such as educational qualifications, vocational training skills, family planning, status of livelihood, etc. Our research paper seeks to establish a relationship between the educational qualification of workers and the effect of disasters on the informal sector economy and sectoral movements.

2.2 Effects of climate

Findings by Shelley Liu and Alice Xu in 2025 suggest that marketers in Monrovia face climate-related precarity in their ability to sell and through disruptions to the supply chain. It has been found that marketing makes up an especially large proportion of the informal sector in Liberia, migrant workers are likely to take on positions as marketers into the system and further strain an already crowded space. This shows that when climate disasters strike the informal sector, it worsens income security for the already existing workers as well as for the new entries into the sector.

Research by Jonathan Colmer (2014) says that economic loss in agricultural productivity due to aggressive climate change is balanced by workers by reallocating themselves into other sectors like manufacturing units. However, the benefits of labour reallocation are attenuated by direct adverse effects of temperature on manufacturing activity. The economic benefits in the form of increased productivity and output growth from the sector these workers have shifted to become less significant because these sectors (the manufacturing sector, here) face damage and losses being hit by the same climate change.

The study by César Andrés Mendoza and Benjamin Jara (2019) on the 2016 earthquake in Ecuador shows that people living in earthquake-affected areas were more likely to move into the informal sector after the disaster. However, the overall probability of being informally employed did not change much. This suggests that many workers who were earlier in formal jobs shifted into informal work after the earthquake, while those already in informal employment remained informal. The researchers also found that men were more likely to experience changes in their level of informality due to the earthquake, but there was no significant change for women. This indicates that women often have fewer alternatives and are already pushed into informal work, regardless of such shocks or they might drop out of the labour force completely.

Victoria Wenxin Xie (2024) concludes using data from Brazil that heat shocks lead to a higher probability of manufacturing worker layoffs and a significant 16.7% of all manufacturing workers who were laid off due to heat shocks failed to find another formal job within 36 months. This shows that the formal labour market adjustment is accompanied by increases in unemployment, as well as worker transitions to informal sectors and this causes persistent labour market impacts in the medium run. This research is strongly relevant for the heatwaves that are faced by northern India which has a significant impact on the informal sector, especially agriculture.

2.3 Impact of education

A paper by Sharma, Kumar and Meher (2002) shows that while education has increased the proportion of educated workers in India's labour market, it has simultaneously coincided with shrinking formal job opportunities and increasing casualisation even among educated workers, indicating that education has not insulated workers from informal or insecure employment. This shows that even educated workers are forced to accept underpaid jobs and join the informal economy due to shrinking job scope in the formal sector.

Albert Park and Xiaobo Qu find a significant gap in the returns to education for formal workers as compared to informal in China, and especially between those working in the formal and informal sectors. The return to a year of schooling is 11.1 per cent in the formal sector and just 4.2 per cent in the informal sector. This large difference in the returns to education suggests unexploited arbitrage opportunities and definite labour market segmentation between the two sectors.

Ann-Sofie Kolm & Birthe Larsen's work in 2016 proves that informal activities reduce the incentives to acquire higher education if informal employment opportunities mainly are available to low-educated workers and more zealous enforcement policies will in this case improve educational incentives as it reduces the attractiveness of remaining a low-educated worker.

Balwant Singh Mehta & Ishwar Chandra Awasthi's research in 2022 indicates that affirmative policy has helped the marginalised group in accessing formal sector employment, particularly highly educated individuals have benefited more than others. This suggests that education plays a significant role in bringing the informal sector towards a formalised one. The paper also states that policies guaranteeing minimum social security and social protection are inevitable to mitigate the hardships of vulnerable urban informal sector workers especially those belonging to lower income groups and with lower educational levels.

Though there are quite a significant amount of research papers focussed on determining how migration affects educational attainment and its continuity, there is a glaring lacuna in the field of how climate induced migration or migration due to natural disasters affect education of the children in both rural and urban areas. Most research studies have focused on regional vulnerability assessments, governance frameworks, and environmental impacts while not giving enough emphasis to direct consequences on education and the literacy rate. Such a gap has underlined the necessity for more targeted research, where it studies the effects that climate change-induced migration will bring about on migrant families including the marginalised communities in terms of changes in income, employment opportunities, and access to resources. Addressing this gap becomes important to determine targeted policies for a higher literacy rate and equal access to education for all. Our research paper seeks to establish a relationship between the educational qualification of workers and the effect of disasters on the informal sector economy and sectoral movements.

3. Research Methodology

The research paper study employs a mixed-methods approach to examine the relationship between climate-related disaster shocks, education outcomes, and labour market informality in India between 1990 and 2020. The analysis combines qualitative evidence with a supporting linear regression framework to capture both the economic mechanisms and the macroeconomic patterns underlying labour informality in the country.

3.1 Quantitative Methods

3.1.1 Indicators and Database Selection

The study intentionally selects the size of the Informal Economy, Climate-related Disasters and Gross Enrollment Ratio as key variables to analyse how climate stress and human capital conditions influenced the informal sector in India from 1990 to 2020.

The study has considered the informal economy as the dependent variable, measured using the World Bank's Dynamic General Equilibrium (DGE) model-based estimate of informal output. The indicator is selected because it provides a macro-level measure of informal economic activity, which is otherwise difficult to estimate using conventional official statistics. Since our research focuses on understanding how external, sudden shocks affect the informal sector, this measure allows for trend analysis across decades.

Climate-related disaster frequency and the number of people affected are used as key explanatory variables. These indicators capture not only the occurrence of climate disasters but also their human impact. Frequency reflects how often economies face climate shocks and the number of people affected shows the scale of social and economic disruption faced. Together, these variables act as a proxy for climate stress on livelihoods, which is expected to push vulnerable, susceptible populations into informal work.

Gross Enrollment Ratio is used as a stand in for access to education and formation of human capital. Education is associated with differences in skill levels, employability, and access to formal sector jobs. Lower enrollment is often associated with more limited access to formal employment opportunities and a higher likelihood of turning to informal employment. Including this variable helps us to examine whether weak human capital conditions amplify the effect of climate shocks on the informal economy of the country.

3.1.2 Model Specification

The linear regression is employed as supporting macroeconomic evidence to examine the relationship between climate-related disaster shocks, education outcomes and the size of the informal economy in India from the years 1990 to 2020. The dependent variable is the size of the informal economy, measured using Dynamic General Equilibrium (DGE) model based estimates of informal output from the World Bank's Informal Economy Database, which provide a consistent measure of informality over time. Climate-related shocks are captured using the frequency of disasters and the total number of people affected, sourced from the EM-DAT database and the IMF Climate Data platform. Education outcomes are measured using the Gross Enrolment Ratio to capture changes in human capital accumulation. The specification follows a reduced-form DNF-type framework,where disaster exposure and education enter jointly to explain variations in informality, with the regression interpreted as indicative macroeconomic evidence supporting the qualitative analysis.

3.2 Qualitative Methods

The qualitative component forms the primary basis of the analysis and focuses on 11 Indian states, selected to reflect regional variation in susceptibility to climate shocks, agricultural dependence and employment structure. This component draws on secondary sources including disaster reports from the central and state governments, news anecdotes, media interviews and academic research papers. The qualitative analysis traces the pathways through which climate induced shocks disrupt agricultural livelihoods, interrupt schooling and influence labour market outcomes, with closer attention to distress migration and long-term shifts toward informal employment.

4. Analysis

4.1 Regression Results

Primary Education

Variable	Coefficient	Standard Error	t-statistic	P-value
Intercept	58.95	8.66	6.81	0.000001
X1 = People affected by climate-related disasters (lagged)	-5.19×10^{-10}	7.26×10^{-9}	−0.07	0.944
X2 = Primary gross enrollment (lagged)	−0.384	0.087	−4.39	0.00025

Model Statistics:
$R^2 = 0.503$ Adjusted $R^2 = 0.456$ F-statistic = 10.63 ($p = 0.00065$)

Estimated regression equation:
$Y = 58.95 - 5.19 \times 10^{-10}(X1t-1) - 0.384(X2t-1)$

A one-unit increase in lagged primary gross enrollment is associated with a 0.38-unit reduction in the size of the informal economy, holding climate-related disaster impacts constant. This coefficient is statistically significant at the 1% level ($p = 0.00025$). In contrast, the lagged climate-related disaster variable is statistically insignificant ($p = 0.944$), suggesting no statistically significant association with informality within this specification. The model accounts for approximately 50% of the observed variation in the informal economy.

Secondary Education

Variable	**Coefficient**	**Standard Error**	**t-statistic**	**P-value**
Intercept	34.80	0.74	47.18	< 0.0001
X1 = People affected by climate-related disasters (lagged)	-5.58×10^{-10}	1.52×10^{-9}	−0.37	0.717
X2 = Secondary gross enrollment (lagged)	−0.250	0.012	−20.06	< 0.0001

Model Statistics:
$R^2 = 0.948$ Adjusted $R^2 = 0.943$ F-statistic = 201.2 ($p < 0.0001$)

Estimated regression equation:
$Y = 34.80 - 5.58\times10^{-10}(X1t-1) - 0.250(X2t-1)$

A one-unit increase in lagged secondary enrollment is associated with a 0.25-unit reduction in the size of the informal economy, holding other factors constant. The coefficient is highly statistically significant ($p < 0.0001$), indicating a strong negative association. The lagged climate-related disaster variable remains statistically insignificant ($p = 0.717$). This model exhibits a high explanatory power, accounting for nearly 95% of the variation in informality.

Tertiary Education

Variable	Coefficient	Standard Error	t-statistic	P-value
Intercept	26.03	0.38	68.52	< 0.0001
X1 = People affected by climate-related disasters (lagged)	6.25×10^{-10}	1.82×10^{-9}	0.34	0.735
X2 = Tertiary gross enrollment (lagged)	−0.358	0.021	−17.03	< 0.0001

Model Statistics:
$R^2 = 0.933$ Adjusted $R^2 = 0.926$ F-statistic = 145.3 ($p < 0.0001$)

Estimated regression equation:
$Y = 26.03 + 6.25 \times 10^{-10}(X1_{t-1}) - 0.358(X2_{t-1})$

A one-unit increase in lagged tertiary enrollment is associated with a 0.36-unit reduction in the size of the informal economy, holding climate-related disaster impacts constant. The coefficient is highly statistically significant ($p < 0.0001$). The lagged climate-related disaster variable is statistically insignificant ($p = 0.735$). This model explains approximately 93% of the variation in the informal economy.

4.2 Interpreting Regression Results

The regression results across the three education levels provide consistent macro-level evidence supporting the patterns observed in the qualitative analysis. Lagged gross enrollment ratios are negatively related in all models, indicating that higher levels of educational participation in the previous period are associated with a smaller size of the informal economy in the current period, holding the impact of climate-related shocks constant.

In contrast, the lagged climate-related disaster variable remains statistically insignificant across all three models. The estimated coefficients are small and the p-values are high, suggesting that, at the aggregate level, the number of people affected by climate-related disasters does not exhibit a statistically significant association with informality. Climate disasters tend to cause localized disruptions and sector-specific displacement, which are unlikely to produce proportional changes in the overall size of the informal economy. The lack of statistical significance highlights the limitations of macro-level regression for capturing heterogeneous and spatially concentrated effects.

Model fit statistics show high explanatory power for secondary and tertiary education, indicating that enrollment at higher levels aligns with long-term structural shifts in the labour market. These results suggest that education reflects persistent economy-wide dynamics such as skill formation, employability, and access to formal employment, while climate-related stressors operate through channels better captured by qualitative and region-specific analysis.

4.3 Qualitative Evidence on Climate-Induced Informalisation

While quantitative regression analysis is helpful in establishing macro-level associations, it often fails to capture the ground reality. Especially while dealing with something geography and society-specific such as climate and its relation to the informal economy, it is important to delve into the details of how they are correlated.

This qualitative analysis traces the causal pathways linking climate-related shocks to labour market outcomes at the ground level. Drawing on state-level reports, investigative journalism, policy documents, and academic case studies across eleven Indian states, this is an attempt to identify recurring mechanisms through which climate stressors reshape employment trajectories.

The states of Maharashtra, Karnataka, Uttarakhand, Bihar, Kerala, Tamil Nadu, Assam, Tripura, Gujarat, West Bengal, and Odisha have been selected for their diverse geographies, climatic vulnerabilities, labour market structures, and development profiles. Together, they capture India's major climate risks: droughts and heat stress (Maharashtra, Gujarat), floods and cyclones (Bihar, Assam, Odisha, West Bengal, Kerala, Tamil Nadu), landslides and glacial risks (Uttarakhand), and rising temperature stress in urban-industrial settings (Karnataka, Tripura).

Across these states, the analysis traces how climate shocks interact with pre-existing structures to generate pathways of informalisation.

4.3.1 Disruption of Subsistence Livelihoods

A common impact of climate-related shock was the erosion of subsistence-based livelihoods, forcing large chunks of the population into the labour market.

In Maharashtra, climate variability has increasingly undermined the traditional livelihoods of marginalised communities such as the Pardhi and agricultural workers. Reports document how erratic rainfall, droughts, and water scarcity have made hunting, forest-based livelihoods, and subsistence farming non-viable, compelling households to seek wage labour without the education or skills required for formal employment. As a result, entry occurs primarily into casual agricultural labour, sugarcane cutting, brick kilns, or other informal occupations, often under exploitative conditions. (ActionAid Association, 2024)

Similarly in Uttarakhand, climate-induced landslides, forest fires and extreme rainfall have destabilised the mountain agrarian systems. Case studies from Uttarkashi and other hill districts show that the decline of agriculture has pushed households into distress labour migration, engaging in informal work such as daily wage construction, road work, and tourism-related services with no contractual security. (Prakash, 2012; Sati, 2022)

In these cases, there is creation of new labour market entrants rather than reallocation of labour. Majorly from marginalised communities, this section of the population with low education and skills is not eligible to enter the formal labour force and thus gets absorbed in the informal sector.

4.3.2 Climate Induced Migration and Sectoral Movement

Disruptive climatic conditions such as floods, droughts, and cyclones create ‘environment refugees’ through distress migration. This migration often occurs abruptly, without adequate time for skill acquisition or job matching, resulting in high informal absorption.

In Bihar, repeated flooding along the Kosi and Gandak river basins has led to chronic displacement and seasonal migration. Empirical studies from East Champaran and other districts document how flood-affected households migrate to urban areas or agriculturally rich regions, often entering informal construction, brick kiln work or petty services. The sudden nature of migration and the absence of social networks in the destination areas reinforce informality through occupational downgrading. (Kumar et al., 2016; Richa & Sen, 2024)

Home to the mighty Brahmaputra river, Assam is prone to floods and soil erosion. Rural households are displaced almost annually. Studies highlight how displaced workers transition into informal urban labour or precarious rural wage work, often cycling between migration and return depending on flood intensity. (Das, 2020; Juned, 2022)

In the coastal states of Odisha and West Bengal, cyclones and recurring coastal floods have forced agricultural workers to migrate to construction and informal industrial work. The most notable 1999 super cyclone caused widespread disruption, with its effect visible even a quarter century later. Reports explicitly note how climate stress accelerates occupational shifts away from agriculture but fails to provide pathways into formal employment, instead deepening informality. (UNICEF, 2000; Bhattacharyya, 2025)

This process-tracing evidence is consistent with the hypothesis that climate shocks act as push factors, reallocating labour across sectors while structurally favouring informal employment outcomes.

4.3.3 Loss of Formal Employment

Beyond individual livelihood disruption, climate shocks also reduce overall economic activity, directly eroding formal employment opportunities and indirectly expanding informal work.

In Tamil Nadu, the Chennai floods resulted in significant job losses in the MSME sector, with estimates of tens of thousands of workers losing formal or semi-formal employment. Media and policy reports indicate that many displaced workers subsequently shifted into informal self-employment or casual labour, as enterprises struggled to recover and rehire formally. (“Sample survey of losses sustained during Chennai floods,” 2016)

Maharashtra’s Vidarbha region presents a parallel case, where prolonged droughts and climate stress have reduced agricultural incomes and non-farm rural employment, leading to a decline in regular wage work and an increase in daily-wage informal labour. (ActionAid Association, 2024; Vedeld et al., 2014)

In Karnataka, rising temperatures and heat stress have reduced productivity and earnings in informal and formal sectors alike, but formal employment losses have had a particularly strong spillover effect, pushing workers into app-based, casualised, or unregulated labour markets. (Balasubramanian et al., 2022; Surie & Sharma, 2019)

These cases illustrate that climate shocks may contribute to labour informalisation not only through entry mechanisms but also through formal sector exit. Moreover, the informal sector may also fail as an absorbent sector, increasing unemployment.

4.3.4 The Unequal Gendered Burden of Distress

Across almost all states, climate-induced labour informalisation is deeply gendered.

In Maharashtra, Karnataka, Bihar, Assam, and West Bengal, reports consistently show that women face heightened vulnerability following climate shocks. While men often migrate in search of work, women are frequently left behind in affected areas, bearing increased unpaid care burdens while also losing agricultural or allied employment opportunities. (ActionAid Association, 2024; Balasubramanian et al., 2022; Kumar et al., 2016; Das, 2020; Bhattacharyya, 2025)

In flood and cyclone-prone regions, women's limited mobility, lower access to education, and concentration in informal agricultural and home-based work restrict their ability to transition into alternative employment. Several sources also document increased incidences of gender-based violence and economic insecurity following disasters, further constraining women's labour market participation.

These findings indicate that climate shocks not only expand informality overall but also intensify existing gender inequalities within informal labour markets.

4.3.5 Policy Implications and Divergent Outcomes

While the dominant pattern points toward informalisation, the qualitative evidence also identifies important deviations, which are analytically valuable.

Kerala stands out as a case where post-disaster contexts, particularly after the 2018 floods, were associated with rising informal wages in certain sectors. Studies document increased demand for construction and reconstruction labour, leading to short-term wage gains for informal workers, including migrants. While these gains did not correspond to increased formalisation, they reflect demand-driven improvements within informality. A key reason behind this improvement was a decreased informal labour supply due to MGNREGA. (Beyer et al., 2022)

Similarly, in other regions with effective implementation of MGNREGA, climate shocks did not uniformly translate into informal labour market entry. Evidence from Maharashtra, Odisha, and parts of Bihar indicates that guaranteed public employment acted as a buffer, absorbing climate-affected workers and preventing distress migration into informal urban labour markets. This suggests that institutional factors can mediate the climate–informality relationship.

	Mechanism	**States**	**Indicative Evidence**
Subsistence Disruption	Collapse of traditional livelihoods	Maharashtra, Uttarakhand, Odisha	Forest-based and agrarian livelihoods rendered non-viable by droughts, floods, landslides
Labour Market Entry	Low education leading to informal entry	Maharashtra, Bihar, Assam	New labour entrants absorbed into casual wage work
Distress Migration	Rural–urban migration	Bihar, Assam, Odisha, Bengal	Flood-induced migration into construction and services
Sectoral Shift	Agriculture to construction	Bihar, Odisha, Tamil Nadu	Climate shocks accelerate occupational shifts
Formal Job Loss	Economic contraction	Tamil Nadu, Maharashtra, Karnataka	MSME shutdowns, loss of regular wage employment

	Mechanism	States	Indicative Evidence
Informal Wage Dynamics	Post-disaster labour demand	Kerala	Reconstruction raises informal wages without formalisation
Policy Buffer	Public employment	Maharashtra, Odisha, Bihar	MGNREGA absorbs climate-affected workers
Gendered Impact	Women's job loss and immobility	All states	Heightened care burden, violence, exclusion from migration

4.3.6 Synthesis

The qualitative evidence across the eleven states indicates that climate-related shocks play a substantive role in shaping labour market outcomes in India, particularly by reinforcing pathways into informal and precarious employment. These impacts do not operate through a single, uniform channel but instead emerge through multiple, interlinked processes that unfold at the local and sectoral levels.

Across diverse geographic contexts, climate shocks undermine subsistence livelihoods, trigger distress migration, and reduce local economic activity, thereby narrowing access to stable and formal employment. Workers affected by droughts, floods, cyclones, and heat stress often enter the labour market suddenly, without the education, skills, or networks required for formal work, resulting in absorption into informal sectors such as construction, casual agriculture, and petty services. These processes are especially pronounced in regions with high dependence on climate-sensitive livelihoods and limited employment diversification.

At the same time, the analysis highlights that the labour market consequences of climate shocks are strongly shaped by institutional and policy environments. In areas where public employment programmes and social protection mechanisms were accessible, most notably through MGNREGA, climate-induced displacement and livelihood loss did not translate as directly into informal labour market entry. Such interventions acted as stabilising mechanisms, absorbing labour during periods of climatic stress and reducing reliance on distress migration and precarious work. Conversely, where these institutional buffers were weak or unevenly implemented, informalisation pressures were more acute.

The case of Kerala further illustrates that climate shocks do not uniformly worsen labour outcomes, even within the informal sector. Post-disaster reconstruction created short-term demand for labour and, in some instances, raised informal wages. However, the persistence of informal employment in these contexts underscores that recovery-led labour absorption, while beneficial, does not automatically lead to formalisation in the absence of sustained labour market reforms.

A cross-cutting finding concerns the gendered nature of climate-induced labour transitions. Women consistently face disproportionate burdens following climate shocks, including loss of livelihood, increased unpaid care responsibilities, restricted mobility, and heightened exposure to violence. These factors constrain women's ability to engage in alternative employment and often push them into more insecure and invisible forms of informal work. The absence of gender-responsive labour and disaster policies therefore deepens existing inequalities within informal labour markets.

Taken together, these findings suggest that the impact of climate change on labour informalisation is real but uneven, indirect, and institutionally mediated. Climate shocks expose structural vulnerabilities within labour markets rather than acting as isolated drivers of informality. As a result, their aggregate effects may appear muted when measured through broad macro indicators, even as their consequences are strongly felt at the ground level.

4.4 Qualitative Evidence on Impact of Education on Informalisation

While studying education and its impact on the size of the informal economy, several challenges are faced on a macro level study including lack of accurate data and the high degree of diversity in a country like India. In these cases, a qualitative study can provide more insight into the dynamics and help us in understanding it better.

To fulfill this objective, a qualitative analysis of education levels and quality, vocational training and informal sector of 8 states and the North Eastern region has been conducted. The states have been chosen as such to cover the varying levels of literacy rates and economic development in the country. The analysed states are Maharashtra, Karnataka, Uttarakhand, Bihar, Tamil Nadu, Gujarat and West Bengal, Kerala and the North East. Academic research of both quantitative and qualitative analysis has been used including secondary data analysis, primary survey based papers, descriptive and theoretical papers.

4.4.1 The Educational Pipeline into Informality

In a study (Rode, 2015) conducted in the Mumbai district of Maharashtra using household data from 8 slums, it was found that men and women who had acquired secondary and tertiary education were more likely to be working in regular jobs while workers who only had a high school education were mostly working casual jobs. According to the survey, only 12.85% of illiterate men are working regular jobs, while 76.07% are employed in casual jobs. For women, the ratios are more balanced at 46.23% illiterate women in regular jobs and 43.40% in casual jobs. It is also observed from the surveyed sample that 66.67% of college educated men are employed in regular work while only 16.67% are employed in casual work. Additionally, the percentage of workers employed in regular work increases with every additional level of education. The majority of the workers in the area possess traditional skills passed down through families, neighbours and friends. Most workers have little formal education or training.

In West Bengal's district, Hooghly, a primary survey was conducted of 13 corporations/municipalities and 28 village blocks. The study (Banerjee & Kundu, 2020) discovered that the percentage of regular wage earners was high in the least and highly educated workers but for different reasons. People having acquired 1-4 years of education, opted for low wage regular jobs that did not provide income but gave stability. People having acquired secondary education, mostly opted for self employment and entrepreneurship and workers with more that 10 years of education opted for regular work but with higher wages. This study explores how people with low education qualification who obtain regular jobs, don't get financial stability and are usually at the bottom of the formal sector hierarchy.

Another study (Ghosh, 2001) in West Bengal studies women's work in the informal sector, primarily studying rice mills and nursing homes. They conclude that the education level of most of these workers is extremely low with very few who have studied past class VIII. From the sample, 50% of the employees are illiterate and only 6% have studied till class IXth-Xth.

A 2002 survey in Gujarat (Unni & Rani, 2002) state with a sample size of 1,236 workers put forth that in their household survey, a majority of the casual workers were illiterate (51%) and they also faced more irregular work. At the same time 86% of the regular workers were literate and barely any of them faced irregular work.

A study conducted in North East India (Devi & Upadhyay, 2016) explains how the majority of the workforce in the informal sector are women, elderly people and youngsters. Assam has 90% of its workforce in the informal sector and a disproportionate share of it is uneducated women.

A state that stands in contrast to the evidence so far, is Kerala. Kerala has the highest literacy rates in the country, however it also has major unemployment problems. A majority of these educated and unemployed people tend to shift into unorganised and unregistered sectors in Kerala. A study (Deepa, 2018) also found that even though most of the people were literate, very few people in the informal sector had technical degrees/skills. However, interestingly, this study finds that unemployment in Kerala is higher in the educated population, rather than the uneducated ones. This has been attributed to the fact that the educated population is averse to jobs that require manual labour and therefore not inclined to take them up if offered. However, a bigger reason for this phenomenon is cited as the inability of the government to create productive job opportunities in the formal sector that can hire these workers. This brings forth another dimension of the informal sector, implying that mere education is not enough to decrease the size of the informal economy but instead there needs to be equal, if not more focus on creating jobs in the formal sector in the first place.

4.4.2 The Broken Bridge: Education Quality and Skill Relevance

When talking about the impact of education and skill training on employability, it’s important to analyse the quality and accessibility of education in India.
According to a survey conducted in Dehradun, Uttarakhand, among 316 college students, it was concluded that the present state of traditional higher education does not improve skills or increase employability of the students. The paper argues that the education is not even equipping the students with basic marketable skills like their domain knowledge.

Another 2020 study in Uttarakhand (Bhatt, 2020) analyses how even though the number of government schools have increased, there has been a decrease in enrollment rates in government schools. Some of this change can be attributed to movement of students from government to private schools but that doesn't fully explain the change. Additionally, there is a lack of higher education institutions in hilly areas. In the established institutions, it is observed that education doesn't focus on key job providing sectors which supports the previous study in explaining the inability of education in skill enhancement.

A 2002 survey in Gujarat (Unni & Rani, 2002) state with a sample size of 1,236 workers identified that most informal sector workers were unskilled or had very low level of skill. Their source of skill attainment was recorded and the paper concluded that there was heavy dependence on informal sources of skill acquisition or upgradation. Only about 7% of the workers acquired their skills from formal sources while around 30% did from friends, family and 66% while being on their job.

A study based in North East India (Sarkar, 2020) finds that formal vocational education programs don't make a noticeable difference in earnings in the informal sector. The paper connects this to poor quality of education, outdated curriculum and lack of strong teachers. This further elucidates how simply having more educational institutions and programs doesn't work unless their quality is maintained.

4.4.3 Barriers to Exit: Why the Cycle Persists

In order to understand the connection between these two factors and the long term implications, we analyse the state of education and the rationale behind engaging in work instead of education at a young age.

In Karnataka (Chandrashekhar & Arpitha, 2022) , the drop out rates of educational institutions was estimated to be around 63% for students aged 5-14 and 88% after 15 years of age. At the same time, workforce participation rate increases intensely after 14 years of age. Both of these together produce a semi-skilled workforce that is usually pushed into the informal sector or in low paying jobs in the formal sector. The study also identified that in some cities of Karnataka,

there are high dropout rates due to transportation costs, lack of accessibility to the marginalised sector and due to the opportunity cost of work. These dropout rates increase even further for female students due to gender bias still prevailing in households. The study also explains that around 90% of the workforce in Karnataka is engaged in the informal sector.
On top of that, only 2.5% of the workers in the informal sector receive formal skill training, compared to 11% in the formal sector. This implies that around 85% of the workers in the unorganized sector lack proper training or skill development.

According to a secondary data analysis (Karim, 2022) conducted on the state of Bihar in 2022, it was concluded that school enrollment of both men and women decreased as they moved from primary to secondary education. Additionally, Bihar's Gross Enrollment Ratio was at 58% which is lower than the GER of India (77%). The state also has a higher than average dropout rate (27%).

Analysis conducted in Gujarat's Ahmedabad (Unni & Rani, 2001) shows that despite a primary school being available in the neighbourhood, 24% of the households did not send their children to school. Several reasons have been sighted for this including students taking part in income generating activities to assist in finances of the household. Even out of the students attending school, 4% were engaged in income generating activities after school timings.

The 2001 study conducted in Bengal (Ghosh, 2001) also noticed how the majority of the women employed in the informal sector had a poor educational background due to lack of resources in the family, gender bias and low education level of the parents. The paper also expressed how for most of these families it was common to get their children to engage in income generating activities or househelp. Furthermore, this tendency is even higher for girl children.

4.4.4 The Vicious Cycle: Intergenerational Lock-in

It has been observed that the lack of education in the workers and financial constraints in households not only impact current income but also continue this cycle of illiteracy and informal employment into the next generation.

A study in Bihar (Singh & Narayan, 2023) among brick kiln workers revealed that due to the parents being unable to provide proper arrangements to their children, the children were also not inclined to study and neither got the opportunity to do so.

In a study conducted in the Mumbai district of Maharashtra (Rode, 2015) using household data from 8 slums, it was observed that the income of the regular worker is higher as compared to the casual workers and self-employed.

Additionally, as discussed above in the cases of Bengal, Bihar and Gujarat, this financial constraint pushes the next generation out of schools into employment generation activities at a young age. Because of these dropouts from the educational process and lack of formal skill development programs, the children of a majority of these informal workers are also unable to procure jobs in the organised sector.

4.4.5 Policy Interventions and their Limitations

The government of India has undertaken several skill enhancement programmes for the workers in the informal sector. Two of the most widely implemented schemes are the Pradhan Mantri Kaushal Vikas Yojana (PMKVY) and Skill India mission (2015).

PMKVY is a flagship training scheme of the new Ministry of Skill Development & Entrepreneurship (MSDE). It is an outcome based scheme where financial reward is provided to trainees who are able to successfully complete the training and gain skill. The aim is to enable a large proportion of the Indian youth to gain skill training and become employable, in turn boosting the productivity and economic growth of the country.

A 2022 primary survey based study (Nehru, 2022) was conducted in Haryana which has the highest unemployment rate in the country. The study found that out of the participating candidates, 90% did not get job opportunities relevant to their skill training. Only 15% candidates could secure employment after the program and from those employed, 44% were working in jobs irrelevant to their area of expertise.

Another extensive study conducted in Madhya Pradesh (Shinde & Gupta, 2022) among tractor operator trainees and harvester operator trainees concluded that post the PMKVY, majority of the tractor operator trainees (46%) and harvester operator trainees (51.33%) had acquired a high level of skill.

National Skill Development & Entrepreneurship Policy (2015) was an umbrella policy to cover all skill training activities being performed in the country. Their aim is to provide skill training at a large scale, at speed and with standards. It uses incentives like certification, accumulation of credits to encourage skilling and entrepreneurship.

The initiative's pace has remained very slow and they have not been able to achieve their target of skilling 400 million workers by 2022. Despite the slow pace of the program, the workers who're skilled under it are not able to find relevant jobs due to demand-supply gaps in the labour market. However, India Skill Report 2018 shows that the scheme has made progress since there has been a rise in employability from 33% (2014) to 45% (2018).

Another paper studying Skill India's agricultural initiatives analyses how for increased enrollment and completion of goals, the trainers, institutions and other stakeholders involved are fostering elevated expectations in the trainees. They're made to believe that the certificate from the scheme will lead to easier financial assistance from the banks and other institutions. However, when these expectations are not met, it leads to distress and adverse consequences for the trainees including financial loss for some. (Sharma & Nagendra, 2016)

This is not to suggest that existing government initiatives have been ineffective. However, there is a great deal of refinement and careful execution that is required for them to benefit on the grassroots level.

4.4.6 Synthesis

Through the analysis of the 8 states and North East India, it can be observed that not only education and informal sector have high correlation but they also feed into each other thereby producing negative long run impacts on the families involved. Lack of education and skills doesn't allow workers to join the formal sector and instead they have to opt for the informal sector for subsistence. Informal workers are paid less than regular workers. This leads to financial despair and due to these constraints most families aren't able to provide appropriate education to their children. For the poorest sections, the children usually drop out of school to take up income earning activities to supplement the lack of financial resources. Due to their education being left incomplete, they're further pushed into the informal sector. This cycle traps families into the informal sector and into poverty.

In addition to that, education in India in several regions falls short of being able to imbibe employable skills in their students. The effectiveness and accessibility of vocational education and skill training courses is questionable and not impactful in producing major improvements.

In order to absorb employees into the formal sector, not only does the government need to focus education and skill training but also on increasing job opportunities in the formal sector itself so it is able to absorb labour that has shifted from the traditional sector into the modern economy.

5. Limitations

This paper uses time series regression with Autoregressive Distributive Lag (ARDL) along with comparative qualitative case studies of climate change induced natural disasters on different geographical regions of India. Secondary data is used for measuring the size of the informal economy, impact of natural disasters and educational continuity. The study uses a relatively small sample size of 33 observations. This can lead to high sample errors and the model might not be able to detect small changes in the variables. The data is recorded on a yearly basis for the whole country. This provides macro insight but is likely to miss out on important nuances within the country and time periods. Lack of long term data limits the analysis of long term impacts of education and climate change on the informal economy.

Since country level data is taken, it masks over state level or regional differences which becomes a notable limitation for a diverse economy like India. We have attempted to compensate for this limitation by including case studies of the major disasters in recent years, categorized on the basis of geographical characteristics, however the limitation isn't completely overcome. For data on the informal sector, the World Bank has used informal sector output as an estimation for the size of the sector. The variable might not accurately represent the level of employment in the sector. Secondly, there is a lack of detail due to all informal activities clubbed under a single variable of informal economy. The impact of education and climate change can show up in varying ways on different sectors of the informal economy. Additionally, the Gross Enrollment Variable used for education is not sufficient to portray the quality of education and continuity within a year.

The model takes both the educational and natural disaster variables with a lag of 1 year, however, the impact of these variables on the size of the informal sector can span over several years and can vary depending on the region/sector being studied. The model suffers from a high omitted variable bias since important factors impacting informal economy like GDP growth of the country, unemployment rates, urbanisation and important government policies, among others are not included in the model. There is a possibility of reverse causality between the informal sector and education which makes the direction and magnitude of impact unclear.

The qualitative analysis studies regional influences of climate change and education on the size of the informal sector for 8-11 states. Even though the analysis allows a closer look into the phenomenon, due to the limited area of study, the results cannot be generalized to the whole country. The nature and extent of the analysis also poses limitations to drawing a clear causal relationship between the variables. Additionally, due to the diversity in geographical and economic structures, identification of important causal chains and factors is difficult. It could also lead to neglect of important factors due to lack of regional studies and databases or due to the limited scope of the study.

The period from 1990-2020 went through several major policy changes and crises including the reforms of 1991, the global financial crisis of 2008, demonetisation (2016), GST implementation(2017) and COVID-19 in 2020. These economic changes have nationwide impact on all economic variables which in turn impacts the parameters of the model, therefore, in reality the parameters might not be constant as predicted by the model. The lack of accurate data on the informal economy also poses challenges to make estimations.

Despite these limitations, our model provides important insights into the impact of educational continuity and natural disasters on the size of the informal sector in India. Some of these limitations can be mitigated through advanced econometric methods and others like regional analysis require deeper study and focus on the subject which can be a topic of future research.

6. Way Forward

The analysis suggests that climate shocks not only disrupt livelihoods but also push vulnerable populations into precarious and informal employment arrangements. At the same time, structural gaps in education and skill formation limit the ability of individuals to transition into more stable and resilient forms of employment. These interconnected challenges underline the need for policy interventions that simultaneously address climate resilience, labour market inclusion, and human capital development. The following recommendations outline possible directions through which policy can mitigate the impact of climate shocks while strengthening employment opportunities and long-term economic security.

1. *Climate-Responsive Employment Guarantee*

The qualitative evidence on climate shows that places with implementation of MGNREGA recorded low informality. Implemented to address rural unemployment, MGNREGA shows how employment security is not only beneficial but crucial during times of crisis. There is scope to design policies targeted at regions with high climatic vulnerability.

Proposed features-

- Tiered Climate Vulnerability Classification: Regions can be categorised depending on the type of climate shock they face. These categories can be on the basis of impact and immediacy, for example, acute climate shocks such as floods, cyclones and earthquakes, and slow onset climate stress such as heat waves and rising sea levels. This distinction will help devise region specific state assistance.
- Inclusion of Skilled Labour: Most employment guarantee schemes focus on unskilled, semi skilled and uneducated workers. However, climatic shocks affect skilled and unskilled workers alike. Thus, this scheme should make provisions to include skilled and educated labour.

- Alignment with Climate Adaptation and Risk Reduction: Employment generated under the scheme could be tied to long-term climate adaptation objectives, including flood control, water conservation, heat mitigation, coastal protection, and disaster preparedness. This would allow employment guarantees to function not only as short-term income support but also as investments in local climate resilience.

2. *Modernising Traditional Livelihood Methods*

A significant entrant of the informal labour market was the population forced into the labour market due to failure of their traditional subsistence based livelihood. These subsistence based methods are often deeply ingrained in the community's culture and history.

Proposed Features-

- Identification of the cultural capital allied to subsistence practices
- Incorporating modern techniques while keeping the traditional culture intact
- Link traditional occupations to formal value chains and market access without undermining community autonomy

3. *Extending Women Specific Schemes*

There already exist many women centric schemes. The Government of India's NAVYA (Nurturing Aspirations through Vocational training for Young Adolescent Girls) initiative aims to equip adolescent girls with demand-driven vocational skills and life-skills training, thereby enhancing employability and economic independence in underserved areas. Likewise, the "Namo Drone Didi" scheme empowers women-led Self-Help Groups (SHGs) by providing subsidised access to drone technology, training, and opportunities to offer agricultural services, which expands women's participation in technology-linked rural livelihoods. These schemes can be extended to include climate vulnerability and sustainable practices.

Proposed features-

- Skill modules can be extended to incorporate climate-resilient practices, disaster preparedness, sustainable resource management, and environmentally adaptive technologies, aligning women's skill acquisition with emerging climate-linked labour demand.

- Women-led groups and Self-Help Groups may be incorporated as contracting entities in reconstruction and recovery work following climate shocks, allowing collective participation in publicly supported employment.

4. *Accessibility and Quality of Education*

A significant number of students in primary school drop out due to lack of facilities like sanitation and basic hygiene. This problem is worsened for girl children.

Proposed features-

- Improve sanitation facilities and ensure access to essential hygiene resources, including affordable or free menstrual products
- Revise teaching methods in accordance with the socio-economic background of students

5. *Vocational training*

As shown in the above analysis, traditional education alone is not enough to impart required skills, especially to the informal sector workers. For this, we need skill training programs that are catered to the skillset needed in their industry.

Proposed features-

- State-level educational and training institutions can design programmes that reflect the dominant economic activities and skill demands of their respective regions.
- Vocational training should be accorded the same importance as academic education, with formal certification and pathways that enable workers to transition across sectors.

6. *Data Collection*

This study also highlights the problem of uneven data collection patterns, which limits the ability to accurately assess labour market trends and the impact of climate shocks on employment outcomes.

Proposed features-

- Integrated Multi-Level Data Systems: Coordinated data collection practices across local, state, and national levels can help improve consistency and reliability of labour market statistics.

- Cross-Verification Mechanisms: Data collected at different administrative levels can be used as cross-checking mechanisms, improving transparency and reducing discrepancies in reporting.

Addressing the intersection of climate vulnerability, labour market informality, and educational access requires a multidimensional policy approach. Strengthening employment guarantees, supporting traditional livelihoods, expanding women-focused initiatives, improving educational access, and enhancing vocational training can collectively contribute to building more resilient labour markets. At the same time, improved data collection systems are necessary to ensure that policy interventions are effectively targeted and continuously evaluated. Together, these measures can help mitigate the disruptive effects of climate shocks while promoting inclusive and sustainable pathways for employment and human development.

7. Conclusion

The persistence of a large informal economy remains a significant challenge for achieving inclusive and sustainable economic development in India, particularly in the context of rising climate vulnerabilities and structural gaps in education. Climate-related disasters disrupt livelihoods, displace communities, and create labour market pressures that may push vulnerable populations into informal employment. At the same time, limitations in educational access and skill development restrict the ability of workers to transition into stable and formal forms of employment. These dynamics pose important challenges for India's progress toward the United Nations Sustainable Development Goals, particularly SDG 4 (Quality Education), SDG 8 (Decent Work and Economic Growth), and SDG 13 (Climate Action).

Using data from international databases and national education indicators, the quantitative analysis of this study finds a strong negative relationship between gross enrollment ratios and the size of the informal economy, indicating that improvements in educational participation are associated with reductions in labour market informality. In contrast, the climate-related disaster variable does not show a statistically significant relationship with the size of the informal economy at the aggregate level. This suggests that while climate shocks affect livelihoods and employment outcomes, their impacts may be localised and mediated by regional economic structures and institutional responses.

The qualitative analysis across several Indian states provides further insight into these dynamics by illustrating how climate shocks disrupt subsistence livelihoods, trigger distress migration, reduce formal employment opportunities, and reinforce reliance on informal labour markets. These processes are often accompanied by barriers in education, skill development, and access to formal employment, which together create a cycle of vulnerability and intergenerational persistence of informal work. The findings highlight that the relationship between climate change, education, and labour market outcomes is complex and shaped by regional socio-economic conditions and institutional capacities.

Overall, the study highlights the need for integrated policy responses that simultaneously strengthen climate resilience, improve educational access and quality, and expand skill development opportunities. Such measures can help reduce structural dependence on informal employment while supporting more resilient and inclusive labour markets. Effective implementation of these policies will be essential for improving the livelihoods and economic security of millions of workers in India who remain vulnerable to both climate risks and labour market instability.

References

1. ActionAid India. (2024). *Climate justice for sugarcane workers.* https://www.actionaidindia.org/wp-content/uploads/2024/06/Climate-Justice-for-Sugarcane-Workers-I-Report-I-e-book.pdf
2. Trond Vedeld (NIBR), S. G. Salunke (AFPRO), Guro Aandahl (NIBR), PruthaLanjekar(TERI) (2014). The Energy and Resources Institute (TERI). (n.d.). *Governing climate extremes in Maharashtra.* https://www.teriin.org/projects/eva/files/Governing_climate_extremes_in_Maharashtra.pdf
3. Surie, A., & Sharma, L. V. (2019). *Climate change, Agrarian distress, and the role of digital labour markets: evidence from Bengaluru, Karnataka. Decision, 46(2), 127-138.* https://iihs.co.in/knowledge-gateway/climate-change-agrarian-distress-and-the-role-of-digital-labour-markets-evidence-from-bengaluru-karnataka/

4. Balasubramanian, M., Manjunath, M., Remadevi, O. K., Vinaya Kumar, K. H., Singh, R. K., & Kakkar, R. (2020). *Climate Change Impacts on Vulnerable Communities in Karnataka.* https://empri.karnataka.gov.in/uploads/media_to_upload1691669340.pdf
5. Parkash, S. (2015). *A study on flash floods and landslides disaster on 3rd August 2012 along Bhagirathi Valley in Uttarkashi District, Uttarakhand*. World Centre of Excellence on Landslide Disaster Reduction, National Institute of Disaster Management, Ministry of Home Affairs, Government of India. https://nidm.gov.in/PDF/pubs/uttarkashi.pdf
6. Sati, V. P. (2022). Glacier bursts-triggered debris flow and flash flood in Rishi and Dhauli Ganga valleys: A study on its causes and consequences. *Natural Hazards Research*, *2*(1), 33-40. https://www.sciencedirect.com/science/article/pii/S2666592122000014
7. Sati, V. P., & Litt, D. (2011, September). Climate disasters in the Himalaya: risk and vulnerability. *In International conference on climate change and natural hazards in mountain areas. Dushanbe.* https://www.researchgate.net/profile/Vishwambhar-Sati/publication/265599544_CLIMATE_DISASTERS_IN_THE_HIMALAYA_RISK_AND_VULNERABILITY/links/54150a0e0cf2788c4b35acd0/CLIMATE-DISASTERS-IN-THE-HIMALAYA-RISK-AND-VULNERABILITY.pdf
8. Kumar, K. A., Walia, A., & Chaturvedi, S. (2012). India disaster report. *National Institute of Disaster Management, IIPA Campus, New Delhi*. https://nidm.gov.in/PDF/pubs/India%20Disaster%20Report%202012.pdf
9. Sen, S. (2024). Climate variability and migration in Bihar: An empirical analysis. *International Journal of Disaster Risk Reduction*, *103*, 104301. https://www.sciencedirect.com/science/article/abs/pii/S2212420924000633
10. Kumar, V., et al. (n.d.). *Impact of floods on rural population and strategies for mitigation: A case study in India.* https://digitalcommons.murraystate.edu/cgi/viewcontent.cgi?article=1109
11. Chacko, K., Ranadive, R., Sachdeva, M., Hede, S., Bhati, S. B. B., Nainan, A., & Jagasheth, U. (2018). *Economic and Industrial impact of Kerala Floods" Care ratings*. https://sdma.kerala.gov.in/wp-content/uploads/2020/08/Remote-Sensing-Report.pdf
12. Rajan, S. I., Suresh, A., & Irudayarajan, R. (2022). Footloose Workers in Times of Calamities. *Insight Turkey*, *24*(1), 11-22. https://www.researchgate.net/publication/364057457
13. Beyer, R. C. M., Narayanan, A., & Thakur, G. M. (2022, June). Natural disasters and economic dynamics: Evidence from the Kerala floods. *Centre for Development Studies.* https://cds.edu/wp-content/uploads/WP508-Dr.Gogol_.pdf
14. Krishnan, J. (2020). Migration and climate-related issues *(Conference paper).* http://www.mcrg.ac.in/RLS_Migration_2020/Researchers_Abstracts_Fullpapers/Abstracts_Worshop_2020/IWM/Full%20paper%20Jyothi%20Krishnan.pdf
15. Peter, V. (2017). From deluge to displacement: the impact of post-flood evictions and resettlement in Chennai. *Housing and Land Rights Network In collaboration with*

Information and Resource Centre for the Deprived Urban Communities, Chennai. https://hlrn.org.in/documents/Deluge_to_Displacement_Chennai.pdf

16. Citizen Consumer and Civic Action Group (CAG). (2016). *Report of survey of losses sustained during Chennai floods.* https://www.cag.org.in/sites/default/files/database/Report%20of%20Survey%20of%20Losses%20Sustained%20during%20Chennai%20Floods_20160113.pdf
17. Juned, F. (2022). *Natural disaster and displacement in Assam: The case of floods and impact on marginalised communities (Issue brief).* SPRF India. https://sprf.in/wp-content/uploads/2022/09/DID-IB.pdf
18. Cotton University. (2020). Floods and impacts on livelihood in rural Assam: How could the state break the poverty trap? *State Innovation and Transformation Aayog, Assam.* https://sita.assam.gov.in/sites/default/files/swf_utility_folder/departments/sita_medhassu_in_oid_4/portlet/level_1/files/study_report_on_floods_and_impacts_on_livelihood_in_rural_assam.pdf
19. Government of Gujarat. (2024). *White paper on climate action under a $5 trillion economy in India.* https://climatetracker.gujarat.gov.in/uploads/images/Archives/White-Paper-on-Climate-Action_under-5-trillion-dollar-Economy-in-India.pdf
20. Joshi, D. D. (2025). Effects of climate variability on agricultural livelihoods in Gujarat: A social-science perspective. *International Journal of Humanities, Social Science and Management (IJHSSM).*https://ijhssm.org/issue_dcp/Effects%20of%20Climate%20Variability%20on%20Agricultural%20Livelihoods%20in%20Gujarat%20A%20Social%20Science%20Perspective.pdf
21. Ministry of Environment, Forest and Climate Change (MoEFCC). (2017). *Gujarat State Action Plan on Climate Change.* https://moef.gov.in/uploads/2017/08/Gujarat-SAPCC.pdf
22. Bhattacharyya, B. (2025). Impact of Flooding on Rural Livelihoods: A Study in Daspur-I Block, Paschim Medinipur. *JETIR*. https://www.jetir.org/papers/JETIR2504C87.pdf
23. UNICEF. (2000, January 13). *Orissa super cyclone: Update on UNICEF activities since October 1999 [Situation report].* https://reliefweb.int/report/india/orissa-super-cyclone-update-unicef-activities-oct-1999
24. Patel, S. (2018). Community-level assessment of heatwaves in Odisha: Effects, resilience, and implications. https://www.researchgate.net/publication/328955921_Community-level_assessment_of_heatwaves_in_Odisha_State_India_Effects_resilience_and_implications
25. Rode, S. (2015). Employment pattern, skills and training issues among informal sector workers in Mumbai metropolitan region. *Economia. Seria Management, 18*(1), 125–138. https://econpapers.repec.org/article/romeconmn/v_3a18_3ay_3a2015_3ai_3a1_3ap_3a125-138.htm

26. Chandrashekhar, C., & Arpitha, H. R. (2022). Skill development in Karnataka: Need, challenges and road ahead. *International Journal of All Research Education and Scientific Methods, 10*(4), 2453. https://www.researchgate.net/publication/393263139_Skill_Development_in_Karnataka_Need_Challenges_and_Road_Ahead
27. Rajasekhar, D., Suchitra, J. Y., & Manjula, R. (2007). Women workers in urban informal employment: The status of agarbathi and garment workers in Karnataka. *The Indian Journal of Labour Economics, 50*(4). https://www.researchgate.net/publication/298581578_Women_workers_in_urban_informal_employment_The_status_of_agarbathi_and_garment_workers_in_karnataka
28. Dang, G. P., Bahuguna, P., & Tandon, S. (2019). A study of quality of Indian conventional higher education system (with special reference to Uttarakhand state). *Think India Journal, 22*(14), 15625. https://www.academia.edu/99524740/A_Study_Of_Quality_Of_Indian_Conventional_Higher_Education_System_With_Special_Reference_To_Uttarakhand_State_
29. Bhatt, V. (2020). A study of the development of education sector in Uttarakhand and its challenges. *Journal of the Social Sciences, 48*(1), 12. https://www.academia.edu/74653973/A_Study_of_The_Development_of_Education_Sector_in_Uttarakhand_And_Its_Challanges
30. Singh, A., & Meena, A. L. (n.d.). Exploring trends and factors influencing labour force participation in Uttarakhand: Evidence from NSSO data. *International Journal of Research Publication and Reviews*. https://doi.org/10.55248/gengpi.4.623.44955
31. Karim, O. (2022). Status of secondary education in Bihar: An overview. *Journal of Humanities and Education Development, 4*(3), 229. https://theshillonga.com/index.php/jhed/article/view/165
32. Singh, P., & Narayan, A. (2023). Conditions of labour of informal sector in Bihar: A case of brick kiln industry in South Gangetic plain. *BJPA, 20*(2S). https://mzu.edu.in/NAAC_DVV_2024/3.4.4/DTHM/126%20%20%20%20%20%20%20%202023-%20Dec%20Bihar%20Journal%20of%20Public%20Administration_compressed.pdf#page=116
33. Sabreen, M., & Behera, D. K. (2020). Changing structure of rural employment in Bihar: Issues and challenges. *The Indian Journal of Labour Economics, 63*, 833–845. https://doi.org/10.1007/s41027-020-00279-6
34. Veilatchi, K., & Selvi, V. D. (2024). An empirical study on the causes and consequences of women education and empowerment through informal sector. *Acharya Management Business and Entrepreneurship Review*. https://doi.org/10.23874/amber/2024/v15/i1/224954
35. Unni, J., & Rani, U. (2001). *Insecurities of informal workers in Gujarat, India*. International Labour Office.

https://www.researchgate.net/publication/241519271_Insecurities_of_Informal_Workers_in_Gujarat_India

36. Banerjee, B., & Kundu, A. (2020). Evaluation of decent work index for informal workers: An empirical study from Hooghly district, West Bengal, India. *Indian Journal of Human Development, 14*(1), 76–98. https://www.researchgate.net/publication/341106897_Evaluation_of_Decent_Work_Index_for_Informal_Workers_An_Empirical_Study_from_Hooghly_District_West_Bengal_India
37. Ghosh, B. (2001). Women's work and informal sectors: Two studies in Burdwan, West Bengal. *Socialist Perspective, 29*(1–2), 1–23. https://www.researchgate.net/publication/256473807_WOMEN'S_WORK_AND_INFORMAL_SECTORS-_TWO_STUDIES_IN_BURDWAN_WEST_BENGAL
38. Shinde, R., & Gupta, S. (2022). Assessment of employment skills acquired by trainees under Pradhan Mantri Kaushal Vikas Yojana in agriculture engineering sector in Gwalior division of Madhya Pradesh. *The Pharma Innovation Journal, 11*(9S), 33–36. https://www.thepharmajournal.com/archives/2022/vol11issue9S/PartA/S-11-8-384-516.pdf
39. Singh, R. P. P., & Pathak, D. M. (2019). Complementarity of qualitative higher education and Skill India mission: An evaluation in the light of opportunities and challenges. *Jamshedpur Research Review, 7*(2), 14. https://jamshedpurresearchreview.com/wp-content/uploads/2019/04/JRR-33-Upload.pdf#page=15
40. Shah, B. (2016). An epigrammatic review of Mission Skill India programme: A key to sustainable development. *BVIMSR's Journal of Management Research, 8*(Special Issue), 8–13. https://www.proquest.com/docview/1959184013?pq-origsite=gscholar&fromopenview=true&sourcetype=Scholarly%20Journals
41. Devi, K. (2024). *Women's informal employment in Northeast India: Trends, gaps, and policy pathways* (Working paper). Rajiv Gandhi University, Department of Economics. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5484526
42. Sarkar, A. (2020). *Vocational training and education in North-East India: Access and labour market outcomes* (Working paper). National Institute of Labour Economics Research and Development. https://pdfs.semanticscholar.org/7295/aca2e4e0071255c5533f6190b509aedcdd78.pdf
43. Deepa, V. D. (2018). Growth and characteristics of informal sector employment in Kerala. *International Journal of Social Science and Economic Research, 3*(9), 4850. https://ijsser.org/2018files/ijsser_03__336.pdf
44. Nehru, R. (2022, March 10). *An impact analysis of Pradhan Mantri Kaushal Vikas Yojana (PMKVY): Opportunities to improve*. Sucharitha Publication.

http://ijmer.s3.amazonaws.com/pdf/volume11/volume11-issue2(1)/18.pdf

45. Sharma, L., & Nagendra, A. (2016). *Skill development in India: Challenges and opportunities*. Symbiosis International University. https://www.researchgate.net/profile/Maheshkumar-Kedar/publication/338514282_Skill_Development_in_India_Challenges_and_Opportunity/links/5e1891e34585159aa4c36abb/Skill-Development-in-India-Challenges-and-Opportunity.pdf

Demographics, Work Patterns, and Seasonal Coping Strategies of E-Rickshaw Drivers: A Case Study from Delhi

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Abstract

Electric rickshaws have indubitably solidified their role over the years, especially in the lives of students, as the preferred mode for last-mile connectivity. Existing literature describes e-rickshaw markets as unregulated, where legal frameworks (those that exist) are rarely enforced, and union structures, such as those among auto-rickshaw drivers, are largely absent. In this context, the present mixed-methods study aims to provide a detailed profile of e-rickshaw drivers operating at *Vishwavidyalaya* (University) Metro Station in Delhi which has the presence of large groups of e-rickshaw drivers stemming from high student footfall. Drawing on a primary survey of 67 drivers, we document demographic characteristics, occupational histories, daily work patterns, and the seasonal nature of work. Findings reveal a predominantly migrant workforce with limited formal social protection, working long hours (12-13 hours daily) to earn modest incomes (≈₹1000/day). Most drivers shifted from manual or cycle rickshaws, citing higher earnings and flexibility as motivations. Social protection remains limited: while bank account and mobile phone ownership are high (85-95%), insurance coverage and social security scheme enrolment remain low. During the 1.5-2 month summer university break, earnings drop drastically, prompting divergent coping strategies. The study contributes foundational knowledge on informal transport workers, offering baseline data for policy discussions.

Keywords: E-Rickshaws, informal transport, last-mile connectivity, migrant workers, seasonal livelihoods

JEL classification: J81, R40, O18

1. Introduction

1.1 Urban Mobility

De Soto (1989) was one of the first to suggest that informal transportation systems are a direct consequence of increasing urbanisation in developing countries, labelling it as an issue that these governments have repeatedly failed to solve. India's urban population is predicted to hit 814 million by 2050 (United Nations, 2014), this rate being observed in the period between 2018 and 2022, where the urban population increased from 465.87 million to 508.37 million. New Delhi itself is home to a population of 34 million people as of 2023, making it the second-largest urban metropolis in the world (Statista Research Department, 2025). The prominence of paratransit modes of transport in Delhi then becomes an illustration of De Soto's proposition. An increasing population pressure no doubt encourages, or even demands, more creative solutions to the issue of accessibility to mobility solutions in these areas.

Paratransit modes can be broadly divided into three categories (Priye et al, 2021), namely that of the highly regulated market of auto-rickshaws, the traditional hand-pulled cycle rickshaws and the relatively new market of electric rickshaws that emerged somewhat in defiance of these existing mobility structures within the city. These e-rickshaws have been known to serve varying functions in cities with differing levels of income across the country, but have largely fulfilled the purpose of first- and last-mile connectivity in Delhi (Harding & Kandlikar, 2017) as an extension to its sprawling metro system. The reason that a market consisting entirely of private agents, and also remaining an unregulated one, is able to reach a status of mass transit is, firstly, due to the willingness of such a large number of agents to participate and, secondly, the citizens' adoption of a system that provides them with affordable low- and medium-distance transportation with routes that are easily malleable to passenger demand in the short run as well. The fact remains that the introduction of e-rickshaws over 15 years ago filled a gap in the city's mobility sector that formal, public, or regulated modes of transport were unable to, and continues to do so. However, while attempts have been made to analyse the e-rickshaw market, there is still much to understand due to its complexity and nuances, largely due to the fact that functioning may differ based on localities and the demands and preferences of passengers, which becomes difficult to measure and analyse in a standardised manner. The rising popularity of this mobility option, as well as the increasingly significant source of employment that it proves to be, has caught the eye of many researchers over the years. Welfare outcomes for those employed as e-rickshaw drivers thus become points of interest.

1.2 Emergence and Legal Evolution of E-Rickshaws

Delhi saw the introduction of the first battery rickshaw in 2010 as a result of efforts directed towards green mobility in the city, as well as those propagating the entrepreneurial brainchild of Dr Rajvanshi, who was born in the 1990s. The emergence of this frugal and technologically simple vehicle was initially intended as a replacement for the traditional or "colonial" cycle rickshaw, which slowly became associated with an inhumane, exploitative, and undignified labour service, though some contemporary scholars, such as Das and Franquesa (2025), argue that there has been no true reversal with the shift to e-rickshaws in this regard, attributed in part to the fact that they have not been able to fully phase out cycle rickshaws, which remain crucial to the city's legacy. E-rickshaws were released on the roads of Delhi in a somewhat chaotic manner, receiving criticism from authorities over a lack of regulations, but were widely accepted by passengers (TERI, 2018) due to their customer-friendly and affordable model. There was, however, little political intervention or efforts at regulation pre-2014, which is when the Delhi High Court declared a blanket ban due to overloading and traffic issues. The ban was eventually overruled as a result of an amendment to the Motor Vehicle Act in 2015 by the Central Government, which integrated electric rickshaws and electric carts into the purview of existing laws, legalising battery rickshaws under 650 watts across the country, registering them with municipal authorities and providing drivers with identification cards. Originally, the Act considered any electric vehicle with a power output of greater than 250 W and a top speed of more than 25 kmph (Rojesh and Harding, 2014) as a motor vehicle, which included the majority of e-rickshaws in Delhi as well. However, the amendment proposed that vehicles with a power output of 650W, instead of 250W, be allowed to ply as non-motorised vehicles, essentially doing away with the need for institutional testing (which would potentially put driver jobs in danger as the vehicles may not pass the performance tests for registration), as well as the need for obtaining commercial licences. The intention behind the proposal was to safeguard driver interests and reduce the opportunity for rent-seeking by local authorities.

The drafting of the E-rickshaw Bill by the BJP, which eventually led to the amendment, was a result of concessionary lobbying by parties in the run-up to the 2015 Delhi Legislative Assembly Elections, to allow these rickshaws a path of transition from the status of “category B” (evaders) to “category A” (formal). There was a shift in public discourse from questions of the legality of e-rickshaws to other issues, such as infrastructure and regulatory provisions, welfare of e-rickshaw drivers (albeit to a lesser extent), and capping of the number of e-rickshaws, signalling the permanence of the sector within the public fabric of Delhi.

Although there has been some legal evolution with regard to e-rickshaws in the city, there are varying perspectives on the extent to which these regulations have been implemented. For one, it is difficult to exercise the concessionary terms upon which the 2015 amendment was passed. Rickshaws are often seen taking more than 4 passengers, with police influence and group politics affecting e-rickshaw functioning in respective localities, rather than legal frameworks.

Dubey and Dawda (2025), for example, suggest that Indian laws have failed to integrate paratransit modes in the urban transport system. The National Urban Transport Policy (NUTP) fails to formalise and regulate the informal paratransit network, which leads to substandard service quality for commuters. Permits for e-rickshaws (open or closed) do not have a cap on issuance and are renewed every 5 years. State-level regulations vary, as each RTO enforces distinct rules. However, paratransit modes often remain a low priority, causing gaps in service quality, vehicle fitness issues, and passenger safety concerns.

Singh et al. (2021) also verify the failure of regulatory policies for e-rickshaws in Delhi and conclude how regulatory lag has jeopardised the adoption, accountability, and sustainability of e-rickshaw services. Moreover, similar to Dubey and Dawda (2025), this study also highlights the need for timely regulation and governance mechanisms to support new urban transport innovations. Existing studies argue that while Delhi’s policy framework recognises the role of e-rickshaws as a feeder service to formal public transport, the lack of integrated planning and regulatory coherence continues to limit their long-term sustainability and service quality.

1.3 Literature Review

1.3.1 Global and Indian Importance of Informal Transport
(Cervero & Golub, 2007; IDB & WRI, 2020; Oviedo-Hernandez, 2021; Joshi et al., 2023; Bansal et al., 2023)

Cervero and Golub (2007) explain that informal transportation systems mainly operate in areas that are not adequately served by formal transport, playing an important role in providing affordable mobility in low-income countries. In Latin America, more than half of public transportation trips are served by semiformal and informal transportation systems, filling a gap in demand for mobility unfulfilled by government and privately owned modes of transport (IDB & WRI, 2020).

In addition to the gap in formal transportation, the dominant emerging trend amongst paratransit services is perhaps the mushrooming of potentially disruptive digital platforms related to their operation (Oviedo Hernandez et al., 2021). Similarly, Informal transportation in India has its rising demand due to rapid urbanisation (Joshi et al., 2023). The authors note that the urbanised population is expected to reach 40% of India's total population by 2030. They highlight how informal transportation services serve as a filler in the absence of formal transport systems, providing first- and last-mile connectivity, flexibility and adaptability, point-to-point service, accessibility and faster services. The informal transportation sector provides significant employment opportunities for low-skilled workers.

Bansal et al. (2023) analyse Gurugram's informal transportation system and find strong demand for e-rickshaws specifically. The informal transportation system may be conceptualised as not just a means of individual welfare (employment generation) for workers but also beneficial for the whole socio-economic development of society (GT Tucho, 2022). The study argues for the need for sustainable transport policy, considering technological innovation and institutional changes rather than old fuel-based transportation systems, which results in sustainable economics and societal growth, along with environmental protection. Thus, intermediate transport may be considered as a means to achieve SDG 11, which aims to address four crucial attributes related to the safety, affordability, accessibility, and sustainability of the transport system, focusing on improving road safety and public transportation.

Together, these studies show how informal transportation plays a crucial role in the mobility of a nation in an urban context.

1.3.2 Precarity

(Bonner, 2006; Kerzhner 2023)

Informal transportation work is precarious, having a lack of social protection, poor working conditions, and low and unstable incomes, and therefore workers in informal precarious forms of employment often come together and form associations for security (Bonner, 2006). The study mentions methods of association within informal transport systems across three countries (Zambia, Benin, and the Philippines) and identifies three major issues with unions: 1) improving incomes and working conditions, 2) provision of welfare services, and 3) development of financial support systems like cooperatives. Associations within informal forms of transportation can take various forms, such as trade unions, which are formal associations usually for collective bargaining with the state. Formal associations (unions) are not the only form of association; most often, workers come and form various associations, such as local associations, cooperatives, etc., to prevent insecurity, competition, harassment and misuse of power and laws by police.

While policy-focused studies highlight regulatory gaps, other literature, Kerzhner (2023), examines how internal organisation and coordination among informal transport operators shape network expansion and service provisions. This study suggests that coordinated forms of organisation within informal transport systems can be beneficial for drivers by improving routes, stability and income predictability.

Thus, the need for organisation and coordination in informal transportation systems where work is precarious, unregulated and insecure is important, so that social and economic protection can be achieved.

1.3.3 Welfare

(Das and Franquesa, 2025; Khalid et al. 2025; Bari et al. 2021; Priye et al. 2021, Popoola et al. 2025)

In the context of the informal transportation system, the welfare aspect is the overall social, economic, political and emotional well-being of workers. Under these parameters, various indicators for well-being can be studied, such as job security, stable income, worker benefits, health of workers, debt amount, etc.

Das and Franquesa (2025) have given an interesting, although rather pessimistic, view on the state of e-rickshaw drivers in the present time. Despite the eventual gentrification of the "colonial" cycle rickshaw and the negative stereotyping surrounding it, the technological progression towards the auto-rickshaw and now the e-rickshaw, it is the same class and caste communities that end up participating in the sector. A point of contention is therefore whether welfare outcomes have actually improved as pedallers transition to drivers, or if the focus has actually deviated from these workers, who continue to hold an economically marginalised position in an informal and precarious system. The study is impactful in suggesting that the legitimisation of actors with precarious livelihoods, especially in an informalised space with an ongoing green energy transition movement, is of paramount importance. To not acknowledge their needs is equivalent to propagating an informal and legally grey framework, not to mention an extremely gendered one, which leaves a large chunk of the labour force "unseen" and unable to participate democratically as citizens and economic agents.

On the other hand, conflicting empirical evidence on the welfare and social status of e-rickshaw drivers discusses the financial appeal of e-rickshaw adoption as it is positively correlated with higher income levels for the driver, consistent with previous literature as well (Khalid et al., 2025). Their findings demonstrate a strong positive correlation between economic empowerment attributed to e-rickshaw ownership and improved social standing. In addition to this, health conditions and socio-economic indicators of welfare within a group of e-rickshaw drivers in West Bengal mention that over 15 per cent of the sample population of e-rickshaw drivers suffer from backache problems due to prolonged sitting hours (Bari et al., 2021). Additionally, approximately 1/10th of the population suffers from lung- and headache-related problems.

The socio-economic profile of various transport workers (including e-rickshaw drivers); findings highlight that a huge proportion of the population is male, reflecting the genderisation of the informal transportation system (Priye et al., 2021). Additionally, operational and structural barriers exist/prevail, such as a lack of parking spaces, fixed charging stations and fare regulation. Furthermore, safety and traffic challenges are a concern; the absence of separate lanes for e-rickshaws and light body structures together increases the risk of accidents. This study implicates the need for dedicated infrastructure and a driving training process for the welfare of e-rickshaw drivers. Similar concerns regarding workers' welfare in the informal transportation sector are highlighted by Popoola et al. (2025). The study mentions how, despite the contribution of paratransit to mobility and the economy, informal public operators in the city remain exposed to livelihood stress, which may result from police harassment.

1.3.4 Legal Challenges

(Neelam, 2021; Kerzhner, 2023)

Indicating potential challenges in the regulatory framework of Delhi, Neelam (2021) analyses e-rickshaw policy in India and recommends suggestions for it to formalize e-rickshaws through standard vehicle registration, mandatory driving licensing and insurance supported through uniform regulatory guidelines. The study indicates that the regulatory framework governing e-rickshaws in Delhi reflects a gradual shift toward formalising informal electric paratransit within the urban transport system.

The E-Rickshaw Sewa Scheme legalized e-rickshaws purchased before 2014 by enabling roadworthiness certification and regulated operation. The Delhi Electric Vehicle Policy promoted battery-electric public transport through subsidies of INR 15,000–30,000, home charging at fixed electricity rates, and expanded public charging infrastructure. However, despite the presence of these policy measures, several regulatory and operational challenges continue to exist, indicating that the current framework has not been fully effective in addressing on-ground issues. Registration of e-rickshaws is permitted only for vehicle models that have received official approval from the relevant authorities. Consequently, a significant proportion of e-rickshaws that are locally assembled or modified fall outside the formal regulatory framework and remain unregistered or non-compliant with existing regulations. The people who drive these e-rickshaws do not get training. The study highlights how the challenge of the absence of comprehensive data tracking and inconsistent enforcement across jurisdictions constrains effective governance of the sector.

While policy-focused studies highlight regulatory gaps, other literature, Kerzhner (2023), examines how internal organisation and coordination among informal transport operators shape network expansion and service provisions. This study suggests that coordinated forms of organisation within informal transport systems can be beneficial for drivers by improving routes, stability and income predictability.

1.3.5 Seasonality in E-rickshaw functioning

While there is no substantial body of literature on patterns of seasonality and their consequences on livelihoods among e-rickshaw drivers specifically, existing research does highlight the presence of seasonal migration and consequent fluctuations in income within this sector. Puthussery's (2019) work with a large sample of rickshaw pullers (both cycle and electric) in Old Delhi showed evidence that, in addition to more than half of the sample being seasonal migrants, drivers operating battery rickshaws showed much larger monthly savings than cycle rickshaw pullers. This means, by implication, that e-rickshaw drivers potentially have greater savings to fall back on in peak seasons when demand is less, climatic stress, or in the case of returning to their hometowns. Sen and Majumder (2015), via a primary survey in the Malda district of West Bengal, showed that 85% of their sample reported that "season" is a factor for daily fluctuation in earnings. However, it is important to note that this study did not distinguish between manual and electric rickshaws.

1.3.6 Literature Gap

Most of the existing literature addresses the informal transportation system, e-rickshaws as a paratransit mode, regulatory challenges, and the benefits of coordination within informal transportation systems. Though studies on individual driver welfare do exist, they are limited in number and do not capture a large number of indicators such as stress levels, income stability, leisure, frequency of accidents, health issues, and components of expenditure. They also often cannot be generalised due to heterogeneity in e-rickshaw markets across localities. Comprehensive worker profiles of drivers are thus rare.

Similarly, there is very little research on the impact of seasonal factors on the livelihoods of e-rickshaw drivers in particular. These have the potential to significantly impact income due to potential negative effects that can be caused to the vehicle itself (such as during the monsoon season) and hamper functioning, as well as impact earnings via fluctuations in passenger demand. It also becomes important to analyse the extent of savings by drivers in such scenarios to determine how well they would be able to supplement a potential fall in income; the presence (or absence) of saving practices and infrastructure becoming relevant from a policy point of view as well. This gap in the literature motivates the present study.

1.4 Research Questions and Objectives

The study provides a descriptive account of e-rickshaw drivers operating at Vishwavidyalaya Metro Station in Delhi. It addresses the following questions:

1. Who are the e-rickshaw drivers? What are their demographic characteristics, migration histories, household profiles, and occupational backgrounds?

2. How do they organise their daily work? What are their work hours, vehicle ownership patterns, and daily routines?

3. What assets and social protections do they possess? What is the extent of asset ownership, financial inclusion, and access to social security schemes?

4. How does seasonality affect their livelihoods? How does seasonal variation in demand, particularly during university summer vacations affect their work? What coping strategies do drivers adopt during such lean periods?

This paper is structured as follows. Section 2 describes the research setting and introduces the major e-rickshaw markets at the site. Section 3 details the methodology and analytical framework. Section 4 presents findings on driver demographics, work patterns, asset ownership, and seasonal coping strategies. Section 5 addresses limitations, Section 6 draws out policy implications, and Section 7 concludes.

2. Research Setting

One of the rudimentary observations made during the course of the study was with regard to the heterogeneity of the e-rickshaw market, which not only varied with locality, as one would expect, but also within the locality itself. The Delhi *Vishwavidyalaya* (University) area, with reference to the surrounding neighbourhoods, was taken up as a case study. E-rickshaws in the

North Campus area have been operational since soon after their emergence in 2010, and have steadily increased in number due to the high volume of student demand. This study focuses on e-rickshaws deployed in front of the Vishwavidyalaya Metro Station (Gate No. 4). The station makes for a unique case study as a result of high passenger traffic, with demand being primarily seasonal and subject to university schedules. For the purpose of clear identification, these three distinct organisational structures have been dubbed Area 1 (A1), Area 2 (A2) and Area 3 (A3). Areas 2 and 3 comprise the 'traditional' e-rickshaws (image 4) and have organised structures where drivers queue and move in turn, whereas Area 1 consists of smaller-sized e-rickshaws with a disorganised market structure. The present study focuses on Areas 1 and 2 exclusively, the reason for which is elaborated in the methodology (section 3).

Image 1: Satellite View of the Vishwavidyalaya Metro Station Region with Author Defined Areas
Source: Google Maps

2.1 Area 1

Area 1 consists of "mini e-rickshaws" with a seating capacity of 2-4 passengers per trip, depending on the driver's discretion. These are open-bodied models with smaller structures than regular e-rickshaws and a maximum speed of 35-40 kilometres per hour. Drivers part of this group are generally more proactive with regard to obtaining passengers or *sawaris* and can be seen in large numbers standing at the exit gate of the metro station, loudly calling for passengers and leading them to their rickshaws. This is a result of the fact that their group functions in a largely unorganised manner, where any driver is able to enter and participate. Though some drivers did admit to paying a specific amount of money as fees in exchange for being allowed to stand there, indicating the presence of some sort of system, others denied giving such fees, suggesting that the system is not strictly enforced. This group thus exhibits a market with partially free entry and autonomy over the number of passengers.


***Image 2**: Vehicle driven in Area 1; **Image 3**: Drivers in Area 1 calling Passengers*

2.2 Area 2

Area 2 comprises regular-sized e-rickshaws, seating 4+1 passengers. This model is larger than that of the other group, more spacious, and potentially more stable by virtue of its design. Maximum speeds for these models range from 25-30 kilometres per hour. The drivers of this group function in a systematic manner, moving in a queue from the far right end of the metro station towards the left, picking up passengers only when their turn comes. This market thus ends up being less competitive and far more organised. The group also chooses a *pradhan* or head among themselves, who is one of the drivers and responsible for collecting the mandatory, albeit informal, fee that drivers must pay for standing in line, ensuring rule-following and also handling police-related issues in the area. This enforced fee suggests that drivers may not be able to enter this market according to personal convenience. There was a larger sense of observed camaraderie among drivers in this area, perhaps due to longer waiting times or long-standing relationships.

***Image 4**: Vehicle driven in Area 2; **Image 5**: Drivers in Area 2 in a well-formed line*

3. Methodology

3.1 Primary Survey

The study follows a convergent parallel mixed methods design, integrating quantitative survey data with qualitative insights from open-ended responses and researcher observations. A primary survey was conducted at the *Vishwavidyalaya* Metro Station in New Delhi. The two areas in question were selected due to observed differences in the organisation of drivers (collusive and non-collusive) and similarity in base fares (₹20). Another, smaller, organisation of e-rickshaws was identified at the site through observation (Area 3). However, it was not included in the study due to differences in base fare (₹15), which would affect comparability of outcomes between markets.

A total of 67 drivers participated in the survey. This includes 34 from Area 1 (50.8% of total) and 33 from Area 2 (49.2% of total). The responses were collected over a period of 25 days from 25 October to 18 November, 2025, using a convenience sampling method supplemented by referrals.

Prior to the survey, the team visited the area twice for a scoping study where informal discussions were conducted with the drivers to understand their organisation structures, pricing norms, vehicle ownership status, rental, charging and other costs, seasonal impacts on earnings, and reasons for working in their respective areas.

The questionnaire was formed on the basis of this scoping study. It consisted of sections covering: demographic information, social security, nature and stability of work, income and expenses, market functioning and perceptions. Pilot testing was conducted with 10 drivers to understand whether the questions were clear and comprehensible to the respondents.

The questionnaire was administered by a group of student volunteers from Miranda House college. Each survey took 20-45 minutes to administer, depending on respondents' willingness to engage in discussion. Kobo Toolbox, a digital survey software, was used to administer the survey. While the surveys were conducted in an interview format, and responses manually recorded by enumerators on their phones, drivers were assured that they were not being voice/video recorded, and consent to participate in the survey was also taken from all respondents.

Drivers were approached during off-peak hours on weekdays (late afternoon) and on weekends. They were informed of the purposes of the study, who was conducting it and the types of questions they will be asked. They were assured of anonymity, confidentiality and were informed that they may choose not to answer any questions they do not wish to (thus leading to varying sample sizes per question).

Questions included quantitative and qualitative answers. Likert-scale items were used when exact numerical recall was difficult, and an open-ended final question allowed participants to address any gaps not covered by the structured questions.

3.2 Analysis

Given the exploratory nature of the study, qualitative data was used to contextualise findings and mitigate Type I error risks. Patterns observed in statistical tests were examined for consistency with drivers' narrative accounts and researchers' observations. This triangulation was particularly important given the semi-legal, largely unregulated nature of work, and potential policy implications for e-rickshaw drivers' welfare.

Statistical analysis was conducted on R as follows:

1. Continuous variables: Welch's t-test for normally distributed data with $n>30$ per group

2. Non-normal/small sample continuous variables: Wilcoxon rank-sum test

3. Categorical variables:

- Pearson's χ^2 test for expected counts ≥ 5
- Fisher's exact test for expected counts <5

Multiple visualization techniques were employed to complement statistical analysis:

1. Distribution Assessment: Histograms were used to assess normality and distribution shapes of

continuous variables

2. Outlier Detection: Box plots were created to identify and examine outliers 3. Group Comparisons: Bar graphs with error bars were used to visually compare means between collusive and non-collusive markets

4. Composition Analysis: Stacked bar charts and pie charts were used to illustrate proportions and categorical distributions

The analysis proceeds in three parts: first, we characterise the demographic and occupational profile of drivers; second, we identify and measure indicators of market organisation; third, we compare welfare outcomes across market structures.

4. Results and Discussion

4.1 The E-Rickshaw Driver Profile: Demographics, Work Patterns, and Seasonal Effects

4.1.1 Demographics

Table 1

Basic Demographic Details of Drivers

	Area 1				Area 2				Total			
	mean	**sd**	**median**	**se**	**mean**	**sd**	**median**	**se**	**mean**	**sd**	**median**	**se**
Age	37.18	10.29	35	1.77	38.48	10	38	1.74	37.82	10.09	37	1.23
HS	5.65	3.33	5.5	0.57	4.91	1.99	5	0.35	5.28	2.76	5	0.34
SE	0.56	0.5	1	0.09	0.64	0.49	1	0.09	0.6	0.49	1	0.06

***Note**: HS: Household Strength; SE: Sole Earner*
Sole Earner is a binary variable, its mean can be interpreted as a proportion

This specific group provides a unique and natural demographically uniform research setting. It is important to note that there would be no errors brought about by gender dynamics in this case because of the complete absence of women e-rickshaw drivers in this market. Referring to Table

1, The mean age for drivers of Areas 2 and 3 is almost the same, 37.18 and 38.48, respectively. In addition to that, there is not much difference in the mean years of experience of drivers of both groups in this sector (10.67 for A1 and 10.05 for A2), as well as in the mean years of schooling obtained (4.5 years for A1 and 4.76 for A2). Drivers live with families of a joint mean size of 5.28 members. The family size of drivers is right-skewed, which indicates that most live in nuclear families (a natural result as we have already established that most drivers are migrant workers), while few may also live as part of a joint family. 56% of A1 drivers are sole earners as compared to 64% of A2 drivers. While Area 2 constitutes 7% more sole-earners in contrast to A1, this difference is statistically insignificant (Refer Appendix, Table A1.1).

Table 2

Birth State of Drivers

	Area 1			Area 2			Total		
	mean	**sd**	**se**	**mean**	**sd**	**se**	**mean**	**sd**	**se**
Bihar	0.62	0.49	0.08	0.25	0.44	0.08	0.44	0.5	0.06
Delhi	0	0	0	0.09	0.3	0.05	0.05	0.21	0.03
Jharkhand	0.06	0.24	0.04	0	0	0	0.03	0.17	0.02
MP	0.03	0.17	0.03	0.06	0.25	0.04	0.05	0.21	0.03
UP	0.29	0.46	0.08	0.59	0.5	0.09	0.44	0.5	0.06

Note*: Here the mean represents the proportion of drivers from the region.*

Moving to geographical indicators, we can see in Table 2 that 95% of them are migrants, with 88% of them belonging to Uttar Pradesh or Bihar. While this is a common feature of Delhi's informal urban economy, peculiarly we also find that birth state significantly differs with the area drivers work in.

Maximum drivers (62%) in A1 belong to Bihar while A2 is dominated by those belonging to Uttar Pradesh (59%). A possible explanation can be the barriers to entry that persist in the two areas. However, a minute percentage of respondents report geographical locations like native villages as a barrier. A low p-value (0.007601) indicates the difference between the two chosen groups across states is statistically significant (Refer Appendix, Table A1.2).

There also appear to be substantial differences in place of residence for drivers in the two areas. While drivers generally reside in or near the North Campus area, a greater number of A1 drivers live in neighbourhoods that are relatively greater distances from their work area and normal routes which they ply on. They live in areas such as Majnu ka Tilla (32.25%), Azadpur (14.71%), and Model Town (8.82%). On the other hand, A2 drivers reside in areas closer to the metro station such as Timarpur (18.18%), Roop Nagar (18.18%), Vijaynagar (9.09%) and Patel Chest (9.09%).

Table 3

Assets, Social Security possessed by Drivers and Indicators for Formality

Assets Owned									
	Area 1			**Area 2**			**Total**		
	mean	**sd**	**se**	**mean**	**sd**	**se**	**mean**	**sd**	**se**
Farmland	0.58	0.5	0.09	0.7	0.47	0.08	0.64	0.48	0.06
Mobile phone	0.84	0.37	0.07	0.97	0.17	0.03	0.91	0.29	0.04
TV	0.32	0.48	0.09	0.55	0.51	0.09	0.44	0.5	0.06
AC	0.06	0.25	0.04	0.12	0.33	0.06	0.09	0.29	0.04
Pucca ghar	0.65	0.49	0.09	0.85	0.36	0.06	0.75	0.44	0.05
Bank account	0.87	0.34	0.06	0.88	0.33	0.06	0.88	0.33	0.04
Social Security Card									
Ration card	0.82	0.39	0.07	0.67	0.48	0.08	0.75	0.44	0.05
Jeevan beema	0.18	0.39	0.07	0.3	0.47	0.08	0.24	0.43	0.05

Formality Indicators									
License Holder	0.29	0.46	0.08	0.58	0.5	0.09	0.43	0.5	0.06
E-Shram card	0.38	0.49	0.08	0.52	0.51	0.09	0.45	0.5	0.06
Vehicle Insurance	0.35	0.49	0.08	0.55	0.51	0.09	0.45	0.5	0.06

Note*: Here, the mean represents proportion.*

Data showed that an average of 58% of A1 and 70% of A2 drivers possess farmland in their villages (Table 3). Though the productivity of this farmland is unclear, it is indicative of the existence of a rural safety net to some extent. In addition to that, the possession of assets such as televisions, air conditioners and *pucca ghars* or concrete houses (as shown in the table below) gives an idea of the standard of living of drivers. Though an average of 65% of A1 and 85% of A2 drivers live in permanent houses, only 6% of A1 and 12% of A2 drivers have air conditioners installed. The prevalence of mobile phone possession among drivers (84% for A1 and 97% for A2) is likely a result of occupational necessity or a way for drivers to spend their time while waiting for passengers. A high proportion of drivers having bank accounts (87% of A1 drivers and 88% of A2 drivers) implies a medium to high level of financial and social inclusion. Prevalence in possession of both mobile phones and bank accounts is likely also a result of popularity in online payment modes (mainly UPI) among college students, who constitute almost all of their customers. In contrast, the relatively low proportion of drivers having life insurance could be a cause for concern. It was found that 18% of Area 1 drivers and 30% of Area 2 drivers hold a form of life insurance.

The above table also observes various social security measures possessed by drivers. The data collected shows a low percentage of drivers possessing various insurances, or health and food security. Although it is evident that the adoption of social security programs by drivers is very low, of the above-listed indicators, the highest share of drivers possess ration cards, with 39.44% of drivers in A1 and 29.33% in A2 having them. A relatively high proportion of drivers also possess E-Shram cards and vehicle insurance, the number making up about 45% of the total drivers interviewed.

A major difference lies between the two groups when the question of licensed drivers comes into play. It was found that a large chunk of A1 drivers did not have a license or were in the process of getting one, with approximately 29% having a license on average, whereas this proportion reached 58% in A2.

These findings support existing literature that describes informality and social precarity of workers in this sector.

4.1.2 Work Patterns

Table 4

Occupational Details of Drivers

	Area 1				**Area 2**				**Total**			
	mean	**sd**	**median**	**se**	**mean**	**sd**	**median**	**se**	**mean**	**sd**	**median**	**se**
Total Work Hours	12.08	1.55	12	0.27	12.88	1.98	12.88	0.35	12.48	1.81	12	0.23
Rickshaw Experience (in years)	10.67	8.52	10	1.51	10.05	7.34	10	1.28	10.35	7.89	10	0.98
Owner	0.56	0.5	1	0.09	0.64	0.49	1	0.09	0.6	0.49	1	0.06

Note: *Here, the mean for 'Owner' represents proportion.*

The survey aimed to capture average daily routines and worker profiles of drivers. In Table 4, it is clear that both A1 and A2 drivers work between 12 and 13 every day on average. The difference in mean work hours between Area 1 and 3 is 48 minutes. E-rickshaw drivers from either area may be owners or renters of their vehicle–being an owner suggests a daily cost of charging, while this cost is generally included in the rent of leased rickshaws. It was observed that most drivers from A2 (64%) were owners of their vehicles, as compared to 56% of A1 drivers.

Table 5

Previous employment and reasons cited for shifting to driving e-rickshaws

Previous Work									
	Area 1			**Area 2**			**Total**		
	mean	**sd**	**se**	**mean**	**sd**	**se**	**mean**	**sd**	**se**
Farming	0.15	0.36	0.06	0.15	0.36	0.06	0.15	0.36	0.04
Construction work	0.18	0.39	0.07	0.12	0.33	0.06	0.15	0.36	0.04
Sales worker	0.09	0.29	0.05	0.27	0.45	0.08	0.18	0.39	0.05
Factory work	0.12	0.33	0.06	0.09	0.29	0.05	0.1	0.31	0.04
Driver: Pedal rick.	0.44	0.5	0.09	0.3	0.47	0.08	0.37	0.49	0.06
Driver: Other	0.09	0.29	0.05	0.06	0.24	0.04	0.07	0.26	0.03
House work	0.03	0.17	0.03	0	0	0	0.01	0.12	0.01
Why E-Rick?									
	Area 1			**Area 2**			**Total**		
	mean	**sd**	**se**	**mean**	**sd**	**se**	**mean**	**sd**	**se**
More freedom	0.18	0.39	0.07	0.27	0.45	0.08	0.22	0.42	0.05
Higher income	0.38	0.49	0.08	0.45	0.51	0.09	0.42	0.5	0.06
Was introduced by a relative/friend	0.06	0.24	0.04	0	0	0	0.03	0.17	0.02
Easy to start	0.12	0.33	0.06	0.12	0.33	0.06	0.12	0.33	0.04
Vehicle was easily available	0.06	0.24	0.04	0.06	0.24	0.04	0.06	0.24	0.03

Note: Here, the mean represents proportion.

It was observed that operating e-rickshaws is generally not an initial employment choice for drivers (Table 5). Most drivers shift from other areas of employment such as farming, construction, factory work, etc. Here, the most common former source of employment is that of manual or cycle rickshaws, with an average of 44% of A1 drivers and 30% of A2 drivers operating cycle rickshaws before switching to e-rickshaws. A relatively large proportion (27%)

of A2 drivers also engaged in shopkeeping prior to driving e-rickshaws. When asked about why this shift was made, most drivers cited a perceived higher income as a reason. Others also talked about greater flexibility or freedom ("to be your own boss") as an e-rickshaw driver, low start-up costs and easy availability of the vehicles in the market.

4.1.3 Seasonal Effects

Table 6

Trends during University Vacations

	Owner (%)	Renter (%)	Total (%)
Work During Vacation			
Go to village	33.33	75	58.7
Take up other work here	11.11	3.57	6.52
Drive e-rick	55.56	21.43	34.78
Work in Village			
Own farm work	66.67	52.38	55.56
Business	0	4.76	3.70
Construction	0	14.29	11.11
Other farm work	0	19.05	14.81
MGNREGA work	0	9.52	7.41
No work	16.67	9.52	11.11
Study	16.67	0	3.70
Survival Strategy: Driving E-Rick			
Reduce expenditure	10	0	6.25
Utilise savings	20	16.67	18.75
Earn enough from e-rick	50	83.33	62.5

Take loan	20	0	12.5

Note:

● *Data collected only from those who responded "Yes" to "whether their income gets impacted during the period of vacations".*

● *The sub-section, "work in village" is a subset of those who choose to go to village. Here, multiple options could be chosen by the respondents. For example- Few chose both 'own farm work' and 'other farm work'*

● *Since, we only surveyed those who reported their income getting impacted during vacations, in the section, "Survival Strategy" we list how the subset of e-rick drivers who stay back and continue driving e-rick sustain their 'necessary', 'everyday', expenditure.*

The university disperses for 1.5-2 months long vacation during the summers (usually from June-August). As footfall at the metro station falls considerably during such periods, the daily earnings of e-rickshaw drivers also get impacted, motivating a change in their work and consumption patterns. Out of 43 respondents, 41 agreed that their income gets impacted during breaks.

Thus, over 58.7% of total drivers go to their village while 34.78% of them continue to drive e-rickshaws. However, this choice is significantly influenced by ownership status of the vehicle. Driven by daily rent payments varying between ₹400-500, as many as 75% of renters choose to go to their village in contrast to 33.3% of the owners.

Villages serve as sites of relief for many e-rickshaw drivers. Since 64% of total drivers own farmland (refer table 1), 55.56% of those who head back take up farming on their own land. While some take up multiple occupations like 'own farm work' and 'construction work', few drivers also spend time in leisure ('no work') or skill development ('study'). While, interestingly, owners spend more time in activities pertaining to leisure or skill development, nothing can be conclusively said about their behaviour due to sample size restrictions.

Among those who stay back and continue to drive e-rickshaw, 62.5% report that they are able to earn enough to sustain their daily needs. Reduced competition in the area may mediate the impact of reduced passenger footfall as maximum drivers leave for their village during this period. However, others reported that the vacation period impacts their earnings drastically. 31.25% of drivers who drive e-rickshaw during break choose to smoothen their consumption by either utilising their savings or taking a loan, while 6.25% of drivers cut back on their expenditure.

5. Limitations

5.1. Participation and sampling

Some drivers refused to participate in the survey primarily due to lack of time during their working hours, while others were either suspicious or dismissive of the research effort. The researchers were unable to offer monetary incentives to participate to adequately compensate respondents for their time due to financial constraints. However, once a few drivers agreed to participate, trust and responses were gathered through referrals. A few questions were left unanswered since they needed to make a trip. While some came back to complete the survey, few did not.

5.2 Selection Bias

While no significant demographic differences were found between both areas, each driver made a choice regarding which area to operate in. Unobserved characteristics such as risk tolerance or social networks may influence this choice, potentially introducing selection bias.

5.3 Research design and generalisability

The study's single-site design at Vishwavidyalaya metro station limits generalisability. Findings may not extend to e-rickshaw drivers in other Delhi locations or different Indian cities, where local market structures, passenger demographics, and regulatory environments vary. However, the study offers detailed descriptive insights into the demographic profile, work patterns, and seasonal coping strategies of drivers in this specific context. These findings provide valuable baseline data for understanding informal transport workers and provide valuable insight to inform regulation and policy design for this largely unregulated market that lacks social protection for workers.

6. Policy implications

There is a growing debate surrounding the regulation of e‑rickshaws. While they improve last‑mile connectivity and offer a comparatively accessible form of self‑employment, they are increasingly criticised for causing congestion and safety concerns. However, e‑rickshaw drivers' lives are characterised by precarity: they lack social security, operate in legal grey areas, and remain vulnerable to rent‑seeking by authorities. In response, many have formed informal groupings to secure income and reduce harassment. Based on our descriptive findings, several policy considerations emerge:

6.1 Provide Infrastructure, Not Just Regulation

Many e-rickshaws park informally around transport hubs such as metro stations while waiting for passengers. Outright formalisation that prohibits such parking would undermine both livelihoods and passenger convenience. Instead, dedicated, legal parking spots should be created at high-demand locations to reduce drivers' precarity and limit opportunities for rent-seeking.

6.2 Improve Awareness and Access to Portable Social Security

Awareness of social-security schemes such as E-Shram remains low among drivers. Even those who possess documents like ration cards or Ayushman Bharat cards often leave them in their villages. Given that a large share of e-rickshaw drivers are migrant workers, it is important to spread awareness about using these benefits in urban areas. Transport authorities could collaborate with pradhans to disseminate information at parking locations.

6.3 Support Age-Appropriate Transitions

Our findings indicate that e-rickshaws are particularly suitable for older workers or those unable to perform physical labour due to injury, as the work is less strenuous than manual rickshaw pulling or construction. At the same time, many younger drivers view this work as temporary, attracted by its income and flexibility. Policy could thus differentiate between e-rickshaws as (1) age-friendly employment and (2) transitional work for youth, with upskilling programmes for the latter.

7. Conclusion

This study was undertaken as an effort to bring driver welfare to focus, in contrast to the majority of literature, which focuses on consumer perceptions, safety, and legal perspectives. Both quantitative and perception-based data is utilised to develop a holistic and detailed illustration of worker profiles, and work patterns in the Vishwavidyalaya Metro Station area.

For this purpose, an area-wise analysis of demographics, daily routines, extent of informality, and work patterns that are affected by seasonality was undertaken. The findings reveal a predominantly migrant workforce (95%), with 88% originating from Uttar Pradesh or Bihar, living in nuclear families, and working 12-13 hours daily to earn modest incomes (≈₹1000/day). Most drivers shifted from manual or cycle rickshaws, citing higher earnings and flexibility as motivations. Vehicle ownership varies across groups (56-64%), influencing daily costs and mobility.

Social protection remains limited: while bank account and mobile phone ownership are high (≈85-95%), insurance coverage and social security scheme enrolment remain low. During the 1.5-2 month summer university break, earnings drop sharply, prompting divergent coping strategies: nearly 59% return to their villages, 75% of renters compared to 33% of owners, with over half engaging in farming. Among those who remain, 62.5% sustain daily needs through reduced competition, while 31% rely on savings or loans to smooth consumption.

E-rickshaw drivers continue to operate in the margin, both economically and legally. While there is much public discourse for the regularisation and formalisation of this sector, it is imperative that the heterogeneity of driver profiles and work patterns is understood in greater detail before any effective policy can be introduced.

For this reason, further research is recommended to study similar informal systems prevailing in other regions of NCR so that the inherent heterogeneity of the sector may be acknowledged. Since this form of employment exhibits precarity and instability in the form of earnings and legal issues, deeper understanding of seasonal coping strategies and the role of rural linkages must be studied in greater detail and incorporated in subsequent policies. It is necessary to reiterate that while these driver profiles cannot be generalised due to the inherent heterogeneity of the e-rickshaw market, the findings provide valuable baseline data for understanding informal transport workers and serve as a foundation for future research

8. Acknowledgements

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References

1. Bansal, P., Gadepalli, R., Ait Bihi Ouali, L. (2023). Eliciting mobility preferences of Indians for e-rickshaws: Evidence from Gurugram. Transport Policy, 134, 19–30. https://doi.org/10.1016/j.tranpol.2023.02.006
2. Bari, R., Hoque, A., & Ansari, N. (2021). Socio-economic status and health condition among the e-rickshaw puller drivers: A case study. International Journal of Trend in Scientific Research and Development, 5(2), 174–179. https://www.ijtsrd.com/papers/ijtsrd38355.pdf
3. Bonner, C. (2006). Organising informal transport workers. International Transport Workers' Federation. https://www.itfglobal.org/sites/default/files/resources-files/08e_report.pdf
4. Cervero, R., & Golub, A. (2007). Informal transport: A global perspective. Transport Policy, 14(6), 445–457. https://doi.org/10.1016/j.tranpol.2007.04.011
5. Das, N., & Franquesa, J. (2025). The invisible electric mobility: Examining the informalized electric rickshaw in Eastern India. Energy Research & Social Science, 129, 104356. https://doi.org/10.1016/j.erss.2025.104356
6. Dubey, P., & Dawda, N. (2025). Overlooked and overburdened: Paratransit in India deserves an overhaul. ORF Expert Speak. https://www.orfonline.org/expert-speak/overlooked-and-overburdened-paratransit-in-india-deser ves-an-overhaul
7. Harding, S., & Kandlikar, M. (2017b). Explaining the rapid emergence of battery-rickshaws in New Delhi: Supply-demand, regulation and political mobilisation. World Development Perspectives, 7–8, 22–27. https://doi.org/10.1016/j.wdp.2017.11.001
8. Inter-American Development Bank & World Resources Institute. (2020). Informal and semiformal services in Latin America: An overview of public transportation reforms. Inter-American Development Bank & World Resources Institute. https://publications.iadb.org/publications/english/document/Informal-and-Semiformal-Services-i n-Latin-America-An-Overview-of-Public-Transportation-Reforms.pdf
9. Joshi, R., Deshpande, P., Borah, S., & Sharma, M. (2023). Informal and shared mobility: Status and opportunities in India. Volvo Research and Educational Foundations (VREF). https://vref.se/publications/informal-and-shared-mobility-status-and-opportunities-in-india/

10. Khalid, M., Rana, J., Ahuja, S., Upadhyaya, A., Shukla, A., & Upadhyaya, M. (2025). The socio-economic impact of e-rickshaw adoption: A study on income growth and social status enhancement. Advances in Consumer Research, 2(4), 141–156. https://acr-journal.com/article/the-socio-economic-impact-of-e-rickshaw-adoption-a-study-on-inc ome-growth-and-social-status-enhancement-1142/
11. Kerzhner, T. (2023). How are informal transport networks formed? Bridging planning and political economy of labour. Cities, 137, 104348. https://doi.org/10.1016/j.cities.2023.104348
12. Neelam, K. K. (2021). Policy initiation for development of slow charging station infrastructure and e-rickshaw registration process in India. European Journal of Energy Research. https://doi.org/10.24018/ejenergy.2021.1.5.28
13. Oviedo-Hernandez, D. (2021). Informal paratransit in the Global South (Doctoral dissertation, University College London). https://discovery.ucl.ac.uk/10131445/1/Oviedo%20Hernandez_Informal%20paratransit%20in%2 0the%20Global%20South.pdf
14. Popoola, A., Akinyemi, Y., Mosima, M., Mbambo, S., & Ipingbemi, O. (2025). Workplace relationships of harassment between informal public transport operators and traffic authorities in Durban, South Africa. Discover Global Society. https://doi.org/10.1007/s44282-025-00255-9
15. Priye, S., Manoj, M., & Ranjan, R. (2021). Understanding the socioeconomic characteristics of paratransit drivers and their perceptions toward electric three-wheeled rickshaws in Delhi, India. IATSS Research, 45(3), 357–370. https://doi.org/10.1016/j.iatssr.2021.03.002
16. Puthussery, M. (2019). Migrant cycle Rickshaw Pullers of Delhi: Pedalling for survival and livelihood. *International Journal of Research in Social Sciences*, *9*(12). https://www.ijmra.us/project%20doc/2019/IJRSS_DECEMBER2019/IJRSS7Dec19-16299.pdf
17. Rojesh, S., & Harding, S. (2014). Battery rickshaws in New Delhi and the regulation conundrum. Economic and Political Weekly, 49(35). https://epw.duelibrary.in/journal/2014/35/insight/battery-rickshaws-new-delhi-and-regulation-co nundrum.html
18. Sen, T. K., & Majumder, K. G. (2015). Changing in Characteristics of City

Transportation and the SocioEconomic Scenario of Rickshaw Pullers: A case study within English Bazar Municipal Area. *Journal of Economics and Sustainable Development*, *6*(13).

19. Singh, R., Mishra, S., & Tripathi, K. (2021). Analysing acceptability of e‑rickshaw as a public transport innovation in Delhi: A responsible innovation perspective. Technological Forecasting and Social Change, 170, 120908. https://doi.org/10.1016/j.techfore.2021.120908
20. Tucho, G. T. (2022). A review on the socio‑economic impacts of informal transportation and its complementarity to address equity and achieve sustainable development goals. Journal of Engineering and Applied Science, 69, Article 28. https://doi.org/10.1186/s44147-022-00074-8

Appendix

Test Results

Table A1.1

Numeric Variables under Demographic Details

Mean			
Variable	Area 1	Area 2	Difference
Age	37.18	38.48	-1.3
Household Strength	5.65	4.91	0.74
Sole Earner	0.56	0.64	-0.08

*Note: T-test employed as n>30, *p < 0.1,**p < 0.05,*** < 0.01*

Table A1.2

Categorical Variables under Demographic Details

Variable	χ^2 (chi sq)	p-value
Place of Birth X Area	13.906	0.007601***
Education X Area	8.4029	0.1354

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A2

Social Security Cards & Relationship with Area

Social Security Cards X Area	χ^2 (chi sq)	p-value
Social Security Card		
Ration Card	1.4266	0.2323
Life Insurance	0.86149	0.3533
Formality Indicators		
E-Shram Card	0.3969	0.3969
Vehicle Insurance	7.5868	0.1807
License	1.7045	0.1917

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A3

Asset Ownership & Relationship with Area

Asset	χ^2 (chi sq)	p-value
Farmland	0.50215	0.4786
Bike/scooter	0	1
Mobile Phone	1.8704	0.1714
TV	2.3843	0.1226
AC	0.12153	0.7274
Bank Account	0	1
Pucca Ghar	2.5233	0.1122

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A4.1

Work Hours, Driving Experience

Mean			
Variable	Area 1	Area 2	Difference
Work Hours	12.08	12.88	-0.8*
Years of Rickshaw Experience	10.67	10.05	0.62

*Note: T-test employed as n>30, *p < 0.1,**p < 0.05,*** < 0.01*

Table A4.2

Ownership Status

Variable	χ^2 (chi sq)	p-value
Own X Area	4.3245	0.03757**

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A4.3

Previous Work

Occupational Details	χ^2 (chi sq)	p-value
Previous Work	8.2536	0.5088

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A4.4

Why E-Rickshaw

Why E-Rick	χ^2 (chi sq)	p-value
Unemployment	0.047585	0.8273
Higher Income	0.12338	0.7254
Relative/Friend recc	0.48518	0.4861
Easy to Start	5.35E-32	1
Vehicle Available	1.25E-32	1

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Table A5

Seasonal Work's Relationship with Area & Vehicle Ownership

Work During Break X Variable	χ² (chi sq)	p-value
Ownership	7.8644	0.0196**
Area	2.2899	0.3182

*Note: Pearson's Chi-squared test employed, *p < 0.1,**p < 0.05,*** < 0.01*

Figures

Figure A1

Birth State of Drivers

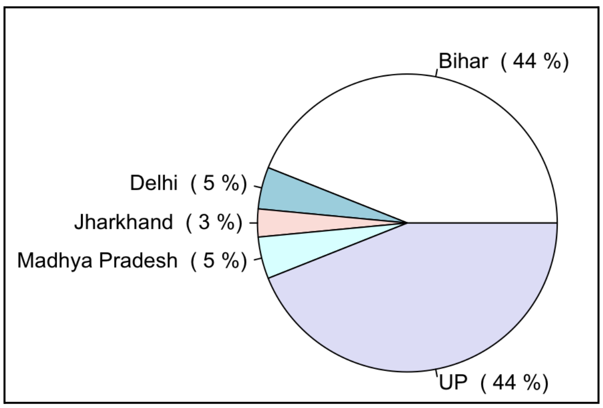


Figure A2

Place of Residence of Drivers in Area 1

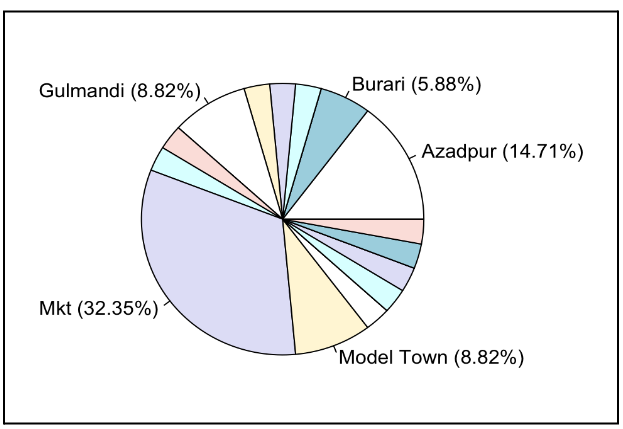
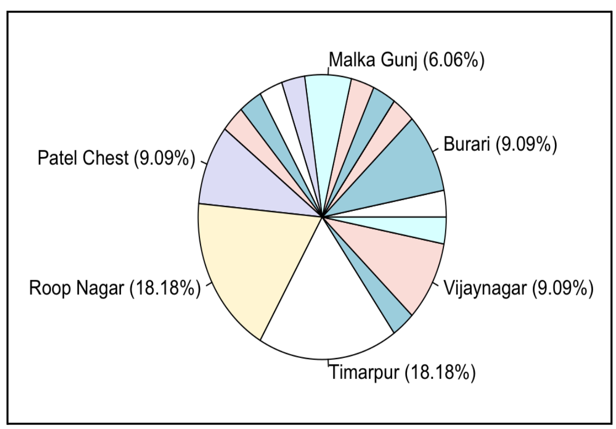


Figure A3

Place of Residence of Drivers in Area 2



Research Papers

Heavy Rainfall and its Socioeconomic Impact on Domestic Helpers in South Bangalore

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Abstract

The accelerated urbanization of South Bangalore and the lack of a proper drainage system have increased the susceptibility of low-income families to extreme rainfall occurrences. Overall, domestic helpers face more risks of compounding their livelihoods when their employment, mobility, and residence location are directly affected by the environmental stresses of the city. This project addresses how extreme rain affects the livelihood, economic stability and the coping mechanisms of low-income citizens living in South Bangalore. A qualitative research design was implemented with the help of an open-ended questionnaire that has recorded the experiences of flooding, income disruption, housing conditions, and gendered burdens. The research relies on the in-depth interviews with inhabitants of flood-prone settlements.

The insights observed suggest that excessive rains cause a series of problems. The respondents report frequent waterlogging within the residential properties because of obstructed sewerage systems and low-lying landforms, which leads to damaging of household goods, forced migration, and diversion of scant household earnings to drain repairs. Results also indicate that domestic workers often miss workdays due to unsafe commuting, cancellation by employers or due to having to handle flooding in their homes, resulting in lower income and financial vulnerability. Women seem to be overburdened as they juggle with increased household chores and breakages in the workplace. There are also reports of schooling disturbances to the children, rise in water and stress related diseases and the inability to access healthcare in the conditions of floods. The assistance of local authorities or non-governmental organizations is said to be uneven, reinforcing a vicious circle of vulnerability.

These emerging trends highlight the significance of heavy rainfall as a socio-economic stress factor, besides a climatic phenomenon that has increased existing inequalities. By using thematic

analysis of the obtained data, this study will make contributions by offering more grounded data on the issue of climate justice, urban resilience, and policy frameworks that may better serve the needs of the most vulnerable neighbourhoods in Bangalore.

Keywords: Urban flooding, Informal labour, Domestic workers, Climate vulnerability, Livelihood disruption, Gendered impacts

1. Introduction

The rapid urbanization in Indian cities has changed the land-use patterns, hydrology, and resilience of urban infrastructure, in most cases, making these cities more vulnerable to extreme rainfall and flooding (Revi 2008; Vazhuthi & Kumar 2020;). The economic development and population increase in Bengaluru, one of the fastest-growing metropolitan areas in India, has led to uncontrolled sprawl, infiltration of natural drains, and inadequacy of stormwater management, transforming the heavy rains into frequent urban floods instead of letting natural ecosystems absorb them (Basu & Bazaz 2016; Prasad & Narayanan 2016; Bindal et al. 2022; Gupta and Nair 2010). In South Bengaluru especially, there has been disappearance of lakes, wetlands, and open spaces that previously controlled water runoffs, leading to waterlogging of low-income neighbourhoods because of poor drainage systems (Joseph et al. 2022; Online 2025).

Such floods are particularly affecting marginalized residents, making climatic events socioeconomic stress factors, which interfere with livelihood, health, and well-being (Singh and Jennath 2024). Informal settlements and slums are on the receiving end, where structural vulnerabilities are magnified by the lack of proper urban planning and governance as well as climate extremes (Krishna et al. 2014; Damte et al. 2022;). As a very vulnerable group in the urban informal economy, domestic workers are dependent on day-to-day mobility, physical production, and stable housing, which makes them prone to transport disruptions and home flooding, and loss of income during heavy rains (Bartlett 2008). Compensated on a visit or daily basis with no explicit contracts or social security, even short-term disruptions can cause permanent financial insecurity (Gupta 2020).

These vulnerabilities are further exacerbated by gender, as women who are domestic workers usually deal with dual burdens of flood crises in the households - more unpaid labor, destruction of property, and worries about children's education and health - and continue working, contributing to social and economic disparities (Bartlett 2008; Yasmin 2016). Although the topic of urban flooding and adaptation in India is increasingly being studied, lived experiences of low-income populations, including domestic workers in slums located in flood-prone regions, are underrepresented, and calls on inclusive, participatory resilience solutions have seldom been met (Nadimpalli et al. 2024b; Krishna et al. 2014).

This qualitative research fulfills this gap by investigating the concept of heavy rainfall as a socioeconomic source of stress in flood-prone areas of South Bengaluru based on the stories of domestic workers that inform the discourse on the idea of climate justice, inclusive urban planning, and policy frameworks that prioritize vulnerable communities.

2. Research Gap

The literature review confirms that urban flooding in Bengaluru is not only an environmental risk factor but a socio-economic crisis that is predetermined by inequality, poor governance, and climate change. Nevertheless, other available research focuses on spatial mapping or infrastructure evaluation or macro-level vulnerability studies.

Qualitative findings on the impact of extreme rainfall on daily lives, income stability, and coping mechanisms of domestic workers who, especially the women, rely on mobility, and constant employment are limited. This paper fills this gap by predicting the lived experience of low-income households in South Bangalore prone to floods, thus adding to the discourse of climate justice, city resiliency, and designing inclusive policies.

3. Objectives of the Study

1. To determine the housing vulnerabilities, economic disturbances, and mobility limitations faced by vulnerable people during extreme rainfall events.
2. To explore gendered aspects of climate vulnerability, in particular, excessive load women bear in dealing with household flooding, care giving, and labor market insecurity.
3. To understand about coping and adaptive strategies that domestic workers have integrated to cope with frequent rainfall challenges.

4. Methodology

4.1 Research Design

The proposed research design is a qualitative research study aimed at analysing how extreme rainfall affects the daily lives and livelihood of domestic workers in South Bangalore. The qualitative approach is suitable because it allows documenting the lived experiences, livelihood disruption and coping measures that would not be easily pronounced using quantitative approaches.

4.2 Study Area and Participants

The area of study is flood prone localities in South Bangalore, characterised by high rate of urbanisation and poor drainage facilities. The study is concerned with domestic workers, i.e. maids, cooks, et cetera, who are employed in the informal sector. A sample size of 34 respondents who participated in the study due to their residence in the waterlogging-prone areas and had experienced the heavy rainfall or flooding incidences previously was secured using purposive sampling.

4.3 Data Collection

Primary data were gathered through in-person interviews (in verbal form) with the use of semi-structured open-ended questionnaire. The issues in the questionnaire included household factors, heavy rainfall experience, loss in household incomes, work disruption, housing and drainage facilities, gender-based burden, health effects, and access to institutional aids. Interviews were also carried out in a flexible manner so that the respondents could elaborate on areas that they deemed to be important.

4.4 Data Analysis

The thematic analysis, which involves coding of the responses and determining recurrent patterns on the factors of livelihood vulnerability, mobility constraints and coping strategies is being used to analyse the data supplemented by frequencies for descriptive insights.

5. Findings

The demographic profile of the respondents included in the study is presented in Table 1.

Table 1 Demographic characteristics of respondents (N = 34)

Characteristics	Category	Number (%)
Mean Age	-	37
Gender	Male	19 (56%)
	Female	15 (44%)
Marital Status	Married	20 (59%)
	Unmarried	10 (29%)
	Widowed	3 (9%)
	Separated	1 (3%)
Education Level	Illiterate	3 (9%)
	Pre-primary	5 (15%)
	Primary	7 (21%)
	Middle/Secondary	9 (26%)
	PUC	7 (21%)
	Graduate	3 (9%)
Main Occupation	Maid	10 (29%)
	Cook	9 (26%)
	Driver	8 (24%)
	Gardener	5 (15%)
	Cleaner	2 (6%)
Household Income (rupees) per month	10k-15k	10 (29%)
	15k-20k	10 (29%)
	20k-25k	10 (29%)

	25k-30k	3 (3%)
	Above 30k	1 (3%)
Housing Tenure	Rent	23 (68%)
	Own	6 (18%)
	Relatives	5 (15%)
House Structure	Pakka	20 (59%)
	Semi-pakka	11 (32%)
	Kachcha	3 (9%)

Source: Primary Survey

This result of the thematic analysis of the 34 in-depth interviews with domestic helpers in South Bangalore gives a thorough picture of the socioeconomic effects of heavy rainfall. The respondents are of a mean age of about 37 years (range 22-50) with 19 males (56%) and 15 females (44%) showing a slight male bias possibly due to occupational distribution or sampling. The marital statuses included mostly married (59%), then unmarried (29%), widowed (9%), and separated (3%). The occupations were maids (32%), cooks (29%), drivers (24%), gardeners (15%), and cleaners (6%).

The household incomes were between INR 10,000 and INR 35,000. 59 percent of respondents earned between INR 10,000 and INR 20,000 which shows that their incomes were low thus confirming the low-income vulnerability of the majority of respondents. The residence period ranged between 2 and 40 years (mean = 15 years), housing tenure was primarily rent (68%) and own (18%), relatives (15%). Nearest distances to drains/lakes/low-lying areas were usually around 500 meters with many (74%) of them being within 500 meters, an aspect that increased the vulnerability.

The analysis is designed in terms of objectives of the study; quantitative frequencies are used where appropriate to complement qualitative observations as a result of thematic coding of responses. The main themes identified include livelihood disruption, vulnerability including sub-themes such as income, savings, housing, commute, gender, education, and health; inadequate infrastructure, coping mechanism, and institutional backing. Cross tabulations show trends, e.g. greater vulnerability in semi-pakka houses or those living on the ground floor.

1. Impact on livelihood and day-to-day operations

The heavy downpours have a major impact disrupting the routine and livelihoods as people in the informal sector rely on daily attendance to make an income. A large proportion (71%) of respondents also indicated that they experienced commuting challenges such as road congestion, potholes, and traffic jam issues as well as the safety risks of falling or being wet. This was acute especially among bike or foot commuters.

"I get up early in morning and come back home late so when its dark it is difficult to see water on the road so sometimes, I fall or get wet. The potholes get filled because of which I have fallen from my bike also and got injured. Traffic gets bad so I get late. sometimes I do not know if it would rain or not so I forget to carry umbrella and get all wet and if I wait for rain to die down it starts to get very late at night."

(Respondent 1 November, 2025)

The same experience was communicated by others:

"Roads get blocked and the traffic becomes heavy and it becomes difficult to get to work on time and to be safe. Riding bikes is also a problem due to potholes so I have to take bus sometimes which also gets overcrowded."

(Respondent 4 November, 2025)

Drivers and gardeners encountered even more difficulties, since they spend most of their time in the open air. Because the garden gets flooded during rains, their work time increases as they must wait for the rain to subside first before resuming work again. This reinforces their vulnerability as their work time increases without corresponding increase in income or wages.

The frequency of work absence among respondents during heavy rainfall events is summarised in **Table 2.**

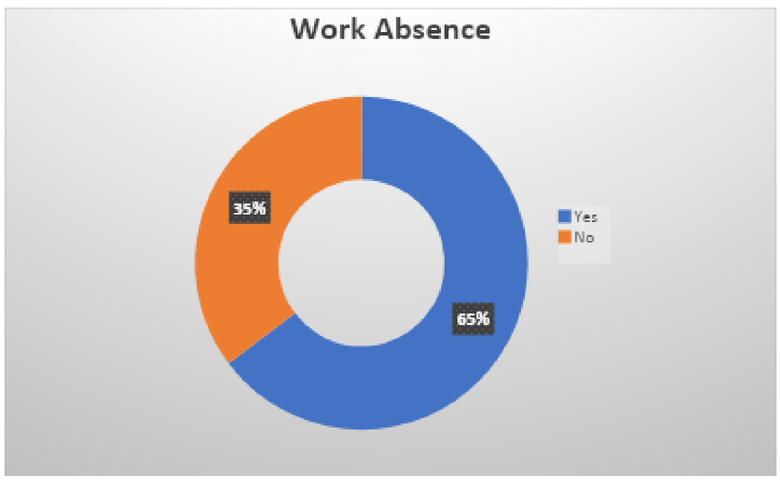
Table 2 Work absence during heavy rainfall events (N = 34)

Work Absence	Number (%)
Yes	22 (65%)
No	12 (35%)

Source: Primary Survey

The proportion of respondents who missed work due to heavy rainfall is illustrated in **Fig. 1.**

Fig. 1 Work absence among respondents (N = 34)



There were frequent cases of work absences where 22 respondents missed work days due to rain days, leading to payment losses of between INR 400 and INR 4,500. Given baseline incomes of INR 10,000 - INR 20,000, this represents 15-20% income loss depending on the severity of rainfall. Some emphasised the understanding nature of employers but others were not shown empathy which sometimes leading to payment cuts of even two days in a row leading to 8-10% of income loss.

They stressed that they have no choice but to miss work in those days. A male cook lost INR 1,500, and a female, maid lost INR 1,000 - INR 1,500. In 5 cases (15%), the family has lost their jobs to absences (spouses losing jobs) fuelling the vicious cycle of job insecurity in the informal sector.

2. Vulnerability

The theme of vulnerabilities became central and appeared in interrelated aspects at the economic, social, and physical levels. This category defines the vulnerabilities in subsections of income, savings, housing, commute, gender, education, and health and how heavy rainfall increases precarity among informal workers.

2.1 Income

The proportion of respondents reporting income loss during heavy rainfall events is presented in **Table 3**.

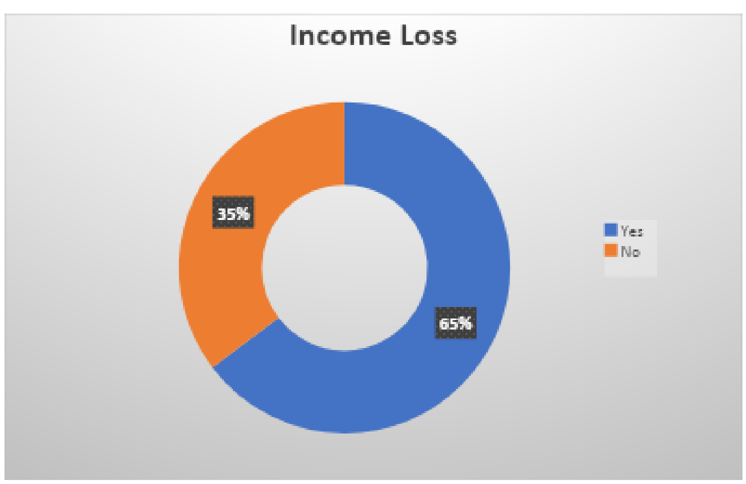
Table 3 Income loss during heavy rainfall events (N = 34)

Income Loss	Number (%)
Yes	22 (65%)
No	12 (35%)

Source: Primary Survey

The distribution of income loss among respondents is shown in **Fig. 2**

Fig. 2 Income loss among respondents (N = 34)



The income vulnerability was high as 22 people reported loss because of missed work of between INR 400 to INR 4,500. The daily-wage systems aggravated the risks, since in case of rain or flooding, the wages would be reduced.

Job losses further stressed family income in 5 cases. One female maid stated:

> *"My husband lost his cleaning job because he could not go for a couple of days because he had gotten sick after getting wet in the rain. He immediately had to look for other jobs to sustain but it took almost three months before he found something."*
>
> (Respondent 2 November, 2025)

Informal workers become more susceptible to losing their jobs because of work absence as they get no formal sick leaves or paid leaves which can disrupt the sustainability of the entire household as its mostly the breadwinners losing employment and income. The baseline incomes (mostly INR 10,000 - INR 20,000) were low, which provided not much buffer, making rainfall a direct threat to the financial stability. Absence of contractual protection increases exposure to vulnerability.

2.2 Savings

The availability of savings among respondents is summarised in **Table 4**.

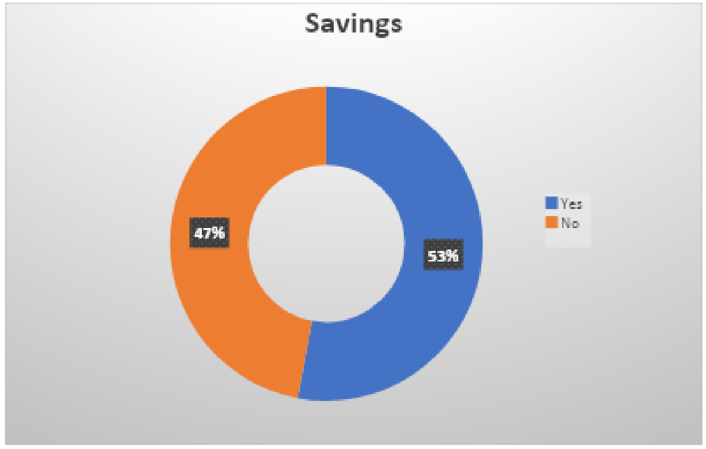
Table 4 Savings availability among respondents (N = 34)

Savings	**Number (%)**
Yes	18 (53%)
No	16 (47%)

Source: Primary Survey

The availability of savings among respondents in presented in **Fig. 3**

Fig. 3 Savings availability among respondents (N = 34)



For 18 people with prior reserves, savings were used up, but frequently proved inadequate. Repair costs or health costs were on average INR 1,500 - INR 15,000. This means that repair expenditure could sometimes incur a whole month's income depending on the extremity of the event. This also led them in the vicious trap of borrowing.

> *"I save a little every month so that money is available and can be used in such circumstances."*
>
> (Respondent 3 November, 2025)

Rest of the 16 respondents did not have savings and 7 people had to resort to borrowing from relatives. This was a cycle of vulnerability as the expectations of rains led to less saving, but the unexpected intensity led to loss of reserves and the households went into debts.

2.3 Housing

Housing vulnerabilities included 17 houses that had leakage/seepage and 12 houses that had internal waterlogging mostly in semi-pakka and ground-floor rentals that lived close to lakes.

> *"Sometimes the water is knee deep. It takes more than 6 hours to get all of it out"*
>
> (Respondent 1 November, 2025)

Damages covered spoiled good and structural problems whose repairs were self-financed. In some cases, the tenants were asked by owners to cover the cost of getting ceilings and walls repaired for leaks and seepage which sometimes costed them between INR 10,000 - INR 15,000 which can account for 50-100% of income for some people.

The elevated pakka houses reduced the risks, whereas the proximity of informal settlements to the drains increased the intrusion of sewage thus highlighting the disproportionate effects of spatial inequality.

2.4 Commute

The commute challenges experienced by respondents during rainfall events are presented in **Table 5.**

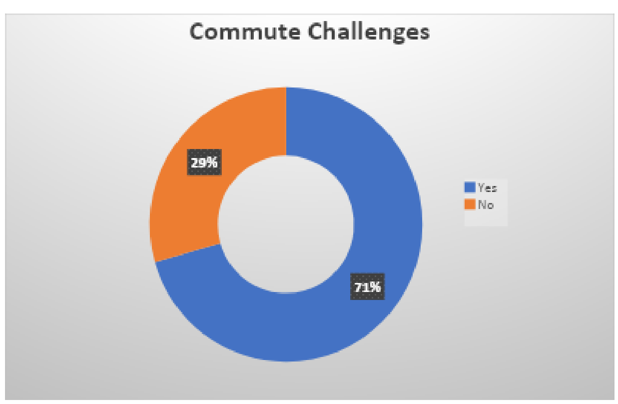
Table 5 Commute challenges during rainfall events (N = 34)

Commute Challenges	**Number (%)**
Yes	24 (71%)
No	10 (29%)

Source: Primary Survey

The commute challenges experienced by respondents during rainfall events are illustrated in **Fig. 4.**

Fig. 4 Commute challenges experienced by respondents (N = 34)



Commute vulnerabilities affected 24 households with blocked roads, traffic, and safety hazards, that slowed down or hindered work. Presence of potholes made it difficult to ride bikes or other vehicles often forcing workers to take public transport which becomes overcrowded during those times. People travelling at night faced higher risks.

> *"When its dark it's difficult to see water on the road so sometimes I fall or get wet. The potholes get filled because of which I have fallen from my bike also and got injured"* (Respondent 7 November, 2025)

Female pedestrians were exposed to more risks, associating commute with more limited mobility. This also exacerbated safety risks for women, compelling them to stay at home instead and miss work leading directly to income losses.

2.5 Gender

20 respondents affirmed gender vulnerabilities and, in most cases, women were overburdened by dual roles.

> *"Women have to take care of homes and children too so it's more difficult for them. They cannot ride bikes whereas its easier for males to just take bike and go anywhere if they want during rain. If a woman gets stuck, she might have problems"* (Respondent 13 November, 2025)

Males were perceived to be more impacted in the role of a provider. One stated that some employers give more leniency to women and let them off work without cutting payment but it is not the same for men. This indicates diverse perspectives on suffering experiences of men and women.

Of the 24 respondents suffering from emotional distress during heavy rains, the rate of emotional distress was more intense in women (62% vs. 38% men), which overlapped with their roles of housework and childcare highlighting that gender vulnerability is both economic and emotional.

2.6 Education

The effects of daily operations have been extended to the family life. Out of 22 respondents that have children or grandchildren 19 of them have reported schooling disruptions, with classes being missed because it was not safe to travel, they were sick, or help was needed at the household. It has brought about challenges of going to school which has been made difficult, and in some cases the children have failed to attend and have even fallen ill from getting wet. Long-term education effects have been established, which make them even more socioeconomically vulnerable.

> *"It becomes difficult for them (children) to attend school. Sometimes they get sick because they get wet and sometimes, they have to stay at home to help with fixing house and getting water out of the house"* (Respondent 15 November, 2025)

2.6 Health

The health impacts experienced by respondents during heavy rainfall are summarised in **Table 6**.

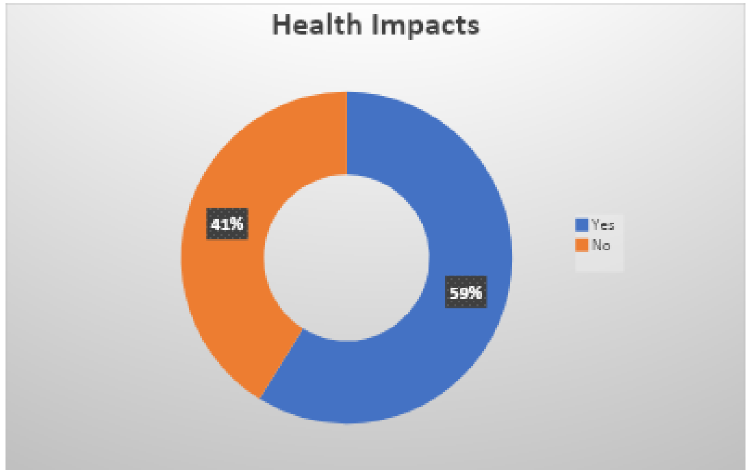
Table 6 Health impacts experienced during rainfall events (N = 34)

Health Impacts	**Number (%)**
Yes	20 (59%)
No	14 (41%)

Source: Primary Survey

The health impacts reported by respondents are shown in Fig. 5

Fig. 5 Health impacts reported by respondents (N = 34)



Health vulnerabilities were reported by 20 people including colds, fever, and dengue from exposure to wetness or stagnant water. These cause them to stay at home where absence from work can lead to payment reduction overlapping health vulnerability with income and housing risks.

> *"Sometimes I do not carry umbrella or if I am getting really late so I go out in rain and get all wet because of which I get sick the next morning and have to take leave from work"* (Respondent 6 November, 2025)

Health costs ranged between INR 500 - INR 5,000 which can equal to 25-50% of monthly income for low-income households. Savings also get used up to finance these costs causing more anxiety.

Access to clinics was available for 25 people but they were often distant thus limiting accessibility. Water- sanitation problems were observed in 10 households with spoilt food and mosquitoes posing diseases.

1. Urban Infrastructure Deficits

   Infrastructure deficits, especially poor drainage and encroached lakes, were the major causes of floods identified by all the respondents.

> *"Lake area gets flooded a lot which block the drains and the roads so sewage water floods everywhere in the streets."* (Respondent 4 November, 2025)

44% of respondents noted that the conditions have improved at least somewhat better than before, while 56% were unsure or negative about any improvements highlighting the inadequacy of infrastructure.

Most of the suggestions were infrastructure oriented and more than 80% respondents said that it can be better. They suggested that roads can be improved and provisions for house damages should be provided to families directly affected by rainfall and flooding.

These shortfalls convert rainfalls into socio-economic disasters particularly in informal settlements.

2. Coping and Adaptive Strategies

The coping strategies adopted by respondents are presented in **Table 7.**

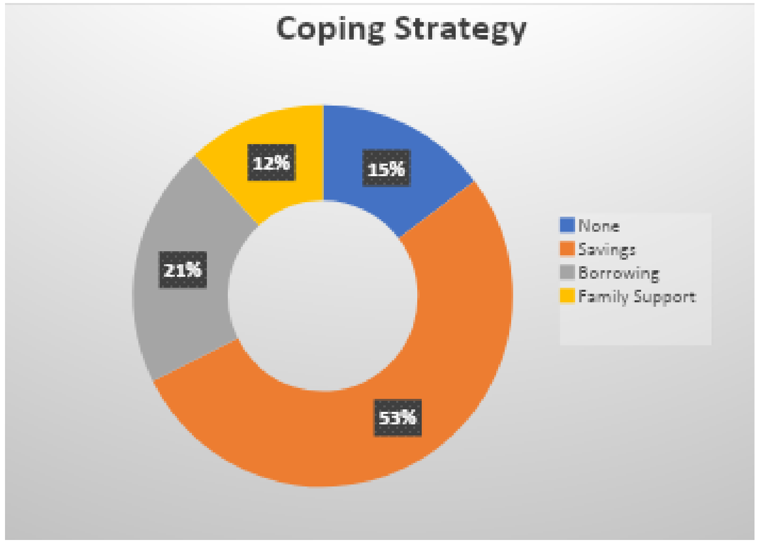
Table 7 Coping strategies adopted by respondents (N = 34)

Coping Strategy	**Number (%)**
None	5 (15%)
Savings	18 (53%)
Borrowing	7 (20%)
Family Support	4 (12%)

Source: Primary Survey

The coping strategies adopted by respondents are illustrated in **Fig. 6**

Fig. 6 Coping strategies adopted by respondents (N = 34)



Coping response has mainly been reactive. Savings have been used by 18 (53%) respondents.

> *"I save a little every month so that money is available and can be used in such circumstances."* (Respondent 3 November, 2025)

Borrowing of money from relatives has aided 7 (21%) households. Support through family has been significant to 4 (12%) including replacement of work by sons.

> *"I received help from relatives. When my husband got dengue, he could not go to work and money was insufficient, then relatives came forward to help,"*
> (Respondent 2 November, 2025)

Adaptive solutions have encompassed umbrellas, early leaving or buses, but they are limited. In a few cases, annual savings on repairs have been maintained, and in most cases no proactive plans have been put in place, and most people have had to depend on employer goodness or upon finding employment after the loss.

3. Institutional Support Availability and Efficacy.

Support has been scarce. None has received compensation with 20 people saying that no one would assist. Clinic access has been available to 25 people but the access has been limited during rainfall which increases susceptibility to diseases and heightened risks.

The perception of improvements in conditions due to government actions is summarised in **Table 8.**

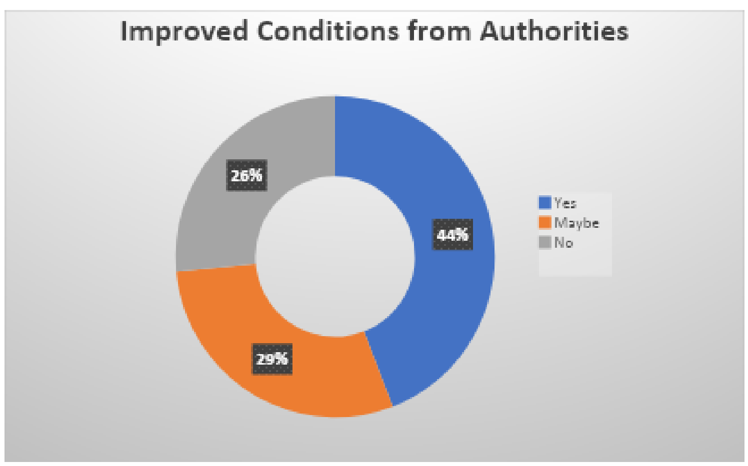
Table 8 Perceived improvements in conditions from authorities (N = 34)

Improved Conditions from Authorities	**Number (%)**
Yes	15 (44%)
Maybe	10 (29%)
No	9 (27%)

Source: Primary Survey

Respondents' perceptions regarding improvements from authorities are presented in **Fig. 7**

Fig. 7 Perception of improvements from authorities (N = 34)



Government changes have been positive for 14 people, but remain uneven. 20 respondents have experienced health impacts, with costs of INR 500 - INR 5,000 being spent for treating colds, fever, dengue, where most savings have been utilized.

6. Discussion

The results shed light on heavy rainfall as a socio-economic stress factor that overlaps with urban precarity, which, in line with the aims of the research, explores the effects on livelihoods, housing insecurity, infrastructural inadequacies, gender burdens, coping strategies, and institutional support. Themes indicate the cascading effects where the environmental shocks augment the inequalities experienced by informal workers in South Bangalore which is identified as highly urbanizing region with drainage failures. Vulnerability as a pivotal concept brings out the heightened exposure of domestic helpers to risks. Income vulnerability is a sign of the precarious status of the informal economy where day-to-day wages do not offer any safety net against absenteeism. The loss of 400-4500 rupees or typically 10-30 percent monthly income brings households below subsistence as was witnessed in the case of pay cuts as recounted by one cook. This is associated with depletion of savings where proactive reserves run out leading to debt and poverty trap. Spatial inequalities are highlighted through the housing vulnerability; the lake-proximate location of the semi-pakka structures, like knee-deep flooding inside house as described by one cook, portray urban environmental injustice, where the informal settlements are disproportionately affected by the floods due to their encroachment in the natural buffers.

This is worsened by commute vulnerabilities where there are stalled roadways and safety issues (e.g., the bike falls) that interfere with mobility which is a major source of livelihood. This intersects with gender where the plights of women, including taking care of children in floods prove that the patriarchal role amplifies vulnerability. The provider pressures by men (as some respondents view) complicate this by implying that there are context-specific gender experiences, and not binary divisions. Educational disruptions to children imply intergenerational impacts, which fail to facilitate human capital development in low-education households. Health vulnerabilities relating to expenditure that strains budgets (5k spent by a female maid on dengue), are linked to waterlogged areas, which are prone to vectors, indicating climate-health nexuses (Association of Health Care Journalists 2025a).

Systemic livelihood effects demonstrate everyday disruptions where work delays (a male gardener spent a lot of time in the garden) and emotional strain (family coping struggles of a male maid) are evidence of psychological costs usually ignored in flood studies. The shortage of infrastructure, which is generally put in the spotlight of criticism of Bangalore urban planning;

encroachments on lakes convert rains into floods as in the case of a male maid in his descriptions of sewage overflow. The responsiveness of coping methods via dependence on informal networks underscores resilience albeit within limitations but no formal reactions are a sign of policy gaps. The absence of institutional support solidifies unequal assistance, which still perpetuates vulnerability cycles and requires climate justice frameworks.

Findings are moderated by variability: elevated pakka houses are associated with reduced risks indicating that location is a protective factor whereas low education is associated with poorer coping. This conforms to the thematic focus of the methodology on lived experiences. Nonetheless, the intersections (e.g., gender with income) deserve further investigation, as rainfall intensifies the existing disparities in the informal sector of Bangalore.

7. Recommendations

The following recommendations are evidence-based to reduce the vulnerabilities:

1. Economic Safeguards: Adopt rain-day allowances through initiatives among urban informal workers, which entails the compensation of losses up to certain amount. Micro-insurance with NGOs would help in the protection of savings, which would counter the depletion of savings observed by most.
2. Housing Improvements: Subsidize reconstruction of semi-pakka houses in low-lying regions such as raised floor and drain. Urban planning should incorporate lake buffer zones that will reduce the proximity risk.
3. Mobility Enhancements: Construct flood resistant transport. Wider transport facilities should be provided in flood prone areas.
4. Interventions in Gender and Education: Female workers can be provided with subsidized safe transport options and vans can be availed to ensure children's uninterrupted learning in flood-prone areas.
5. Health Initiatives: Provide more access to clinics in flood prone regions by subsidizing basic illnesses services. Dengue risks could be addressed through the distribution of mosquito nets through the use of the vector control campaigns.

6. Infrastructure Investments: Drainage renovation and potholes repairs should be of priority as most respondents proposed. Informal settlements may have equitable implementation through community-based monitoring.
7. Institutional Reforms: Have specific funds on flood relief with compensation (lacking for all), including NGOs to provide prompt response. Workers voices (e.g. through forums) being integrated into policy would create resilience.

8. Limitations

The qualitative design of the study, although full of lived experiences, has a drawback of limiting generalizability that is not extended to more than the 34 purposive samples on the flood-prone regions in South Bengaluru. There may be a recall bias, as the interviews were based on the memory of the past events only, without cross-checking with documents. Gender discrepancies and a minor male bias (56%) may exist, but this was mitigated by thematic saturation.

9. Conclusion

The results highlight the significance of heavy rainfall as a complex socio-economic pressure on domestic helpers in South Bangalore, which enhances the inequalities that already exist in the informal economy. Livelihood impacts, which are in the form of commuting risks, work-absence and loss of income are experienced by 65-71 percent of respondents, which subject them to financial instability cycles. The damages and expenditures on housing in areas with semi-pakka structures around lakes resulting in housing vulnerabilities are eating up of scant savings with 44% spending incurring costs of up to 15k rupee. Such infrastructural shortages, cited everywhere, turn natural phenomena into artificial disasters, and sewage overflow and road congestion make movement more difficult.

Gendered aspects disclose subtle burdens: women tend to have increased responsibilities in the care and the house whereas men have responsibilities of a provider, but 59% respond affirmatively to differences. There is no form of formal protections, and the informal networks and savings are the only possible coping strategies. There is little institutional support, no remuneration, and disparate governmental improvement, and health and emotional distress is unaddressed, with 59% reporting health and 56% emotional distress.

This paper validates the cascading effects of rainfall on the susceptible communities which is moderated by location (high vs. low-lying) and house type. It also helps in achieving climate justice by proving the disproportionate effect of urban planning failures on low-income workers, calling on broadly inclusive resilience policies. Due to the rapid urbanization in Bangalore, these voices are not respected and therefore, the city is more susceptible; and by addressing these voices, an opportunity to learn to adapt fairly can be given.

References

1. Association of Health Care Journalists. (2025a, August 8). *Climate-health nexus | Association Health Care Journalists*. https://healthjournalism.org/glossary-terms/climate-health-nexus/

2. Bartlett, S. (2008b). Climate change and urban children: impacts and implications for adaptation in low- and middle-income countries. *Environment and Urbanization*, *20*(2), 501–519. https://doi.org/10.1177/0956247808096125

3. Basu, R., & Bazaz, A. (2016). *Assessing climate change risks and contextual vulnerability in urban areas of semi-arid India: The case of Bangalore*. CARIAA-ASSAR Working Paper #3. https://idl-bnc-idrc.dspacedirect.org/server/api/core/bitstreams/5166158f-ca38-45a3-b0ee-18fe8c421f41/content

4. Bindal, S., Samanta, S., & Gupta, A. K. (2022). Understanding urban floods as extreme events and Disaster management: A case study of Bengaluru. In *Society of Earth Scientists series* (pp. 415–427). https://doi.org/10.1007/978-3-031-13119-6_25

5. Damte, E., Manteaw, B. O., & Wrigley-Asante, C. (2022). URBANIZATION, CLIMATE CHANGE AND HEALTH VULNERABILITIES IN SLUM COMMUNITIES IN GHANA. *The Journal of Climate Change and Health*, *10*, 100189. https://doi.org/10.1016/j.joclim.2022.100189

6. Gupta, A. K., & Nair, S. S. (2010). Urban floods in Bangalore and Chennai: risk management challenges and lessons for sustainable urban ecology. *Current Science*, *100*(11), 1638–1645. https://www.researchgate.net/publication/274640581_Urban_floods_in_Bangalore_and_Chennai_risk_management_challenges_and_lessons_for_sustainable_urban_ecology

7. Gupta, K. (2020). Challenges in developing urban flood resilience in India. *Philosophical Transactions of the Royal Society a Mathematical Physical and Engineering Sciences*, *378*(2168), 20190211. https://doi.org/10.1098/rsta.2019.0211

8. Joseph, R., Mujumdar, P. P., & Das Bhowmik, R. (2022). Reconstruction of Urban Rainfall Measurements to Estimate the Spatiotemporal Variability of Extreme Rainfall. Water, 14(23), 3900. https://doi.org/10.3390/w14233900

9. Krishna, A., Sriram, M. S., & Prakash, P. (2014). Slum types and adaptation strategies: identifying policy-relevant differences in Bangalore. *Environment and Urbanization*, *26*(2), 568–585. https://doi.org/10.1177/0956247814537958

10. Nadimpalli, S., Mathew, S., & Cheranda, T. M. (2024b). (Re)envisioning inclusive futures: Applying narrative foresight to deconstruct the problem of urban flooding in the slums of Bengaluru, India. *Development Policy Review*, *42*(S1). https://doi.org/10.1111/dpr.12786

11. Online, E. (2025, May 20). Bengaluru rains: "AI for everything, but no drainage system?" questions Zerodha-backed investor as India's. *The Economic Times*. https://economictimes.indiatimes.com/news/bengaluru-news/bengaluru-rains-ai-for-everything-but-no-drainage-system-questions-zerodha-backed-investor-as-indias-it-capital-gets-flooded/articleshow/121285588.cms

12. Prasad, N. N. R., & Narayanan, P. (2016). Vulnerability assessment of flood-affected locations of Bangalore by using multi-criteria evaluation. *Annals of GIS*, *22*(2), 151–162. https://doi.org/10.1080/19475683.2016.1144649

13. Revi, A. (2008b). Climate change risk: an adaptation and mitigation agenda for Indian cities. *Environment and Urbanization*, *20*(1), 207–229. https://doi.org/10.1177/0956247808089157

Singh, C., & Jennath, A. (2024). Bengaluru floods spotlight unequal risk on migrant settlements. *Nature India*. https://doi.org/10.1038/d44151-024-00209-1

14. Vazhuthi, H. I., & Kumar, A. (2020). Causes and Impacts of Urban Floods in Indian Cities: A Review. *International Journal on Emerging Technologies*, *11*(4), 140–147. https://www.researchtrend.net/ijet/pdf/Causes%20and%20Impacts%20of%20Urban%20Floods%20in%20Indian%20Cities%20A%20Review%20Drj6.pdf

15. Yasmin, S. (2016). Impact of Climate Change on Urban Slum Dwellers in Bangladesh: A Case Study of Four Selected Slums in Dhaka City. *Archives of Current Research International*, *4*(3), 1–15. https://doi.org/10.9734/ACRI/2016/26501

Stitching Livelihoods: Income, Expenditure, And Survival Of Cobblers In The Informal Sector

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Abstract

The informal sector remains central to India's urban economy, yet the economic behaviour of its workers, who often earn their living here, without formal contracts, fixed salaries, or social security benefits, continues to receive limited analytical attention. Among them are cobblers, who many of us see daily on the streets of our cities. They occupy a familiar presence across public spaces in cities like Mumbai, exemplifying this gap: their labour is essential to urban mobility, but their income patterns, pricing decisions, and survival strategies remain understudied. This research aims to investigate how pricing strategies and service diversification influence income outcomes among cobblers in the informal sector of South Bombay. The study specifically aims to highlight how informal workers interpret demand conditions, adapt to income uncertainty, and negotiate value within structurally constrained environments. Studying their income and expenditure patterns provides crucial insights into the survival strategies of urban informal workers.

Keywords: Cobblers, Informal sector, Income, Expenditure, Migrants, primary survey

1. Introduction

The informal sector constitutes a substantial yet persistently under-recognised component of India's economy, employing a majority of the workforce while operating largely outside formal regulatory and social security frameworks. Workers in this sector typically lack written contracts, income stability, and access to institutional protections, rendering them particularly vulnerable to economic shocks and rising living costs. Despite their centrality to urban economic life, many informal occupations remain empirically under-studied, resulting in significant gaps in understanding their working conditions and household economies.

Cobblers represent one such occupational group embedded within everyday urban spaces. Providing affordable footwear repair and maintenance services, they fulfil an essential function in sustaining consumption practices among low- and middle-income households. In addition to their role as service providers, cobblers contribute towards sustainable consumption by extending the life of shoes while avoiding wastage. Yet their livelihoods are characterised by modest and irregular earnings, exposure to inflationary pressures, and limited access to formal financial institutions and state welfare mechanisms. Although highly visible in public spaces, cobblers remain statistically invisible in most labour and household surveys, contributing to their marginalisation in policy discourse.

This study focuses on cobblers operating in South Bombay, an urban setting marked by high costs of living and pronounced economic inequality. Using a primary survey-based methodology, the research examines their income and expenditure patterns, savings behaviour, and access to banking facilities and government welfare schemes. By directly engaging with workers, the study captures both quantitative economic indicators and qualitative insights into their livelihood strategies.

The paper seeks to contribute to the literature on urban informal labour by highlighting the economic constraints and adaptive strategies of cobblers, a group often overlooked in empirical research. In doing so, it aims to foreground the resilience of informal workers while underscoring the structural vulnerabilities that continue to shape their participation in India's labour economy.

2. Hypothesis

Research Question:

How do income patterns, expenditure structures, and structural constraints shape the livelihoods and survival strategies of cobblers in Mumbai's informal sector?

This study hypothesises that the livelihoods of Mumbai's cobblers are intricately shaped not only by their income levels and spending habits but also by broader structural constraints such as lack of formal recognition, limited access to credit, and inconsistent work opportunities. The purpose of this research is to understand how these different components work together to affect the daily lives of cobblers and the ways they generate income and maintain a quality of life in Mumbai's informal economy.

3. Objectives

- To examine income and expenditure patterns among cobblers in South Bombay.
- To analyse the relationship between income and conventional indicators such as hours worked and years of experience.
- To investigate the role of pricing strategies and service diversification in shaping income outcomes.
- To assess how spatial location and seasonal fluctuations influence earnings and work patterns.

4. Methodology

A combination of both qualitative and quantitative methods will be used in this research project to investigate the factors affecting earnings and survival strategies for the urban cobbler community within the informal sector. A quantified method does not offer a complete view of how individuals behave in an economic sense while working within an informal sector. For example, the only measurable variables to indicate how a worker behaves economically are income, number of hours worked, price, and service provided. Therefore, qualitative data collected through interviews will provide additional insight into a worker's response to demand, uncertainty and the way they adapt their livelihood to structural restrictions.

The data collection for this study consisted of interviews with cobblers that work on the local stations of South Bombay, which is cobbler’s prime location in Mumbai. The selected locations include Chhatrapati Shivaji Maharaj Terminus (CSMT), Churchgate, Dockyard Road and Grant Road. All of these locations were chosen based on their relatively high amounts of foot traffic and variety in the number of customers visiting these locations.

In all, 18 cobblers participated in the study through purposive sampling and the lack of fixed sampling frames available for informal workers.

The research was conducted through the use of a structured questionnaire that collected data regarding income levels, hours worked per week, services provided by the cobbler, prices charged, household size, remittances received and sent to the family, how money is spent and accessed (banking institutions/government schemes). The questionnaire was concise due to the time limitations on the respondents during their working hours; therefore, it collected only the most basic information from the respondents about these variables.

Field observations were used to record the physical characteristics (spatial characteristics) of the area, the total number of customers visiting each service provider (foot traffic intensity), and the variety of services available at any one location. Open-ended questions provided respondents with the opportunity to informally describe their experiences with regard to seasonal changes, history of migration, stability of income and methods used to cope with income fluctuations, therefore providing additional context when interpreting quantitative data.

The primary dependent variable in this study was monthly income. The independent variables include whether or not the cobbler has diversified into multiple types of services offered like mending umbrellas; the price structure; the location of the cobbler; and seasonality. Control variables include the number of hours worked in a day; and the number of years worked by a cobbler indicating experience and skill.

5. Literature Review

The field of informal economy research has produced numerous studies on a variety of topics relating to labour livelihood vulnerability, job sustainability, and social and economic characteristics of the informal sector. The studies of urban Indians working as cobblers illustrate how education, health, geography limitations, and shifting consumption patterns influence the cobbler trade through intricate relationships among these variables. This literature review brings together these valuable contributions to place current research regarding informal self-employment into a larger context while outlining where gaps exist regarding strategies for earning income and the impact of demand-side factors on cobblers' livelihoods

The existing body of literature indicates that informal jobs are persistent across generations by means of social structures rather than just individual choice. Wankhede (2020) provides a case study of Mumbai's cobbler community and illustrates how there has been a dramatic increase in literacy and education over each generation within this community. While people in this community have become increasingly educated, this does not mean that they are working in a different field; due to structural factors such as caste exclusion, lack of access to alternative work opportunities, and economic instability many individuals remain in the same occupation although they would prefer to find employment that enables them to improve their standard of living. This study provides context for the current study on cobbling as a means to better understand why a cobbler's career and family will most likely continue to be passed on from one generation to another, even though people continue to aspire to better themselves socio-economically through higher education. While Wankhede's research focuses on education, this present study expands on the education-based rationale by investigating how socio-economic strategies for generating income through cobbling interact and affect the economy of the cobbling business today.

In their current research, Hamid and Jain (2023) analyse the socioeconomic status of cobblers in Pune, demonstrating with a quantitative analysis that while education and work experience are generally accepted as contributors to income, these variables do not have an impact on cobbler's earnings. They show that structural factors such as age, and asset ownership, are more important earnings determinants than traditional, or individual factors, and also examines declining demand for repair services due to digitalisation and availability of cheaper footwear.

Pandey and Vats (2020) explore the Health and Economic Vulnerability of cobbler repair workers in relation to their Work Environment and Socioeconomic Status. They document extensive and varied health concerns caused by musculoskeletal issues and Physical Stress due to Long Hours in Unhealthy Postures and Poor Working Conditions. They demonstrate that the Health Challenges faced by many cobblers contribute significantly to Economic Vulnerability due to reduced Productivity and Work Capacity.

The journalistic piece, entitled "Peripheral Vision," is an ethnographic account of selected individual cobblers residing in Mumbai. This account highlights a variety of factors that impact cobblers' livelihoods, ranging from demands placed on the cobblers due to Spatial Insecurity created by Urban Authorities to the deterioration in the demand for repair services, as well as a variety of elements of physical and emotional stress that accompany the informal nature of the cobblers' work. This piece also situates the experiences of these individuals within a much larger framework of Urban Governance as well as processes of Gentrification and Invisibility within cities.
The account is not an academic source; however, it is a valuable contribution to putting a human face on the issues of Space & Spatial Vulnerability and Eviction Risk that were identified in this current study. The issues of income uncertainty, Spatial Vulnerability, and Eviction Risk are areas of commonality between the issues identified in this narrative and the current research.

Although existing studies provide valuable insights into the education, health, and socioeconomic conditions of cobblers, there is limited research that examines **micro-level economic behaviour within the occupation**, particularly pricing strategies, service diversification, and the role of location in shaping income outcomes. As such, very few researchers have included these economic factors alongside larger structural factors affecting cobblers, such as decreased demand and uncertainty about geographic location. By incorporating qualitative information collected from a survey conducted with cobblers operating within the informal urban economy of Mumbai, the present research seeks to fill this void by examining how cobblers have create opportunities for generating income and providing for themselves.

6. Analysis

Demographics

The primary survey and graphical analysis offer important insights into the demographic and income patterns of cobblers in the study area.

1. Age and Gender

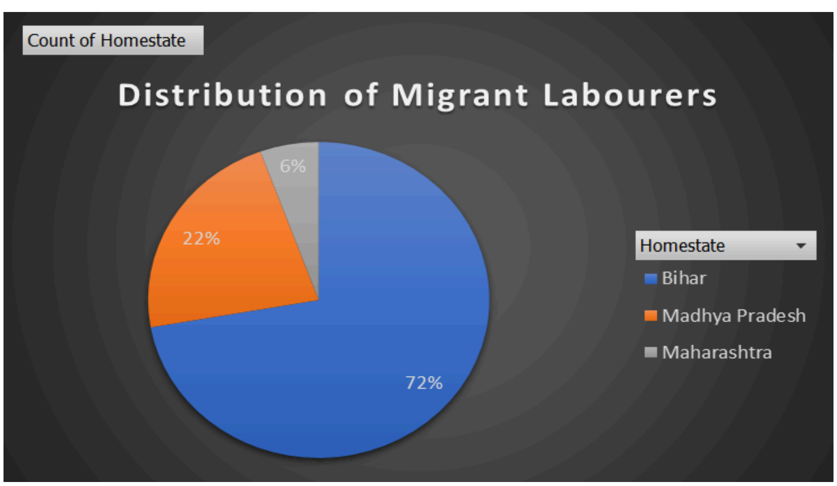
The mean age of the respondents is 48.9 years. The median age is 50 years. This indicates the fact that most cobblers are in their middle to late working years. We also witnessed a very strong gender gap in this sector since all the people we interviewed were male.

2. Educational Qualification

When we look into the educational levels, a good number of respondents(7 out of 18) have completed their education up to grade 10. A few have attained 12th-grade qualifications among which, two respondents were college graduates (B.A. in Political Science and B.Com). This reflects some upward mobility in schooling, although formal education remains limited overall.

3. Place of Residence and Migrant Origin

Most cobblers currently reside in Mankhurd, Belapur, Dockyard, Badlapur, and nearby areas. Only one respondent is a native of Maharashtra; the majority originate from Bihar (13) and Madhya Pradesh (4), as highlighted in the pie chart on migrant labour.



Source: Compiled by authors, Primary survey

The data also reveals a spatial division: cobblers stationed inside railway stations tend to come from Bihar, while those working outside stations are mostly from Madhya Pradesh.

The heavy concentration of workers from Bihar indicates a strong word-of-mouth migration network, where existing workers encourage acquaintances from their home villages to join the trade.

4. Work Experience

Work experience varies widely, from 4 years to as much as 50 years, with an average of 20+ years. The longevity of participation suggests a high level of occupational persistence and skill accumulation.

5. Income Patterns

Source: Compiled by authors, Primary survey

The scatterplot on “Monthly Income vs. Years of Experience” suggests a positive relationship between experience and earnings: more experienced cobblers tend to earn higher monthly incomes, although the relationship is not perfectly linear (some outliers exist).

The average monthly income across respondents is around ₹15,000, with a slightly higher mean at Churchgate than at CSMT.

6. Household Size and Dependents

On average, four family members live in a single household, with most families largely dependent on the cobbler's income. This underlines the importance of this occupation for sustaining household livelihoods.

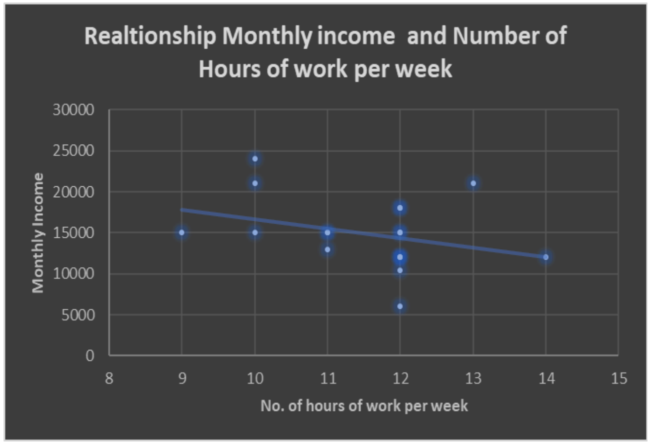
Work Conditions and Income Patterns

From our survey of eighteen cobblers, we observed that they typically work around 11.5 hours a day, with the minimum being nine hours and the maximum being fourteen. While most cobblers are engaged for about 10 months in a year, some work for only 8–9 months, usually returning to their hometowns during off-season periods. The rainy season emerged as the most challenging time for them, since footfall decreases sharply, yet they continue charging the same rates. This price rigidity stems from the inelastic nature of their service and their need to cover the fixed costs of raw materials.

The monthly earnings of cobblers varied significantly, ranging from ₹6,000 to ₹21,000, depending on their location, number of hours worked, and type of services offered. Those at busier hubs such as CSMT and Churchgate generally reported higher earnings. A consistent feature across all respondents was their unwillingness to reduce prices, irrespective of demand fluctuations.

When analyzing the graph on monthly income and hours of work per week, we noticed an unexpected negative relationship. This suggests that simply working longer hours does not guarantee a higher income. Factors such as customer flow at specific locations, the season, and the kind of repair work undertaken (e.g., specialized services) play a stronger role than hours alone. For instance, some cobblers working fewer hours at busy railway stations earned more than those putting in longer hours at less active sites.

Seasonality also plays a critical role. The monsoons were repeatedly mentioned as a "bad season," with demand dipping substantially due to fewer people stepping out and the general difficulty of working in open-air conditions.



Source: Compiled by authors, Primary survey

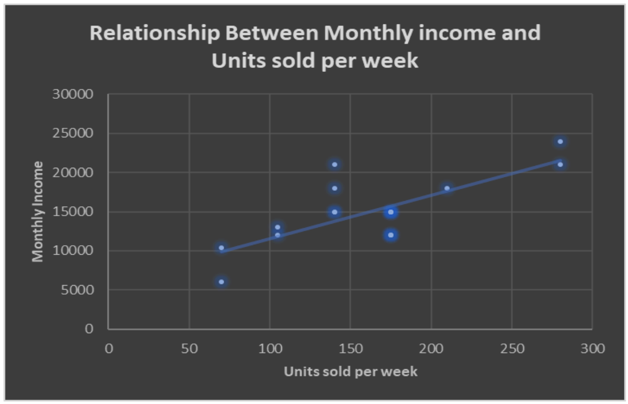
Interestingly, cobblers also noted a shift in demand over the last five years. With new footwear models and fast-changing lifestyles, people are increasingly in need of quick repairs and maintenance. The rise in hectic, urban day-to-day life has, in fact, supported their services, keeping their relevance intact despite modern retail alternatives.

Pricing Strategies

When looking at an average, each cobbler handles about 161 units of work per week, mostly involving shoe polishing and repairs. However, not all cobblers earn the same, even when they're doing a similar volume of work. The average monthly income comes to about ₹15,000, but actual earnings range from ₹6,000 to as high as ₹24,000. What explains this gap?

The answer lies in the type of services offered and how they are priced. While many cobblers stick to quick jobs like polishing and stitching, others go beyond. Some offer umbrella repairs during the monsoon, and many also sell shoe soles or perform full sole replacements, which are higher-value services. These jobs allow them to charge more per customer, even if the number of clients stays the same or even drops. So instead of just doing more work, they are earning more for the work they do, which is a pricing strategy based on value over volume, which should be noted.

A key insight from the data is that the cobblers who earn more are not necessarily those who are working the hardest or longest. Instead, they're the ones who can charge more for specific services. For example, minor stitching might cost ₹20, but a sole replacement or umbrella repair can go up to ₹40 or more. Over time, this pricing difference adds up. Some cobblers seem to adjust their rates depending on the task or season, while others stick to a flat, lower rate regardless of the service. The former group tends to do better financially.



Source: Compiled by authors, Primary survey

This tells us that pricing flexibility, knowing when and how much to charge, plays a much bigger role in earnings than just showing up and doing the job.

The average cobbler in the dataset has been in the profession for 19 years, but surprisingly, more experience doesn't always mean better income. Some cobblers with over 20 years of experience still earn the same as those who have only been in the job for a few years. In fact, one of the lowest earners has 20 years behind him, while a newer cobbler with just 5 years of work is among the highest earners.

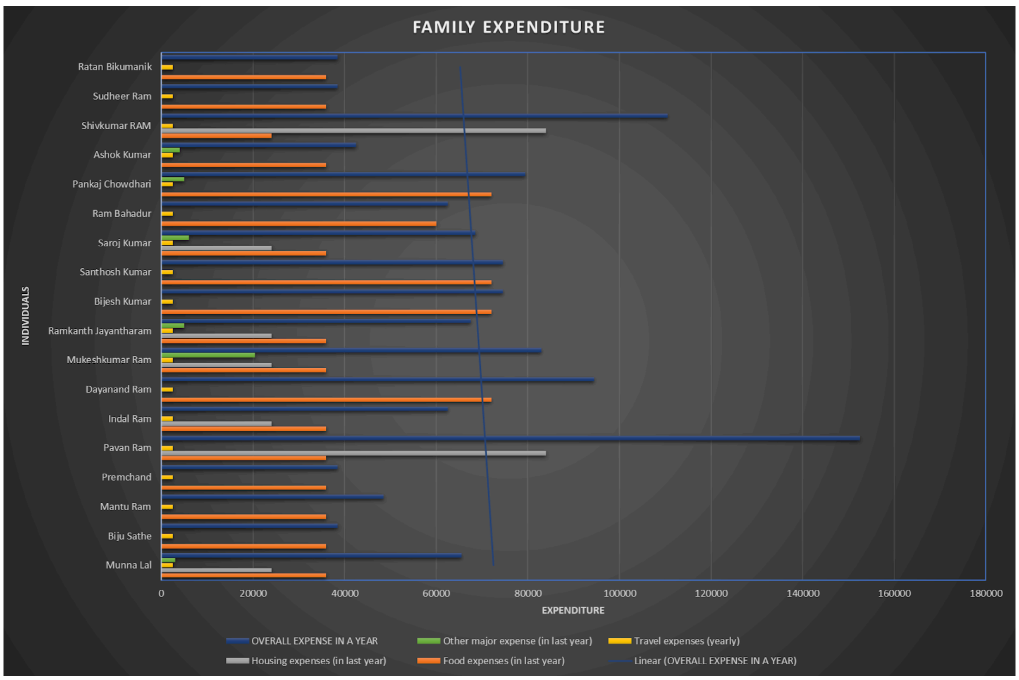
This indicates that knowing when and how much to charge, or having price flexibility, has a far greater impact on profits than simply turning up and executing the work.

Family Expenditure

Our study examined the major components of household and family expenditure among cobblers, including education, medical, housing, travel, food, and other associated costs.

Educational expenses were generally low, as most of their children study in government schools. Only those with children pursuing higher education incurred significant costs. In fact, many respondents shared that their children were already working or married, reducing their dependency on parental income.

Medical expenses were negligible in our sample. None of the cobblers reported spending heavily on healthcare, indicating that medical costs do not form a consistent burden in their daily lives. Food constituted a significant portion of their regular expenditure. Most cobblers, being migrants, either arranged food from outside or managed in shared arrangements. On average, they spent around ₹100 per day on food. Those living with families usually carry meals from home, reducing costs.



Source: Compiled by authors, Primary survey

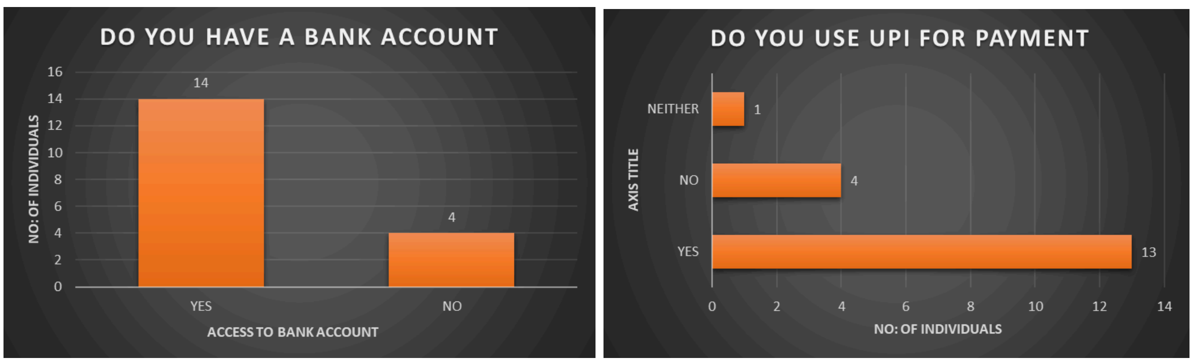
Housing conditions varied. Out of 18 respondents, 11 owned their houses, 2 lived on the streets, and the rest stayed in rented accommodations, often sharing with friends to keep rent affordable. A majority (16 of 18) were migrants, and surprisingly, many lived in Mankhurd together, where they also sourced raw materials collectively.

Travel was mostly limited to commuting by local trains. Those working at CSMT and Churchgate stations used railway passes or, in some cases, traveled without tickets under a special allowance given by the railways. CSMT had even provided blue-coded uniforms for identification. Long-distance travel to their hometowns in Bihar or Madhya Pradesh was occasional and did not significantly add to yearly expenditure.

Another important aspect of expenditure was remittances. Migrant cobblers regularly sent money back to their families, typically between ₹4,000 and ₹8,000 per month. On average, their annual earnings stood at approximately ₹69,000.

Access to Financial Services

A large majority of cobblers (14 out of 18) had bank accounts, with 13 of them using UPI-linked services. Despite this, cash remained the dominant mode of transaction, reflecting the cash-centric nature of the informal economy. Nonetheless, the introduction of UPI has provided an additional channel of convenience and adaptability within urban informal work.

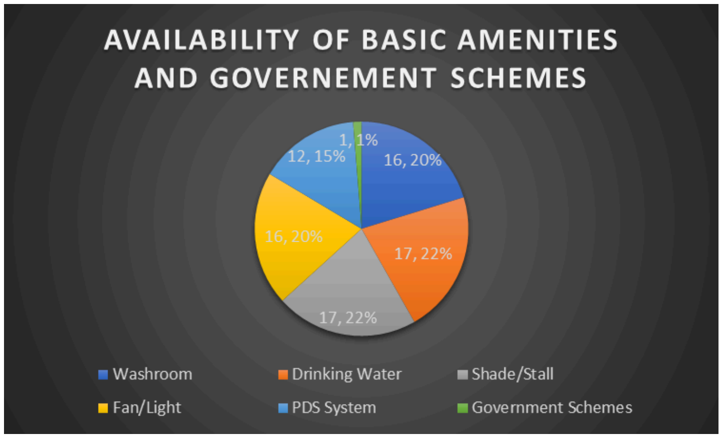


Source: Compiled by authors, Primary survey

Only five respondents reported having taken loans for personal or occupational purposes, suggesting either a limited need or restricted access to formal credit.

Access to Facilities and Government Schemes

Access to basic facilities varied according to work location. Cobblers stationed at railway hubs like CSMT and Churchgate had access to washrooms, drinking water, fans, lighting, and stalls. Those who live with families in Mumbai have basic facilities at home along with subsidized provisions through the Public Distribution System (PDS).



Source: Compiled by authors, Primary survey

When it came to government schemes, awareness and utilisation were strikingly low. Only one respondent reported actually benefiting from a scheme. A few mentioned having applied, but most expressed disappointment at not receiving any benefits. The majority either had not applied or were unaware of available schemes altogether, reflecting a significant gap in outreach and implementation.

Structural and Social Constraints Beyond Income Strategies

While the quantitative findings highlight the role of pricing strategies, service diversification, and spatial advantage in shaping income outcomes, they do not fully capture the broader structural constraints within which cobblers operate. Field interactions revealed that many challenges faced by cobblers extend beyond income determination and reflect deeper social, institutional, and generational dynamics associated with informal urban labour.

A prominent finding from field work was intergenerational continuity of occupation. Many cobblers indicated that they entered into the profession via familial linkages, with many of these cobblers learning the craft from their fathers or other relatives while still quite young. Therefore, for many cobblers, the choice to become a cobbler has been predetermined by generations, thereby ensuring that cobblers were gaining skills at an early age, but restricting their ability to gain access to other occupations through formal education or alternative skill acquisition. As noted earlier, informal occupations can reinforce each other from one generation to the next when a pathway to advancement through formal education or alternative skill acquisition is not easily accessible.

Spatial insecurity emerged as another major constraint, particularly for cobblers operating outside railway stations and formal transit hubs. Unlike station-based cobblers, roadside cobblers are frequently subject to eviction drives by municipal authorities such as the Brihanmumbai Municipal Corporation (BMC). Several respondents reported that their stalls or workspaces had been dismantled without notice, disrupting their income and destroying tools and materials. This uncertainty created by urban governance regarding the cobblers' work stalls creates doubt and results in lower productivity traps because it discourages investments on the part of cobblers in upgrading their work (equipment) or expanding their services.

Housing insecurity also deepens the vulnerability of livelihoods for cobblers, specifically for those who are alone migrating to Mumbai. Some cobblers reported that they lived and slept within or near their workspaces, which serves to illustrate how extremely precarious informal livelihoods actually are, as a lack of accessible and affordable housing prices force workers to treat public/semi-public spaces (where the majority of the cobblers work) as not only places of production, but also places of reproduction. Such conditions leave workers open to exposure to weather elements, risk of health concerns and increase their chances of social marginalisation.

While many cobblers expressed the desire to change into different types of work or create their own small business, the majority of them also said that they did not have the resources (money, skills, and institutional support) to make that transition. Without access to affordable credit and uncertainty regarding what they would earn daily, making a change in their occupation is seen by cobblers as extremely risky. Even though a number of them may not be satisfied with their profession, the cobbler's profession has kept many of these workers locked into their current line of work. Instead of moving into a new area, they continue to make small, incremental changes to their work within the same field.

Challenges

Workers in the informal sector commonly face challenges such as job insecurity, high vulnerability to external shocks like the COVID-19 pandemic and floods, low and irregular wages, and the absence of social security. These issues are equally evident among cobblers.

In addition to these broader concerns, the sector also faces specific challenges such as price rigidity, spatial and location-related constraints, seasonal fluctuations in demand, and a lack of awareness and outreach regarding welfare schemes.

An important challenge faced by cobblers in the urban informal sector is the **decline in demand for footwear repair services**, driven largely by changes in consumer behaviour.
Such an evolution in consumer behavior also means that there are major environmental implications of such an evolutionary trend as well. In essence, opting to replace the shoes rather than repair them creates additional material waste and consumption of resources. Alternatively, the work of cobblers ensures that the products have a much longer life span, therefore promoting sustainable forms of consumption. This decline in demand is therefore indicative of both the economic and the circular economy. Several respondents reflected on how repairing footwear, once a common and necessary practice, is now slowly disappearing from everyday urban life. With inexpensive footwear easily available and changing lifestyles that prioritise convenience, many people now prefer to replace damaged shoes rather than repair them. This shift has reduced the overall demand for cobblers' services, especially for routine repairs.

Field interactions suggest that this change is also generational in nature. Cobblers reported that their regular customers are mostly middle-aged or older individuals who are accustomed to maintaining and repairing their belongings. Younger consumers, in contrast, are less likely to seek repairs and tend to replace damaged footwear instead. As a result, the customer base for cobblers is shrinking and becoming less diverse, limiting opportunities for income growth.

One respondent described how in the older times, people had only one or two pairs of shoes per household, and they relied on cobblers to help them keep their shoes for a longer period. Nowadays, the decreased need for cobbler repair services has provided a less steady source of income than before, with cobblers surviving on a "hand-to-mouth" lifestyle with enough money to cover their day-to-day expenses. This situation restricts their ability to save, invest in better tools, or diversify into alternative occupations.

Field observations further highlighted the nature of their workplace environments. In several cases, cobblers were found to both work and reside in the same location, a pattern observed predominantly among certain migrant workers. Others lived in group-based arrangements with fellow workers. Although there is no formal union representing cobblers, they share an informal understanding among themselves, particularly in relation to social and occupational matters.

The survey also included personal questions aimed at understanding their emotional relationship with their profession. When asked whether they were happy in their line of work, some respondents expressed a sense of resignation, describing it as a matter of fate, while others conveyed a more positive outlook, expressing acceptance and contentment with the course their lives had taken.

7. Limitations

One of the primary challenges encountered during the data collection process was the reluctance of respondents to participate. Several cobblers and polishers expressed concern that engaging in the survey would take time away from their work and potentially result in a loss of customers.

Additionally, collecting accurate information on income and expenses proved difficult, as some respondents were hesitant to disclose financial details, and in certain cases, reported figures appeared inconsistent; for instance, expenses occasionally exceeded reported income. While efforts were made to clarify responses, probing too deeply was avoided to maintain respect and trust.

A further limitation was the language barrier. None of the research team members were fully fluent in Hindi, which occasionally hindered the clear communication of questions and comprehension of responses. This challenge was partially mitigated by the presence of a team member proficient in Hindi, supplemented by basic language skills, Google Translate, and occasional assistance from local residents.

8. Policy Recommendations

- Rather than pursuing complete formalisation of the sector, the government could focus on increasing awareness of existing welfare schemes and improving their accessibility for informal workers. Providing cobblers with adequate and designated workspaces could enhance their social and economic standing, thereby facilitating easier access to welfare benefits, institutional credit, and loan sanctions.

- Additionally, targeted government support during periods of demand fluctuations, economic shocks, or environmental disruptions would help reduce income instability.

- The state could also create pathways for informal workers to access alternative or supplementary employment opportunities, enabling them to gradually transition into more secure, higher-earning, and dignified work environments if they choose to do so.

- An important method for increasing the stability of cobblers' earnings would be to link informal workers with the formal shoe industry through Corporate Social Responsibility. For instance, shoemakers may engage cobblers in the production process by offering them opportunities for seasonal or temporary work involving activities such as repairs, finishing products, and assisting with after-sales servicing.

Through these collaborations, cobblers will be able to capitalise on their existing skills while also earning other sources of revenue. At the same time, firms would benefit from inexpensive skilled labour as well as positive social impacts. Such connections may serve as a bridge between the two industries without necessitating full formalisation.

- The role of cobblers in encouraging sustainable consumption behaviours should be recognised and improved. Extending the longevity of shoes is an effective strategy for minimising waste and improving resource efficiency, according to the Circular Economy.

- Awareness campaigns can be created to encourage people to repair their shoes instead of throwing them away, particularly in urban areas where wasteful consumption behaviours are becoming more prevalent. Additionally, the promotion of the refurbishment and resale of used shoes by cobblers could generate a vibrant secondary market for used shoes. Such measures would offer additional sources of income for cobblers while also lowering shoe prices for impoverished communities.

● Alongside these measures, strengthening local-level outreach through municipal bodies, labour departments, or NGOs can improve last-mile delivery of welfare schemes, ensure better information dissemination, and build trust between informal workers and state institutions.

● Recognising and acknowledging them as legitimate workers who contribute to the urban economy will enable them with a sense of respect and personal dignity.

9. Conclusion

This research, based on in-depth interviews with 18 cobblers in CST, Churchgate, Grant Road, and Dockyard, provides a close and unvarnished glimpse into the lives and livelihoods of a group of workers who are constantly visible but infrequently studied in detail.

Most of these cobblers are immigrants from Madhya Pradesh and Bihar. They form a small but crucial segment of Mumbai's unorganized labor, quietly sustaining elements of city life with their skills and hard work. Pricing's impact on pay was one of the study's strongest findings. While there are some who may think that the more experience or hours on the job, the higher the pay, the evidence showed otherwise. It wasn't always the most hours or years of experience that characterized the cobblers who earned the most pay. They, instead, were the ones who had made smart choices regarding what services to provide, when to do so, and at what price. Services such as sole replacement and umbrella repair contributed to their revenues well beyond the normal polishing and stitching businesses. Particularly in the monsoon, these ancillary services made a significant difference. The typical cobbler in this research spent about 11 and a half hours of work daily, with a weekly average of approximately 161 items sold. Yet there existed a significant negative correlation between hours worked and revenues. In other words, increasing work hours did not necessarily translate to increased earnings. This emphasizes the fact that income is more a result of how a cobbler manages his stall than the number of hours he spends at work.

Digital payment systems are also starting to alter the manner in which these small enterprises operate. UPI and bank accounts have been used by most cobblers, indicating the extent to which digital tools are entering even the most casual establishments. One of them even claimed to have availed a bank loan simply to enable UPI, indicating that some are willing to incur financial risks to upgrade their services. These adjustments are modest but significant indicators that the informal economy is gradually transforming.

Concurrently, the research uncovered some obvious limitations. A lot of the information was self-reported, particularly regarding income and expenditures. In several instances, the figures provided didn't entirely correspond with the volumes of sales or services provided. This might be attributed to forgetfulness, sporadic cash flow, or reluctance to divulge complete financial information. A few participants were not at all at ease answering questions about money. Especially so for some younger cobblers, who refused to answer or provided very brief responses. Their reserve may indicate embarrassment about their profession or concern about how outsiders perceive their work. There were also some language difficulties, particularly in describing more conceptual questions around savings or price policy. But otherwise, most were friendly and willing to respond. Their familiarity with lots of different customers probably also made them feel more at ease with discussing things with strangers, even intimate subjects.

Another unexpected result was the educational heterogeneity within the group. While some had learned only up to high school, others had commerce degrees, and one even studied for competitive exams. This suggests a larger misalignment between education and job opportunities. Most of the cobblers are not in this profession due to a deficiency in skill or aspiration, but because it is one of the few that can provide daily, immediate income.

Naturally, the study has its boundaries. The sample was limited, and the results cannot be generalized to all cobblers in Mumbai. The findings also depend largely on the honesty and recall of respondents. In future studies, a larger sample and more specific methods, such as monitoring daily income or comparing various professions, might provide a clearer picture of how informal sector workers make ends meet and improve.

But even with these deficiencies, the research provides a worthwhile glimpse into a community worth further study. Perhaps the most valuable lesson is that growth in earnings in informal work does not necessarily occur as an automatic process. It requires strategy, adaptability, and a knowledge of what the consumer demands.

Overall, the findings show not just how hardworking and adaptable the cobbler community is, but also the limitations they deal with every day. Their work keeps the city running in small but important ways, offering fast, low-cost services that many people rely on, yet they often go unnoticed and undervalued. This study shows why there's a need for better support, recognition, and long-term policies that can help them grow. These are not just workers doing odd jobs. They are small business owners who know how to adjust their prices, offer the right services at the right time, and build trust with customers. In a job with no fixed salary or formal path to promotion, these small decisions are what help them earn more and keep going.

References

[1] Wankhede, D. (2020). I*ntergenerational changes in issues related to the education of the cobbler community in Mumbai*. *International Journal of Educational Development, 79*, Article 102214. https://doi.org/10.1016/j.ijedudev.2020.102214

[2] Saha, T., & Paul, B. (2003). *[Socio-economic profile of cobblers paper]*. *Asian Journal of Social Science Research*. (Discusses income, work patterns, and structural disadvantages of cobbler communities).

[3] Bairagya, R. (2010). *[Informal economic activities and livelihood challenges]*. *Asian Journal of Social Science Research*. (Provides context on small-scale informal occupations such as cobbling in urban settings).

[4] Pandey, D., & Vats, A. (2020). *Effect of work environment on health & socioeconomic status of cobblers in repairing work. The Pharma Innovation Journal, 9*(5), 72–74. https://www.thepharmajournal.com/archives/?ArticleId=4631&issue=5&vol=9&year=2020

[5] Halder, S., & Urey, P. (2003). *Poverty and livelihood strategies in informal sector jobs*. *Asian Journal of Social Science Research*. https://ajssr.unitar.my/doc/vol6i2/24060209.pdf

Interviews

Excerpts from our conversation with Mr. Ramit Singh Chimni

Ramit Singh Chimni is a global policy advisor, social innovator, and activist whose work is anchored in advancing fairness, dignity, and inclusive development. As Secretary General of the International Centre of Humanity, he operates at the confluence of grassroot realities and global systems, shaping pathways for change that are both meaningful and enduring. He is also a Director at the Eight Goals One Foundation, a member of the World Council of the José Martí International Solidarity Project and serves on the jury of the International UNESCO/José Martí Prize.

Introduction

Spain established rule over Cuba in the 15th century, but the nation changed hands between powers multiple times until it eventually became independent in 1902. The call for an independent Cuba was not driven by the natives but rather by people from all over the world who had settled there, making Cuba unique in this aspect.

The United States replaced Spain as the de facto coloniser, exerting military and economic control over Cuba's politics and industries. During Prohibition in the USA, Cuba became a hub for alcohol, gambling, and tourism, which only served to add to the wealth of American-owned companies and later, the Mafia, until the 1950s when Fulgencio Batista became President.

Under his rule, political rights were curtailed, and sugar and tobacco agriculture operated within plantation-based company towns dominated by landowners who controlled land, housing, retail, and employment, and systemically exploited farmers by inflating prices and restricting labour mobility. This led to an eventual revolution in 1959 run by Fidel Castro, Che Guevara and others, to which the US responded by issuing an embargo that prohibited any company with American investments from doing business with Cuba.

This effectively crippled the Cuban economy, isolating the island and restricting any scope for international trade. This blockade persists to this day. Due to the 2026 interventions by the US in Venezuela, Cuba's access to energy and other resources has further dwindled leading to numerous policy changes that are changing the dynamics mentioned in the interview.

Editor: An inherent contradiction that arises in capitalism is that the state has to play an active role in keeping systems in place that enable the capitalist society to function. In doing so, the "ensuring welfare" aspect of its duty is compromised. When talking about the US protecting the interests of the Mafia in Cuba, welfare is not the primary concern, but instead what is needed to sustain that capitalist society. Did this contradiction lead to the sort of revolution and uprising we saw in Cuba?

Ramit: I think this theory is absolutely sound, but Cuba flipped it completely. After the revolution, every Cuban had a roof over their head, offered and insured by the government. The right to housing is a right guaranteed by the government, even today. Cuba's priority lies in protecting the equality conferred to the people who are the poorest in the country. The state can be comfortable with people getting richer as long as it is not at the expense of others being poorer. Frankly speaking, these words (capitalist, socialist, etc.) cause the majority of problems. All these terms for the system are used because that's how the world understands. For Cuba, this word is 'communism'. However, for Cuba, it is about the community. There 'communism' is a manner where there cannot be any private ownership of property. The right to housing means that the Cubans actually own the property, and not the government. They ensured that a ration system was put in place, including beer, chicken, ham, eggs, and pairs of shoes, occasionally. In the 70s and 80s, whenever any citizen of the country would get married, their 3-day honeymoon in a hotel was guaranteed by the government. This is the country that gives ownership, as required under capitalism, but what they value is a kind of socialism, which is about making sure everybody gets what everybody else has access to.

I don't think any Cuban will ever be okay with calling themselves a capitalist, which is why these terms are confusing. If we actually look at the model of Cuba, there are positive elements of capitalism that have been incorporated along with the positive elements of socialism and communism. Education is free for everybody at any age and level. You can become a doctor and pursue all your specialisations absolutely free of cost. The medical system is free.

There are problems as well, and the answer to all of those problems is simply the lack of resources because of the embargo. The problem occurs because there are not enough medicines in the system. If there are not enough medicines in the system, you cannot cater to everything that needs to be done.
But the medical system is brilliant. They invented a vaccine for lung cancer. They had five vaccines prepared during COVID before most other countries even figured out how the vaccine would be. Everyone on the island got a vaccine shot for free. Their mortality rate was the lowest in the world. Their literacy rate is the highest in the world. The people in Cuba live up to 80-85 years. If all of the necessities are taken care of by the government, then it flips the entire concept of a capitalist economy as we understand it. Just imagine if they could fairly sell sugar, tobacco, rum, and oil and yet have the mindset that whatever money we make is going to be used towards welfare, that country will be the best in the world!

Editor: Hypothetically, if we were to adapt their model to India, do you think it could potentially work? If the political scenario allows it to be, do you think India has that kind of foundation for it to work?

Ramit: Absolutely. I think the biggest defence that people use when it comes to countries like India is that Cuba has only 10 million people, and you can't use the economics of a place which only has 10 million people in a country of 1,400 million people.

But at the end of the day, what is India made of? Small communities. If something can work in a community, you just need to identify the various communities and make it work for each of those communities. Look at the tariffs.

If you look at COVID, for example, why does Cuba have [one of] the lowest mortality rates? Because the government is providing for everybody. At the height of COVID, why did India have to open up so quickly? Because we all had to go back to work, had rents to pay and eat our food. The government could have provided, but we couldn't. Why? Because the economy will cripple, that's what they said.

If the government has the will to implement it, 110%, it can be done in India. It can be implemented in the entire world, irrespective of how economically strong we are, because our economy is dependent on the entire ecosystem. The input costs determine output costs, which further determine MRPs. If the input costs are low, the MRP will also be low. The input costs will vary based on the capacity of your country.

I've been alive in the 1980s and the early 1990s prior to liberalisation. India's economy was struggling, but my life as a young kid growing up in New Delhi was absolutely beautiful and stress-free. There was respect for everybody. In 1989-early 1990a *bhaiya* [candy floss seller] used to come on his cycle. He was a parental figure for us. He used to watch us play cricket, because for him, his priority was not selling candy floss, he was at ease. His priority was being a good role model. He would come and give us candy floss. He would play cricket with us at times. And he would have conversations, he was worldly enough that we got so much education out of him. Dignity of labour is what we are effectively talking about here right now.

Cut to 1993-94 (post liberalisation), we could see that *bhaiya* was worried. He was not able to spend as much time with us because he had to run to the next space, because everything had become more expensive, and competition had increased tremendously. He was suffering so much that a man whose priority was being a role model to the kids shifted to making money.

One could say that capitalism is definitely telling you, “Look, we have brought in so many things which you did not have earlier”. But what's the consequence? You've taken away my smile. For a child like me, you took away my opportunity of having a conversation with *bhaiya*. Because now he has to rush.

Editor: There's this social rhetoric of no ethical billionaires, according to which the cost of being a billionaire is stolen wages from a lot of people, and that is how the wealthy accumulate wealth. There are a lot of people who want billionaires to be taxed in such a way that they can never become billionaires. I wanted to ask your opinions on that.

Ramit: It's very problematic because you can't see things in isolation today, unfortunately. One isolated act will never benefit our economy, so just taxing the rich at a higher rate by itself will never be the solution.

If you have consumerism, you’ll still have capitalism. It's a very easy way out to say “let's tax the billionaires”. First of all, they should never have become billionaires in the first place. I agree on that, but at the end of the day, I never understand the concept of anyone having wealth more than what they can use. I will never defend billionaires. It's just that no one’s actually paying attention to what is needed. Economics is always the sum of its parts.

When, say, a company goes bankrupt or shuts down, what does that imply for the economy? It affects everybody who loses their jobs because of that, that's where the impact hits. Not the billionaires. If you want to switch to that idea of taxing them or taking money away from them, you need to force them to deploy their money to make sure that they are creating more jobs.
Instead of cutting out 10,000 jobs, you force them to add 10,000 more jobs. I'm sounding very dictatorial, but that is welfare. Long story short, knee-jerk reactions help nobody. Whenever you're looking at an economic structure, you have to look at all its parts and see the impact thereof.

Editor: In India, the judiciary has played a very important role in protecting welfare, but Cuba is a state-led state. The judiciary there is actually subordinate to the main party. Why is it so? Is it because the rights of the labourers there are never violated?

Ramit: In my opinion, Cuba is the best democracy in the world, but it has a single party. There's only one candidate per ballot, just one. That doesn't sound like a democracy, but I would still say it's the best democracy in the world. This is one of the things I just throw at people just to agitate them. In my opinion, the courts and the judicial system in Cuba are brilliant, but the government has clear rights over intervening anytime they feel that the judicial system is going awry. If this happened in our country, there would be complete uproar. The whole uproar in the media is based on who has more power, the government or the judiciary, but it is not like that there. Their principle is that nobody can be bigger than the people. Their priority is the welfare of the people, so how can any one entity be greater than the people? Which is why there are checks and balances even on the judiciary – if you are going awry, the representatives of the people can then check on you. This goes both ways; the judiciary can reprimand the government, and the government can reprimand the judiciary. At the end of the day, it will always be the government that will have the final say, because it is the will of the people.

I do have to tell you about the political system. In our country, who do we vote for? Party or leader. Either the BJP or Narendra Modi. Rahul Gandhi, Congress. Mamata Banerjee, TMC. It's the individuals who are in power. You have the photo of the candidate, and bigger than that will be the photo of the party in the background. You’re essentially not giving the vote to a national leader; you’re voting for a philosophy. In the USA, you're a Democrat, or you're a Republican. It doesn't matter who the person is, it doesn't matter whether they've done something for me or not, right? Mostly, in India and in the USA, with the money that gets spent on campaigning, it's ridiculous; we could have easily managed the COVID pandemic. In Cuba, even campaigning is banned. Because in Cuba, elections don't happen top-down, as in almost all the other democracies of the world. Over there, the elections are bottom-up. The representative, whoever wants to stand for elections, are only allowed to give a one-page CV. They're not allowed to campaign or make promises. It's not permitted because their focus is that if you want to represent the people, you should have already done it by now, then they’ll know you and vote for you.

At the lowest level, you're voting for people you already know. Once they've done that, they are deputised to vote at the provincial level, where there are multiple candidates. When it comes to the national assembly, the reason why there are no multiple candidates is that if you, whoever that candidate is, have not got the support of the provincial candidates, where there was an open election, or at the grassroots, then you shouldn't be a candidate. I can't just stand up and say I want to be a candidate in the National Assembly; I need to have done something for the community. I need to have the trust of the district level, then the provincial level, to be able to stand as a candidate for the national level.

At the national level, people still vote. Till about 20 years ago, around 95% of Cubans still used to vote for that single candidate in the national election. Now it's at about 78%, which is still better than most of the world, but they are really sad about the fact that it's come down. Why should anybody vote for this single candidate when it's a foregone conclusion that that person will win? Effectively, people still voted because that was the check and balance. Full respect is placed in the candidate voted for at the grassroots level, who will determine who goes to the national assembly. But if that candidate errs, then the people have the final vote to turn back what they have decided. So the validation is saying that yes, the system works.

Editor: I wanted to ask you more about the immigration crisis; it's a massive issue there. I think you can also link it to the 2018 rollout of the internet, because one gets access to a lot more ideas. So, when you're saying that the state is designed in such a way to provide people with what they want, if they gain exposure to something that they now think they want-

Ramit: You're absolutely spot on. Frankly speaking, I think the solution to that problem is more conversations. That is where, in my opinion, the Cuban government is failing, because generations have changed.

We're talking about a revolution that happened in 1959, the principles of which are still governing the country. The country has benefited from those principles well, despite the blockade, but now you're looking at three generations having passed. So the youngest generation now, they won't understand why they should not have their Air Jordans or their Supreme sneakers. You can't blame them either. The great American dream, as they call it, is what is fueling the immigration.

What's the psychology behind this? If I've emigrated to the US, why will I tell you that I made a mistake? I have pride, I have ego, I couldn't have been wrong. The second thing is that you have this mother hen mindset, that maybe it went wrong for me, but I can't let others lose hope. So, I must show them that things are better. All of these reasons are why people don't actually share their true immigration stories.

You see it in India also. In Delhi, if you go to Nehru Place, you see how, unfortunately, the labourers end up being mistreated and exploited, but when they go back to the village, they're still heroes. If you ask people, "Are you happier in the village or are you happier in the city?" They will always say they're happier in their villages. But what has capitalism said? Come here and build our palaces. If you do that, then you'll get money, and then you'll be able to go home and be the hero.

Editor: We talked about how a lot of our urban cities are built by migrant workers, but there is this dichotomy that they are not provided with dignified living or working spaces. So, we wanted to ask you how the question of who belongs to the city can be reconstructed to develop a more inclusive urban space.

Ramit: The answer is Cuba, again. Within Cuba, there are still distinctions. Some people are richer, some people are poorer, but everybody's got houses; it doesn't matter whether you are rich or not from a state standpoint. If your house is broken down, the state provides a place for you. If a stay is not available, you get put on a list, which means the next time more housing is available, the person who's on top of the list will get that house. On that list, it doesn't matter whether you're an ambassador, judge, labourer, or sweeper.

Here in India, again, classic capitalism. If you don't have the money to buy the house, you will not get the house. Which is why the classic thing is, every Bombay high-rise has a slum below it. Why? Because the ones who built the high-rise have settled there themselves. To solve that, what we need is to recognise that our earth belongs to everybody.

When I told you that the revolution in Cuba was not by Cuban indigenous people, because anybody who came into Cuba became a Cuban just by virtue of the nature of the island, which was communitarian in its nature, it was about supporting each other and collaborating. So, it did not matter where they came from; they were provided for. The same principle needs to be applied in Delhi. We need to recognise that the reason people come to Delhi is that we have not given enough to their villages. If their villages had hospitals, proper education with the provision of all facilities, why would they come here? There'll be a lot of people who'd rather not be in the city in that case, and you'll be able to create a situation where there is equal population distribution across boards.

In India, things have improved, but there is a marked difference still. Unfortunately, there's a long way to go at this point, and the delta keeps increasing. If you keep increasing the villages and the quality of life there, but you keep increasing the extravagance in the cities, the gap will still remain and become larger. The gap must be clubbed not just by virtue of saying, okay, we're not spending any money in our cities, we're spending money in our villages. You still have to see a holistic case. We need to make sure that belonging should not be restricted to a particular city, but rather to everything that is available to us.

Editor: There is a popular game in game theory, the stag-hunt *(Two hunters must decide whether to cooperate to hunt a stag or to hunt a hare individually. Nash equilibria include a scenario where both hunt stags together or both hunt hares*). What I see, instead of the stag-stag equilibrium that we could have met, we are deviating and shifting to a hare-hare equilibrium. Is it really practical then to think that we can have a purely people-centric or welfare-centric ecosystem?

Ramit: It's absolutely possible. It's possible when communities at the lowest level decide that's how it's going to be. It doesn't need to be at the national level. It's about every single community. If we collectively in this room right now examine what our resources are, X number of coconut waters, for example. I've not drunk this (coconut water), so I can either just keep it with myself, or I can see that she's thirsty and give it to her. The moment we start thinking that, then you will need a leader, you need expansion, resources, etc. As human beings, how many people do we interact with throughout our lives on a meaningful basis? 50-200 maximum. It's small enough to have a conversation and to share our possessions . Does our solution have to come from eradicating billionaires? It can also come from us understanding our ecosystem. Amongst the 11 of us (in this room), we can still ensure equilibrium for the rest of our lives.

Editor: But don't outside forces also affect us?

Ramit: External forces only determine how many resources are available to this group. Within this group, it is up to you what you do with those resources. That is where that change is happening, which is why taxing the billionaires does not work. Even if you've taxed the billionaires, what you have remaining with you, you still need to have the will to distribute amongst each other. If that understanding is there, no external factors will make a difference.

Back to Cuba. The whole world is cut off because of the embargo, but within Cuba, they have decided that they will ensure the most equitable outcomes with the available resources. *When we had the money, we were sending you on your honeymoon. Now we don't have money, you only get two loaves of bread a month. But everybody gets those two loaves of bread.*

Editor: Consumerism is so ingrained in not only our economy, but in everyone's mindsets. I agree that we need to utilize our resources efficiently, but what incentives do people have to do that?

Ramit: The reason why this whole superstructure of commerce and transactions works as well as it does is because it plays with our emotions in a manner which creates that sense of deprivation.We crave convenience, we're craving our dopamine hits because that's just how our bodies are created.

Do you know the number of people who die mining diamonds? If they showed you that, would you buy diamonds? That “this diamond has been excavated with the blood of 800 Nigerians”. All of you eat chocolate, do you know how many people die making it? Tea, do you know how the plantation workers in Darjeeling are living? If you are shown the freshness of the Darjeeling *baghs* (tea gardens), you will love to buy the tea. If you're shown the houses in which they're forced to live, and then they get beaten up if they don't pick an X amount of tea leaves, are you going to buy the tea? A lot of people switch to a vegetarian diet after they see a chicken being slaughtered. “Finger-licking good” by KFC is what sells. Packaging matters. We don’t think about these things because for us it's convenient. We've got the diamond in our hand, it's shiny, it's sparkly, it's bright. The store was beautiful, and they gave me a Pepsi when I went to buy it. This mindset needs to be flipped from the roots.

Editor: In collaboration with LaborNet, you worked in the sector of vocational education. What are some very important vocational skills that could help labourers get into semi-skilled working employment?

Ramit: I believe that's a bit of a problematic way to look at vocational education because we end up thinking that vocational education is to uplift those who are not as privileged as others to higher positions because they get jobs and they make money.

In reality, do you know which countries have the maximum amount of vocational education? It's not the developing nations; it's the developed nations. It's not only for the upliftment of those who are not as privileged, but it is also for creating that equilibrium amongst all of us so that we can respect each other and the roles that we do.

There is, of course, the fact that there is more money to be made for everybody if they become skilled, and then they can get employment. But the bigger aspect is the dignity of labour. If I know how to do plumbing, I will be able to relate to the plumber who comes to my house. *agar mujhe electrician ka kaam aata hai, jab electrician bhaiya mere ghar aate hai* (if I know an electrician's work, when they come to my place), I will be able to engage with them. *"Bhaiya aise kyu kar rahe ho, hume toh ye sikhaya tha, and then he says mein bata raha hu aise hota hai"* (example conversation he would have with an electrician regarding techniques). I can have that conversation.

We feel that we are not the ones who create that distinction between, say, a carpenter and us. But in reality, what ends up happening? We will still not have that conversation with the carpenter. But if there was one of our peers, then we would have that conversation. Somewhere, subconsciously, we are creating that distinction, not because we are bad people, but because we can't relate. That's what vocational education delivers, in my opinion. It delivers the dignity of just living to everybody around us, because it brings us all on the same page. Everybody understands that these are the skill sets that I also have an understanding of, whichI can talk to you about, meaning I will not treat you as someone lower than me, but I will actually treat you as someone who, in carpentry, is better than me.

To answer your question, I think it's very important for the entire country and not just those who are seeking job opportunities. Those who are seeking job opportunities, it will be dependent on supply and demand. At different points in time, depending on where you are located, different skills are going to be in demand.

The beauty of vocational education is that a lot of the things that are in demand can be taught in a shorter span of time. So, if you're in Pune, Bangalore, Hyderabad, or Indore, which is becoming an IT hub, of course, you need more data operators, so vocational education should be focused towards more data operators.

Whereas in places like Jaipur, for example, you need carpentry, because that is where the demand is. That's really how vocational education, in my opinion, needs to manoeuvre. It should never be - "Okay, these are the top five skills that you must have". No, it's the region, it's the time, the way that the economy is structured, the supply, the demand, etc., that determines what vocational educational skill needs to be propagated at one point in time. For that, the biggest thing that we need to do, as I said earlier, is to make the transfer of those skill sets much, much quicker.

Editor: In Cuba, you said that they have a lot of economic problems, like the blockade, and they are still doing so well [in terms of some human development indicators]. I had a similar question regarding Meghalaya. You and your team wrote a paper that showed that Meghalaya is in the top five in almost every single skill, even though it has various limitations like political instability, illegal mining, and smuggling. What do you think is the reason?

Ramit: I think the northeast of our country is probably the closest that we've had to community living. A classic example I give is not from Meghalaya but from Mizoram.

The first time that I went there, 15 odd years ago, at the hotel that I was staying in, there was a bellman opening and closing doors. So, there was a basketball match in the evening. Pretty much the entire town goes to watch the basketball match because that's entertainment. At about 5 o'clock, *jab unki chutti hoti hai* (is when they get off work), and we were all sitting in the lobby just waiting to leave for the basketball match. He [the bellman] finished, went inside, changed his clothes, and came back. He sat in the lobby, and then a person from the office approached him and started chatting him up.

Ramit describes a conversation between this person and the bellman, who speak as friends and discuss how to commute to the match.
That man who was having this conversation was the owner of the hotel, [at] the same place where this man was opening and closing doors. Yet outside of their job roles there is no distinction. They are still friends.

Which is again, the same thing in Cuba, whether you're a sweeper, you're a doctor, you earn the same amount of money. We're not distinguishing between the contribution you're making to society because, without a sweeper, streets are going to be dirty, people are going to fall sick, and there will be problems. Without a doctor, people will fall sick, and there will be problems. Both the sweeper and the doctor have an impact on the health of an individual.

That entire community understanding results in a situation where there is holistic development of the individuals. I, as an individual, have so many opportunities to learn from everybody around me that in these employable skills, I become better. I'm better at finishing tasks because I've been doing that and helping everybody out. It's not *mera kaam, mera kaam. tumhara kaam, tumhara kaam*. (My work is mine, and your work is yours) The opportunities expand so much, right?

Which is why, say, in Meghalaya and other parts of the Northeast, the overall development becomes better because you're not just focused on "my education, my schooling, my college", etc., but [on] everybody around you. So, your learning is not just your learning, but it is also ancillary learning from people around you.

Editor: In Cuba, because of the recent embargoes and resulting resource constraints, wages have not been increasing, and they're not enough to sustain their employees. So, people end up participating in the underground economy, seeking alternative employment, etc. I wanted to see if we could draw parallels between this and corruption in India, especially in the public sector, which is also primarily driven by low public sector wages.

Ramit: First, I'll correct the Cuba part. It's not a chicken-and-egg story over there. The underground market started first, and then the wages became unacceptable. The wages were very low; if you convert them into Indian rupees, maybe 800 rupees for [the] entire month.

But the reality for a Cuban citizen is that their house is free, their education is free, everything else is free, and electricity is extremely subsidised. They are only spending 5% of their money on electricity, which is as much as in any other place, and only spending 7-8% on food. So, if you actually broke down that income, what you were buying from those 800 rupees was also cheap, and was provided to you either free or at a subsidised cost.

Once it [the underground economy] began, then things started becoming more expensive. This has created a situation where there is less produce in the ration system, which means that people who could have easily relied on the rations now need to go out and buy at higher rates. The origin of it is very, very clear. If everybody were earning the same amount, and spending on the same things which cost the same amount, there is no need to ever change your salaries or increase your salaries, because *salary se khareedoge kya? jo cheez aap khareedoge, woh bhi agar ussi rate pe rahe hai, then you have solved that problem of inflation* (if the things you are spending your salary on are still at the same price, you have solved the problem of inflation) in that sense.

So, I think the problem is not that their incomes are increasing slowly. The problem is that the underground market started, which then led to a situation where people require more money because the total number of resources available at a subsidised cost is becoming lower.

In India, in my opinion, in a very different way, it's the same thing. Historically, in Delhi itself, there's a lot of hoarding that ends up happening. Rates go up, elections happen, and rates go down because everything gets released into the market. It's about demand and supply. Corruption originates from demand and supply. If there were no problem with demand and supply, there just couldn't be corruption. It's impossible to have corruption when everybody is being supplied.

Editor: Cuba has very little Internet penetration. Cuba's main export is healthcare and doctors. And there are numerous accounts which say doctors felt like they were being watched by the government to make sure they didn't defect. If you are saying that Cuba is the best form of democracy, that people are very happy, why is it that we see so many human rights violations coming from Cuba? Or is it just a Western narrative?

Ramit: Okay, that's an extreme. In terms of doctors, are they being watched? 100%. Because there's a responsibility of the state to make sure that its citizens are safe when they're outside the country. That's where it originates from. Medical education in Cuba is free, right? So, everything is being paid for by the government. Should they not even have the right to have a conversation with their person if they're thinking of defecting?

But then, where it stretches is that they don't have freedom to talk to anybody or what they say is being controlled. Nonsense. Inside Cuba, people criticise the government too. When I say criticise the government, [they] criticise the actions. The point is, as the government, if you say things which are contradictory to what I have done, I am fine with it as long as you're coming back. If you're not coming back, then I need to know so that I can have a conversation with you about it. Because what is the biggest issue with respect to what we just spoke about? *Kaise hum change karenge? Baat karke* (how are we going to change? by talking)

But what does capitalism do? It shuts down conversations. You don't go to your *kirane ki dukaan* (local shop), you order from here (your phone). We ask *konsi cheez better hai? Kya zyada bik raha hai?* (Which is the better brand, and which sells more?) But they don't want you to have the conversation because if you did, there'd only be one shampoo that would sell, right?

The world's economy thrives on clashes in whatever way, shape or form. Pepsi and Coca-Cola survive because of each other. If Pepsi weren't there, Coca-Cola would not be as successful and vice versa. Monopolies, by themselves, very rarely go beyond a glass ceiling. The moment it becomes a duopoly, at the bare minimum, that's when everybody shatters the glass ceiling and grows because they increase consumerism. If there were only one company selling mobile phones, I would have nothing else to desire, and I would not change this mobile phone for six-seven years. The utility is the same, but the brand is what creates competition, which increases the market, which is the reason again that the whole monopoly business doesn't work because of competition.

Editor: I have a personal question. You worked for eight years with farmers. I think you started around the age of 17. How could you go about that without any experience?

Ramit: In all honesty, I think I was very privilegedWhich basically meant that I could leave my home, go to the villages where I went to the Nepal border and literally either sleep in the fields till such time someone did not say *humare ghar mein aake so jao, yaha kyu so rahe ho* (someone allowed me to sleep in their home), there was no problem there.

If you actually want to find a way to put yourself in a position where you can help others, because you can't do it from the outside, you have to bring yourself to that position. You have to find a way in which you can do it, which will be different for every individual, right?

To contribute, and if that is a desire that one has, you have to be able to understand who you're working with. Once you're as close, *agar aapka dil sahi jage pe hai na kuch na kuch aap madat karte rahoge, apne aap ko, apne aas paas ke logo ko,* (if your intentions are true, you will end up helping yourself and the people around you), you will always keep finding ways of balancing things up in whatever circumstances you may be in. And honestly, that's really the best for all of us collectively, if all of us thought that way, then thought, what can I do with somebody else?

So, get closer. Get closer. Understand better. Once you understand better, you will have your answers. For anybody to tell you that, okay, you must do this, or you must do that, I would say they're doing an injustice to even your abilities to be able to contribute. Because your abilities to contribute will only come to the fore when you understand better.

Edited for publication by: Anusmita Das, Manya Marwah and Prapti Mukherjee

In Conversation with Professor Rosa Abraham

Rosa is an Associate Professor of Economics and Lead, Centre for Sustainable Employment at Azim Premji University. Her research focuses on informal work and women's employment. At the Centre for Sustainable Employment, she is a contributing author to the State of Working India reports. Her recent research examines major employment trajectories in the Indian labour market, published in World Development. More recently, she has studied how respondent identity and the framing of survey questions influence employment estimates, with findings published in the World Bank Economic Review.

Editor: How do social identities, as a factor, play into the degree of vulnerability of the labour force? Are there any demographic patterns observed in the Indian context that provide evidence for a disproportionately exposed labour force, keeping in mind the nuances and increasing complexity in the identity of the average Indian worker?

Prof. Rosa Abraham: Many groups are disproportionately exposed. Much of my work also focuses on this question. Let's take a life-cycle perspective. When we look at the labour market, we often focus on the outcomes themselves, but a lot of these impacts actually emerge even in the pre-labour market. By pre-labour market, I mean the decisions about how long one chooses to study and what subjects to pursue.

In terms of the pre-labour market question, specifically how long one studies and what subjects one chooses, the good news in the Indian context, particularly regarding gender and to some extent caste, is encouraging. We have reached a point where tertiary enrollment rates are fairly similar between men and women. There is still a small gap, but it has been steadily narrowing over time. This represents significant progress as a society, where both men and women now have almost equal access to higher education, speaking in general terms.

When it comes to moving into higher education, we have also been seeing a gradual convergence in terms of caste. Scheduled Castes and Scheduled Tribes, who are traditionally marginalised groups, have been gaining increasingly better access to higher education. In terms of the duration of education, how long one studies, the gap appears to be narrowing.

However, the choice of what to study is where we continue to see some persistent gaps. For example, there is considerable evidence showing that women are less likely to pursue STEM education. STEM fields often provide access to the highest-paying jobs, and in that sense, they remain largely male-dominated. Moreover, within STEM, particularly in engineering and medicine, we find that these courses are often prohibitively expensive.

The average cost of education in these fields is nearly three to five times higher compared to an arts or humanities education. This means that for many caste groups, such courses remain largely inaccessible. As a result, who gets to do what in the labour market is often predetermined by the choices made before entering it.

Another aspect that is less examined is the entry into the labour market. This is a very interesting area, and some of my recent work has focused on it. What we've found is that the Indian labour market is, in many ways, quite segmented.

In my work with co-authors, we found that there is essentially no job ladder in the Indian labour market. Especially in the case of the formal segment of the labour force, including, for instance, public sector or IT sector jobs, which are relatively regular, well-paid, and come with social security benefits. This means that once individuals enter a particular type of employment, they tend to remain within that segment, especially in formal salaried work.

Also, you cannot typically move into formal salaried employment through the informal labour market. For instance, if you begin as a gig worker, it is almost impossible to work your way up to a regular, full-time job. So, what you enter really matters. In terms of accessing good jobs, some researchers refer to this as a "broken ladder", where what you begin with really matters.

It also depends on how long you can afford to wait for a suitable job. For instance, if you have completed your graduate education and the position you aspire to isn't immediately available, you might choose to wait or make multiple attempts at an examination until you secure that job. This ability to wait becomes crucial in shaping one's long-term career path.

However, waiting is a luxury that not everyone can afford. Most people cannot wait for the ideal job and therefore often end up in entry-level positions that are highly precarious and informal. The option to wait is often mediated by social identities of caste and gender. As a result, the ability to enter into full-time, secure employment tends to be limited to a relatively elite and privileged group, whether by caste, class, or gender.

Once you're in the labour market, you again see these differences manifest in various forms. One is, of course, the more obvious kind of direct discrimination where there is an explicit preference for certain groups. It is difficult to capture such discrimination in large-scale empirical data, but what we do know is that access to desirable occupations remains quite segregated. The good news is that occupational segregation has gradually declined over time.

Many studies, including some of our own, examine this by looking at father-son pairs, comparing what occupations fathers held and what their sons now do. Historically, sons of fathers from traditional caste-based occupations often continued in the same line of work, but this pattern has eased over time.

Agriculture is becoming less and less an occupation for marginalised communities. However, where agriculture once served as a base from which sons might have moved into the modern services sector, that kind of upward mobility is seen primarily among upper-caste or general category groups. Among Scheduled Castes and Scheduled Tribes, the shift away from agriculture has largely been into construction or other low-paying service jobs. So, we still see occupational segregation persisting, though to a lesser extent than before.

For women, an interesting trend we have observed is that the wage gap has narrowed. Earlier, women earned about 40–50% of what men earned, whereas now they earn roughly three-fourths, particularly in salaried employment. However, when we look at self-employment, which remains the predominant form of work for women, they continue to earn only about half of what men earn. This gap persists regardless of occupation or education level. These fixed social identities don't seem to moderate outcomes in the labour market as much as one might expect. In that sense, the impacts of social identities on various labour market outcomes persist.

Editor: I had a follow-up question about how you mentioned that there's been a convergence in SC and ST in terms of employment. Would you say that this convergence is sustainable in the long term, and do reservations (assuming that they contributed to the convergence) continue to benefit the way they were envisioned to?

Prof. Rosa Abraham*:* Reservations actually were one of the big things that sort of equalised occupational segregation. So, if you make this funnel diagram by segregating the labour market into a pre-labour market, where, over time, there are other kinds of challenges that people face, what they choose to study, how long they choose to study, and what kind of job they get.

What we find is that the share of SCs and STs who are graduates is actually very similar to their share in the total population; not very similar, but not hugely different. The share of ST, SC graduates to come into salaried jobs is again fewer, so the funnel gets narrower. It gets narrower if you think of the private sector. That's where we are finding that there is very little entryway inclusion in this case.

We've also looked, and then this was in the context of the Agni Veer scheme, specifically on how important the public sector requirement is in providing access to marginalised groups, and we found that the public sector is the only kind of large industry group where you can find equal representation of scheduled castes and scheduled tribes as they are in the population.

So, reservation is hugely important in the country and has been hugely important in this kind of transformative process. What we are now confronted with is the question of sustainability; we have these very different and fragmented kinds of social groups who are now lobbying for their specific reservation. It is not going to be sustainable for governments to be providing that level of reservation. Not to say that it's not an important affirmative action. I think it's hugely important, but I think it's important for it to have a social focus; to understand marginalisation from a social perspective rather than an economic perspective.

Some communities have been socially discriminated against. There may be economic layers of discrimination as well, but I think if we start going down that path, we may start watering down the very mandate of the reservation, and it's also going to become unsustainable.

Public sector employment is a very, very small share now of India's workforce, so reservation then just becomes a very small strand of people who have access to salaried employment. In that sense, there's again the sustainability issue. If the public sector is no longer a big employer, then reservation becomes a moot point.

Editor: I would like to ask about this very interesting survey you conducted across 12 states during 2020, at the peak of the COVID-19 pandemic. You documented the severe impact it had on the informal sector and even on certain segments of urban employment.

What lessons do you believe India could have drawn from the pandemic to better prepare for global crises such as those triggered by climate change or other disruptions, so that their effects on employment and labour wages are not as severe as those seen during COVID?

Prof. Rosa Abraham: During the COVID period, especially around the lockdown, there was a lot of discussion about how the pandemic could serve as a learning opportunity. And indeed, there were several. But now, three or four years later, many of those lessons have not really been implemented.

One major takeaway, and this is perhaps the most obvious, is the absence of a robust social security system in India. We have a situation where the majority of our workforce is engaged in informal employment. By definition, such work does not come with any form of social protection or job-related security. But in the Indian context, we need to move away from treating informality as a single, uniform category.

If we define informality primarily as the absence of social security, we can broadly think of two types of workers in India. The first group includes those employed by formal enterprises, large, registered corporations that are legally obligated to follow labour laws, but who themselves are hired informally. These workers are often employed on short-term or part-time contracts without the protections available to regular employees.

The second group represents what the International Labour Organisation originally described as informal workers within informal enterprises. These include small or petty enterprises, often single-person operations or family-run units that operate entirely outside formal registration and regulation.

It could be a person who occasionally hires others but not on a regular basis, or it could be what we call an "own-account worker". This forms a large segment of the workforce. When we think about building a social security architecture, it has to be designed very differently for these two groups of workers.

Now, in the first group, where you have formal employers, it is possible to clearly identify who the employer is. In that sense, there is a certain degree of responsibility that can be attributed to the employer for their employees.

There is a distinct kind of social security system for this group, which we already have to some extent, in the form of a provident fund (PF), paid leave, maternity benefits, and similar provisions. The real challenge, however, lies in effectively implementing these laws and ensuring that employers comply with the basic social security regulations. In this case, there is an identifiable employer who can be held accountable; therefore, the key issue becomes the effective implementation of social security laws.

It was interesting to observe, during the pandemic, how this played out in practice. If you recall, there was significant uproar when construction workers began returning to their home states because they simply did not have the means to survive in the cities. Up until that point, these workers had no clearly identifiable employer to hold responsible for their welfare.

However, when discussions began around arranging trains for their return, several employers suddenly came forward, particularly large real estate organisations lobbying local governments to stop these trains, arguing that they would be left without a workforce if the workers left.

These organisations argued that the state should not be providing such trains and that the workers should be taken care of locally. This created a strange situation; no one was officially responsible for the workers, yet these employers still wanted to influence decisions about whether the workers could return home and what the state's role should be.

I think this points to a fundamental problem of accountability when it comes to this segment of workers. There is a clear legal and moral need to make employers responsible. Now, the second kind, in the same group, is a slightly more amorphous category, which is, you know, I can use the word gig because that's the most recognisable word. But I think it extends beyond platform workers, where you have been a worker whose employer keeps changing.

In the case of gig and platform workers, you often don't have a single identifiable employer. That's where it becomes important for all employers or platforms to contribute to a common welfare fund. I think the recent gig worker laws, which propose the creation of centralised funds to which employers contribute and which are then used for worker welfare, are a step in the right direction.

However, implementation remains a major challenge. From the experience with construction workers, we know that while such welfare funds have been established, the actual utilisation of these resources has been very limited. That is another major barrier we need to think about. But I believe making employers responsible and holding them accountable to their workers is a crucial step forward. Unfortunately, trade unions in India have been greatly weakened over time, which makes this even more challenging. Strengthening collective worker representation is therefore equally important.

Now, when it comes to the other large group, informal workers in informal enterprises, the situation is quite different. In this case, we don't have a clearly identifiable employer. Even when there is one, these are often very small, single-person enterprises. It's difficult and almost unfair to hold them fully accountable for providing social protection, because they are often just about breaking even. Imposing such obligations on them could make it impossible for them to survive.

That's where I believe the state has a much larger role to play in creating alternative forms of scaffolding and support for workers. We already have some basic structures in place; for instance, the "Unorganised Workers'

Social Security Act" attempts to bring together many of these protections under a single framework.

Under this umbrella, several schemes — such as Janani Suraksha Yojana, Atal Pension Yojana, and others have been brought together. These are not employer-specific, but rather worker-oriented initiatives designed to provide social and financial support directly to workers.

Again, that existing architecture also needs to be strengthened and streamlined. The good thing is that e-Shram, to some extent, is attempting to consolidate these efforts into a single platform where all informal workers can register. However, moving from registration to the next crucial step, actually making these schemes accessible to workers, is still a challenge.

At present, merely registering on e-Shram does not automatically ensure access to benefits. What we really need is a unified framework through which workers can not only register but also directly apply for and receive support under these various schemes.

The other big lesson is the issue of portability. For instance, when we look at construction workers, one of the major challenges during the pandemic was that they could not access their entitlements in the states where they were working. This issue has been addressed to some extent through the greater portability of benefits.

However, many other welfare schemes are still not portable. And migration is not something that is going to disappear. The reality is that we have several young states with large and growing workforces, and other states that are relatively older and ageing, with much smaller labour pools. In that sense, migration is both inevitable and, in many ways, the most efficient way to utilise our human resources. Given that, I think portability remains a key issue, and it's something that was strongly reiterated during the pandemic.

Finally, I believe that an urban employment guarantee could serve as another important form of scaffolding, similar to what MGNREGA provides in rural areas. Such a program could help cushion workers in times of distress and provide a measure of stability in urban labour markets.

To me, the big takeaways are clear: first, holding employers accountable to their workers; second, creating dedicated funds for worker welfare, whether through corporate taxes or other worker-specific contributions; and finally, establishing a unified and comprehensive social security architecture that ensures no worker is left behind.

Editor: Pivoting to your recent work on the changing structure of women's employment in addition to men moving into the formal sector and the increasing presence of multiple own-account workers within a single household, what structural factors, such as access to credit, land rights, and social norms, do you think are driving this shift toward greater self-employment among women?

Prof. Rosa Abraham: Yes, so the rise in women's self-employment is actually a fairly recent trend. To add some context, self-employment among women in India has always been quite high, but what we're observing now is that it's beginning to increase even further.

The unfortunate reality is that we're at a stage where women's overall employment rate is the highest it has ever been, at least since we've had reliable data. Yet, at the same time, the share of women in salaried employment is the lowest it has ever been. So, it's not necessarily a positive sign.

One possible explanation for this increase in self-employment is the expansion of credit availability. Over the past few years, there's been greater credit disbursal targeted at women's self-help groups, cooperatives, and small entrepreneurial ventures. This has made access to finance somewhat easier for women, encouraging self-employment activities. As a result, we're seeing a rise in the number of own-account workers, women who are essentially self-employed without any hired labour.

Now, there are a couple of aspects of this trend that are slightly worrying. One is that we don't observe any real improvement in average self-employment earnings. If this shift were driven by women identifying new opportunities, choosing self-employment over salaried work because it offered better prospects, we would expect to see rising earnings. But that's not what the data show.

What seems to be happening instead is that more women are engaging in self-employment within households, yet without any significant increase in the average income from such work. To me, that's an important red flag.

So again, these aren't necessarily new small businesses being set up; much of this increase in self-employment is happening within agriculture. And that, to me, is not always a good sign. There's nothing to suggest that agriculture has suddenly become a more lucrative or promising sector for women.

Both of these trends, stagnant earnings and the shift back into agriculture, point to deeper issues. And I think there's a more fundamental point here, though some might disagree with me; I don't believe that self-employment, at least in its current form in India, has the same transformative potential that salaried employment does.

That's not to say self-employment isn't important; it absolutely is. But the way self-employment is structured in India, and the kinds of occupations that dominate it, often serve to reinforce existing structural inequalities. For example, self-employment often allows women to stay at home and balance domestic responsibilities, but in doing so, it can also limit their access to better-paying, higher-quality work.

In that sense, self-employment is often quite amenable to women; it allows them to work from home and balance domestic responsibilities. But that also means, in many ways, that women remain confined to the home. There's a certain kind of transformative power that comes from stepping out, from going to a workplace, meeting other women, and building a sense of community and independence outside the household. Self-employment, especially in its more traditional forms, often doesn't offer that.

Of course, this isn't to take away from exceptional examples like SEWA, which has been a remarkable success story in organising and empowering self-employed women. But that's not the reality for most forms of self-employment as we understand them in India.

Self-employment also rarely provides women with meaningful bargaining power. Many of these occupations, even those linked to newer, digitally mediated forms of gig or platform work, require access to resources that women often lack, whether that's digital literacy, devices, or independent access to mobile phones and technology. In many cases, women still rely on male family members to use these tools.

So I would say, there are real reasons to be cautious about celebrating the rise in women's self-employment. The structural barriers remain significant: limited mobility, lack of safe and affordable transportation, low bargaining power within households, and, of course, the broader absence of secure, well-paying jobs, especially as manufacturing, which historically absorbed many young women workers, continues to contract due to global and domestic pressures.

Finally, there's the question of norms. Gender norms influence both salaried and self-employment opportunities, but because self-employment is typically home-based, it tends to align more easily with traditional expectations of women's roles, and that, in turn, reinforces rather than challenges existing inequalities. All of these are structural factors that continue to keep women's participation in salaried employment quite low, while pushing more of them toward self-employment. I haven't yet spoken about social norms, but I think they play a significant role as well.

Norms influence both salaried and self-employed work, but because self-employment often happens within the home, it tends to fit more comfortably within traditional gender expectations. That's precisely why it can appear more "acceptable" for women, even though it may not necessarily be empowering. In that sense, self-employment can end up reinforcing existing gender norms rather than challenging them.

Editor: Your work shows that economic necessity often forces women back into agricultural labour soon after childbirth. How does this reality impact their health and long-term empowerment, especially in the context of the policy focus on moving labour out of agriculture? What policy measures could realistically make agricultural work itself more supportive, particularly for women?

Prof. Rosa Abraham: Just to give some context to the work we did, it was based in Karnataka and Rajasthan, and we were trying to explore the idea of 'motherhood penalty'. Which is when women have children, and then they end up leaving the labour market or earning less.

We found that after childbirth, there was no discernible impact on women's employment. We then hypothesised that what was probably happening was that, especially in rural areas, in low-income households, women *have* to work. So they continue working after becoming mothers, mostly working in agriculture; that was the finding.

Now, what is the impact on health and long-term empowerment? We established that there is no penalty, but there's been a lot of work by Gautam Bhan and Divya Ravindranath at the Indian Institute of Human Settlements. What they found is that when women are continuing in agricultural and formal work, they also tend to stop breastfeeding earlier, which has an impact on them as much as it does on the child.

There have also been studies to look at the impact of MGNREGA as well, which found that post-natal health-seeking behaviour was affected much more in regions with MGNREGA, as after giving birth, women had to go back into work since the wage employment option existed to provide needed extra income.

You can show that, to some extent, some kinds of post-child health seeking behavior has been negatively impacted as a result of people often having to continue working.

The policy implication is that, well, we shouldn't be providing this employment. But like you said, how then do we make agriculture a viable means for livelihood? In India, we have a situation where we have too many people in agriculture. I believe the first strategy to make it more viable is to have fewer people in agriculture, which means that we need to have other industries.

The standard Lewis framework has been that over the course of development, people should move out of agriculture, which has not really happened as much as it should have in the Indian context. Some of the policy recommendations that stem from the Lewisian and the Dual Economy Framework are that, often in these kinds of segmented labour markets, there is no one strategy of improving the urban economy or providing non-agricultural jobs, because that ends up being counterproductive. It's more about how we make agriculture more sustainable.

One policy in the Indian context that could be very beneficial to implement is the idea of providing allied agricultural activities. Essentially, how do you link farmers to markets? How do you make sure that there are roads, that there is infrastructure? And in the case of most agricultural goods, which are perishable, how do you make sure that they (the farmers) have good storage facilities?

Now, in India, most of these are non-existent. We don't have that kind of thinking around how to facilitate agriculture and thinking around how we can make agriculture a promising sector, because it's always seen as a sort of fallback.

So, I think far more focus on linking the agricultural sector with markets and identifying niche products is required, as there has largely been a focus, partially because of the PDS, on rice or wheat, but we need to diversify beyond that, not just for domestic markets, but for export markets, which is something that we have failed to do.

Diversification is one big policy that is required. However, there is also a need for a policy about building transportation infrastructure to link farmers to markets and storage and processing infrastructure, which has not seen enough investment.

Editor: I have a question that will sort of bring all of this together. As young researchers, could you guide us on how we should use the prevalent data and how we should account for these limitations in the persisting data?

Prof. Rosa Abraham*:* I think it's really important as young researchers to really understand the data. And by understanding, I mean not just knowing that this is data about

X number of workers, but rather, there are two kinds of understanding.

One is knowing what the sample is, how representative it is, and how they choose those parameters. So for PLFX, there's enough documentation that one should read. Which talks about how this is a sample which is designed to be representative at the state level. Then you need to be cautious as a researcher that you don't make statements about a district or about other kinds of substates.

So, I used to do data extraction. It was not given in your standard usable format. That whole act of cleaning it up, getting the summary statistics, etc were all essential part of understanding the data. That's when you really figure out that, for example, a certain variable has a weird coating structure and so on. That's just one very fundamental understanding of the data.

The other thing is, related to a lot of the data that I've been working on and things that I'm interested in, is this idea of knowing who is collecting the data, how it's being collected, who is being asked and what is being asked.

So, we find that a lot of the Labour Force Surveys, when you're asking men, they tend to under-report women's employment, and when you ask women themselves, often when you just ask the one simple question, they will say that they're not working. However, if you then ask two or three probing questions, then you realise, well, they actually are employed, they're doing things that are, in that sense, economic activities. So oftentimes, our labour force surveys are just not designed to conduct that level of detailed questioning.

There's a very interesting study by Sonalde Desai and others at NCAER Stanford, which finds that a lot of our labour force service will ask, “Did you work in the last week or last year?” And the women will say that they didn't.

What the NCAER study did differently was that they asked about the sources of income in this household, e.g. their income comes from source A, source B, or source C. And then they asked, well, who contributes to this income. That's when you find out, say, there's an income from the sale of milk. And then you ask, well, who contributes? Then the woman who takes the cow out for grazing or maintains that livestock gets recorded as being the person responsible for that source of income.

Whereas, if they had asked in a direct manner, ‘Did you work last week or last year?’ Her name would not have gotten recorded. So I find that this other way of asking survey questions also really brings up employment rates.

I think when you're working with the data, it's really important to know what these questions were and who you are likely to be missing out on as a result.

The other thing which I think we sometimes miss out on is that I get questions on how I only speak about men and women, why do I not talk about the third gender, transgenders? It's not to say that they are not an important demographic to study, but our PLFS (Periodic Labour Force Survey) is just not equipped to answer any questions about transgender individuals.

The average number of transgenders in a survey is about 40 to 50 people. One can't do a summary statistic of what transgenders do and what their demographic profile is using a PLFS.

It's not to say that the question is not important, but your data set is not the right one to answer that question. So I think you also need to ask whether the question that I'm asking is suitable for this data set, or rather, is a data set suitable for the question that I'm asking. That comes back again to the sample question.

I will also suggest getting your hands dirty with the data, and really, you need to spend a lot of time just understanding the small nuances of the data, and it pays off.

In Conversation with ***Professor Jayan Jose Thomas***

Jayan Jose Thomas is a Professor of Economics at the Indian Institute of Technology (IIT) Delhi, where he has been employed since 2010. Jayan had also served as a Member of the State Planning Board, Government of Kerala, from 2016 to 2021. Through his research, Jayan has tried to address development problems, particularly those related to labour and industrialisation, from a macroeconomic perspective. Jayan's research papers have appeared in reputed journals, including the *World Development, Development and Change*, and *Economic and Political Weekly*. Jayan regularly contributes to media outlets, notably *The Hindu*, and his research has been widely cited, including in international media. He has worked on research projects for the International Labour Organisation (ILO) and the United Nations Population Fund (UNFPA). His current research spans four interrelated areas: India's youth, focusing on education, aspirations, and jobs; industrial policies and development in Asia and the world; inter-state migration of workers in India; and macroeconomic policies for wage-led growth.

Editor: Your research points to two key issues: data gaps that likely obscure the true scale of informality, and a failure to create secure non-agricultural jobs. Based on this, what would you identify as the single biggest structural barrier beyond measurement issues that prevents the generation of secure employment for India's vast informal and young workforce?

Prof. Thomas: As we talk about structural change, there was a lot of discussion about this topic starting from the early 1950s. India was colonised, and immediately after gaining independence in 1947, we began industrialisation. Many other Third World countries also followed suit, and all of them were state-led industrialisations.

There was one common feature to many of these countries and the industrialisation paths they pursued. These poor countries had very large agricultural sectors, with significant – in some cases, as much as 90% – proportions of their workforce in agriculture. One of the big structural constraints at that time was the need to raise the savings rate, to find the resources for new investment. To build new industries, you need capital, so where would the funds come from?

A famous economist you probably have heard of, is Ragnar Nurkse. He argued that agriculture could generate savings from within the resources available to the domestic economy. Even now, India has a very large number of its workers attached to agriculture. How can agriculture provide these savings? Let's say there is significant underemployment in agriculture. For example, if you have a one-acre plot and six adult children in the household, and you probably need only two of them to take care of cultivation. The remaining four can shift out of agriculture. Nurkse argued that some of these family members, who were not really contributing to cultivation, could join the industry and still be fed by the 'productive' family members, as they had been earlier. This means all the output in the industry becomes a surplus or savings.

The difference with industry is that it is a sector with increasing returns to scale. When you increase your inputs, the output increases more than proportionally. So, the idea was to bring workers out of agriculture and into high-productivity economic activities, such as industry. This would increase overall output and, therefore, raise savings in the economy, since savings are effectively output minus consumption.

But in India, as you correctly said, much of this transfer has been uneven. India's state-led industrialisation was among the most ambitious in the Third World and achieved significant successes. The country invested in science and technology, in space and research, and in modern technologies; it built institutions such as the IITs and strengthened higher education.

At the same time, one of the major structural constraints was high inequality, especially in rural areas. There was a high degree of landlessness, and land was concentrated in the hands of a few. For this transition from agriculture to industry to succeed, agricultural output needed to grow quickly enough, and simultaneously with industrial growth. But agrarian inequalities acted as a major hindrance. The inequalities hindered agricultural productivity growth. The landowners were often not interested in technological innovations. A large part of the country required irrigation, but there was insufficient public investment to expand it.

A similar issue existed in the industry. While India had large, technologically modern industries on one side, and very traditional industries on the other, it lacked a strong middle layer of industries. Development was not balanced. There were also severe problems on the demand side. Industries need demand, so if rural incomes are not rising, where will demand come from?

These were the major challenges.

Today, agriculture still accounts for around 42% of the workforce. India has a large modern sector, the IT sector, and other industries. However, in terms of labour absorption, these sectors have limited capacity. Much of the labour absorption occurs in the informal sector, particularly in construction. The informal sector is characterized by low incomes, low-value addition, and is not carried out in a very modern way. The same applies to services, informal trade, and so on. But these are the very sectors that have generated most employment.

This is the big challenge that we are facing today.

Editor: You have written about agrarian distress and seasonal out-migration. Could seasonal migration be reframed as a livelihood strategy rather than only as distress? And how should policy differentiate between both of these cases?

Prof. Thomas*:* Well, part of this I have studied using secondary data, national sample surveys on employment and the periodic labour force surveys. But I have also done research with my colleagues on migrant workers. We visited some cities with large concentrations of migrant workers and major industries. Between 2020 and 2024, we conducted a number of surveys in Ludhiana, Coimbatore, and two places in Kerala: Kochi and Kozhikode.

In each of these cities, you see migrant workers who have travelled long distances from their villages. These include workers from Bihar, Uttar Pradesh, West Bengal, and Assam who migrate to Tamil Nadu or Kerala. Earlier, workers from Bihar and Uttar Pradesh used to go to Punjab and Delhi, but now many migrate over longer distances.

Now, is migration a strategy for livelihoods or is it distress-driven? I would say it is clearly a livelihood-seeking strategy. But if you look at the profile of these workers, who are they? A large proportion belongs to socially disadvantaged groups. They have very little education. Even though many of them are young, their schooling is often not more than the fifth class. They also belong to households that do not own land. Most importantly, they come from villages without a real social security system. In fact, we do not have a functioning social security system in most parts of India. These factors push workers out of their places of origin.

But we should also see that demographic changes in India are happening in such a way that some regions, especially the northern and eastern states, have younger populations. These regions are more labour surplus. Part of the reason is the slower decline in fertility in these regions, along with other social factors. But in some other parts of the country, demographic change is happening much faster, and we have an ageing population, for example, in Kerala and Tamil Nadu. In some southern States, there are labour shortages, especially for physically demanding jobs. This is also a reason for migration.

So, part of migration is driven by the disadvantages workers face because of their social backgrounds, low levels of education, lack of land ownership, and the absence of an adequate social security system. The other part is the mismatch between labour supply and demand across different regions in India.

I would also add that the trends in migration we just discussed have implications for industrial policy. One of the workers we interviewed in Ludhiana was from eastern Uttar Pradesh. This was in 2022, and he had recently returned to Ludhiana after spending several months with his family in the village, following the COVID-19 pandemic. He remarked that there is a lot of land in Uttar Pradesh, so why cannot some of these industries move there? Migration is not easy. Workers typically leave their families, or at least some family members, behind. Sometimes one or two members travel with the worker, but a large part of the family stays back. So, relocation of industries would reduce the burden that migration imposes on workers and their families.

I guess that is clearly the way forward. The garment industry, for instance, became concentrated in a few pockets, such as Ludhiana and Tirupur, because of the advantages these locations enjoyed when those industries began. But now it is time to rethink this regional pattern of industrial

growth. It is important that industries, especially labour-intensive industries, move to regions with greater labour availability.
Clearly, social policies are crucial. What the workers lack in terms of social security should be addressed, and workers should not be exploited simply because they are migrant workers coming from a different region or state. One way to avoid that is to institute social security measures at both the source and destination regions. Workers should continue to receive their ration and their PDS, regardless of whether they are in Uttar Pradesh or in Punjab. They should continue to have access to all their social security programs. In that way, the worker will have greater negotiating power, and there will be no room for exploitation. If there are differences in labour supply and demand, it is time to consider a new industrial geography for the country.

Editor: Kerala is a top performer in revenue mobilization efforts and also the biggest spender of the government money on a per capita basis. Half of its government employees are women, compared to one-sixth of women government employees at the national level. How has this focus on building human capital and public sector employment shaped the nature of “labour on the move” from Kerala?

Prof. Thomas: You have probably learned about Amartya Sen and his idea of development as freedom. He started writing about the social sector achievements of China, Sri Lanka, Jamaica, and Kerala in the 1980s. One common feature of all these regions at that time was their relatively low incomes. But despite their low incomes, these regions managed to build important capabilities for their residents, such as education, health, lower inequality, higher life expectancy, and, in Kerala’s case, greater political participation, wider newspaper reach, and better gender ratios compared to the rest of the world.

The fact that all of this was achieved by a low-income region gives us hope. Amartya Sen’s argument is that we do not have to be very rich to achieve many of the freedoms that we value in our lives. We value getting three meals a day. We value education. We value health care and fresh air. Many of these capabilities can be achieved with relatively low income. High income growth is neither necessary nor sufficient to achieve many of these freedoms. In many ways, it is a revolutionary idea in the field of Economics.

Kerala is important because until the late 1980s, its per capita income was below the Indian average. Now, of course, it is much above the Indian average and is a relatively rich Indian state. But when it made impressive gains across many social-sector indicators during the 1960s, 1970s, and early 1980s, Kerala was one of the relatively poor states in India.

How did Kerala achieve this? These achievements were part of what Amartya Sen describes as public action. Public action includes initiatives from the government. For example, in the early 1960s, around 50 percent of Kerala's state budget was spent directly on health and education. This was much higher than other Indian states. But public action also includes healthy interventions by the media, opposition parties, and the judiciary.

Sen often refers to Maharashtra's experience during the 1973 food shortage. Maharashtra did not have enough food, and there was a real crisis, but famine was avoided. Famines, according to Amartya Sen, are not caused by food shortages. Famines occur when people lose the ability to purchase food. And the ability to purchase food can be restored by providing jobs or with income transfers. Maharashtra avoided famine because the state launched a public works program that later became a model for the National Rural Employment Scheme. All these measures that helped avoid famine happened in Maharashtra not only because the government acted, but also because the media reported the food shortage, and the opposition parties raised the issue. A similar pattern of public action has happened in Kerala.

The way forward for any region begins with ensuring the basic freedoms for its residents. But once that happens, a second challenge emerges. Kerala moved ahead of other Indian states in education and health. This created a highly skilled workforce in the state. The challenge, then, has become finding jobs for them. When skills and aspirations rise, young people will seek jobs that match their abilities and aspirations. In Kerala, there is scope for the growth of knowledge- or skill-intensive jobs. But if we want to hugely expand jobs in biotechnology or the advanced IT sector, the government must plan for it. That is why industrial policy becomes important.

Editor: You have documented a shift in labour from agriculture to construction, beginning in the 2004-2005 period. This shift now seems to have slowed, with data suggesting a return to farm work, especially after the pandemic. Does this regression signal a failure of the structural transformation process itself, or are our needs different?

Prof. Thomas: We need to look at our investment data. You would have learnt this in your macroeconomics course that aggregate demand consists of consumption, investment, government expenditure, and exports. Among these, investment, whether from the public or private sector, is a very important component. It has strong multiplier effects and plays a central role in driving growth.

If we examine the numbers, we see that India’s investment-to-GDP ratio increased sharply during the 2000s, from the early years of the decade to around 2008, when it reached nearly 40 per cent of GDP. That was comparable to China’s investment rate at the time. But after the global financial crisis, from about 2008 to 2011, investment growth stagnated. After 2011, we see a clear and more persistent decline. Today, investment in India is roughly thirty-one or thirty-two per cent of GDP, far below the peak we saw in the mid-2000s.

If we look at China, we see a very different pattern. After the financial crisis, China increased its investment, largely through its public sector or state-owned enterprises. China realised that export demand would weaken after the crisis. When external demand slows, you need to create domestic demand, and one of the most effective ways to do that is through investment. This includes investment in infrastructure, in new manufacturing capacity, and in new technologies such as renewable energy, artificial intelligence, and electric mobility.

China did this on a large scale, and that created growth not only in construction but also in manufacturing and services.

In India, the construction slowdown we see is really a symptom of a larger issue: the slowdown in investment. And we should also remember that construction is not the sector that will absorb India's labour reserves in a sustained and long-term manner. Ideally, manufacturing and high-end services should be the main drivers of labour absorption.

Construction work in India is carried out in ways that are still very traditional and pays low wages to workers. If you visit a construction site in India, you may see workers working without proper safety equipment or formal workplace standards. Most construction workers are migrant workers, and this creates conditions of precarity. Thus, this shift of workers from agriculture to construction is essentially workers moving from one form of precarious employment to another, rather than a genuine structural improvement in terms of security or welfare.

Editor: Sir, in your 2020 EPW article [Labour Market Changes in India, 2005-18: Missing the Demographic Window of Opportunity?], you argued that well-directed industrial policies are crucial for creating decent manufacturing jobs. How should industrial policy take form to take advantage of this Demographic Window of Opportunity?

Prof. Thomas: We are now, in India, at a stage of demographic transition. India accounts for around 20% of the worldwide population of young people aged 15-29 years. One positive change that has occurred post-2000 is the increase in enrollment rates. We now have more than 90% of the school-age population enrolled, and the enrolment gap between girls and boys has decreased significantly. Even in the higher age group, 15-29 years, we now have around 30% of the entire population in that age group attending a school or a college, with very little difference between girls and boys. This is a very big positive achievement. And if we look at the actual numbers, there are around 120 million young Indians aged 15-29 years in high schools or colleges. That is as large as Japan's population. When we discuss industrial policy, I would say we shouldn't be thinking about industries from the 1980s or even the 1990s, which helped China grow and absorb labour in very large numbers. These were, at least initially, labour-intensive industries, and China's big advantage then was its low wages.

India has a very large population of young educated workers. What they will be seeking are jobs that use their skills and talents. This means we now must build industries that are very different from the previous generation industries of China. The industries of the 2020s must be very different from those of the 1980s and 1990s; we should be planning the growth of industries like semiconductors, biotech, and so on. Are we able to build those industries? That, I think, is the big challenge

The demographic 'window of opportunity' before our country is limited. By 2040, we will not be a country of the young but of the relatively old. In the next 15-20 years, we must create new jobs. We must also remember that India faces very high economic pressures, because on the one hand, China has already built very large industrial capabilities. On the other hand, the US, which used to be a large and long-standing market for exporters from countries like India, is erecting new trade barriers. These challenges imply that we must plan an altogether new industrial structure. The growth also must be, to a greater extent, domestic-market oriented.

A growth that is domestic-market oriented means that low wages will no longer be sustainable, for if your domestic demand has to increase, your wages must rise too. So, we need rising, instead of stagnating wages, while making use of the capabilities, skills and knowledge that the labour force has. Our industrial policy shouldn't be based on the belief that because we have very large labour reserves, India's advantages are only in labour-intensive industries.

If a country's manufacturing is limited to assembly or low value-adding operations alone, its grip over the global production network will be rather weak. Today, in the case of many products – say, the computers we use -- manufacturing is spread out globally. The parts of a computer are produced from many corners of the world. Taiwan produces the semiconductors, the components are assembled in China or Vietnam, and so on. The advantage arising from cheap labour will not be a lasting one in any industry. This is because the industry can easily shift to a cheaper location, from India to Laos or some of the African countries, where wages may be cheaper.

A very good example is the case of the garment industry. Despite being a highly labour-intensive industry, India's share in the global exports of garments has remained stagnant at less than 4%, whereas China has a share of approximately 35%. Even in labour-intensive industries we need innovation and modernisation, and it is insufficient to depend on low wages alone.

China's ascent in recent years is clearly linked to the fact that it has been building up its technological capabilities over the last few years.

Editor: What issues have you commonly seen while analysing and interpreting employment data?

Prof. Thomas: One good thing that has happened in recent years is that there is much more discussion in the media and in policy circles about the employment data. However, I believe that employment data is still not fully understood in many of these public discussions.

Let us consider unemployment, for instance. Amartya Sen had once remarked that India's low unemployment rates of around 2% could put developed countries to shame. The low unemployment rate mainly arises due to the way employment and unemployment are measured in India. What is the unemployment rate? It is the unemployed as a share of the labour force. Who all are part of the labour force? Those who are working and those who are seeking jobs. But there is a large part of the working-age population in India who report that they are outside the labour force, especially women.

Many women – who are in the working age years and a substantial proportion of them educated – report their status as attending domestic duties in their own homes. The real reason could be that they are discouraged due to the absence of suitable job opportunities. In a way, they are ‘unemployed’, but the unemployment statistics do not reflect their lack of jobs. The unemployment rates in India doesn't give a true indication of the extent of unemployment in the country.

With respect to statistics, one good thing that has happened is that we now have annual data on employment. Earlier, the national sample surveys on employment used to be held every five years, but now we have the PLFS or the periodic labour force surveys held annually. But it is not just about data availability. Young people like you should be able to analyze this data and to interpret it well.

In recent years, there's been much discussion about women's participation in the labour force in India, which had been declining for a long time and began increasing from around 2020-2021. But has there been a real turnaround in job opportunities for women? No, because a large part of the increase in women’s employment comes from women reporting their status as self-employed, as unpaid helpers in agriculture. While recording data in the employment surveys, there is a category, activity status 93, which is for persons “attending domestic duties and also engaged in activities such as collection of vegetables or tailoring for household use”. If a person’s activity status is reported as 93, she is categorized as being out of the labour force. But then there is another category, activity status 21, for people working as unpaid helpers in agriculture and household enterprises, who are categorised as workers. It is likely that a large number of women whose activity status was categorized under 93 in the earlier surveys are now classified under 21. Earlier, they were out of the labour force; now they are considered workers, although nothing much has changed in terms of their employment status or agency within the household.

In any case, it is very clear that women's work in the economy is highly underappreciated and under-reported. For instance, in rural Haryana, women are active participants in household cattle rearing and milk production. Nevertheless, statistics show a low proportion of women in the workforce in Haryana. What could be the reason?

Remember that the PLFS is a household survey of employment. It may be the perception of the person in the household who answers the survey – the husband, male family members, or the woman herself – that female members are not contributing to livestock rearing or agriculture, even though they do most of the work. Thus, as economists, we must be mindful of data measurement and interpretation problems.

Editor: Given your focus on studying trends in manufacturing, do you find any inconsistencies in job estimates calculated from PLFS compared to those of the Annual Survey of Industries (ASI)?

Prof. Thomas: In the ASI, data is collected from firms that voluntarily provide the information. Whereas PLFS or NSS are household surveys where you go up to a household member and ask, “Are you employed in an industry?” The ASI only covers factories, and factories are those which have employed 10 workers or more with electricity or 20 workers without. So, we find that at least 70% of our manufacturing workers are outside the factory sector. They work in small, unregistered manufacturing enterprises with less than 10 workers in each.

According to the PLFS data, there has been a stagnation in manufacturing employment, especially between 2011 and 2020, whereas the ASI shows an increase in factory employment during this period. So, one possibility is that the stagnation in employment growth is more marked in the unregistered sector.

***Editor*:** In the East Asian development model, bureaucracies have played a very important role. Do you think that in India, the role played by the government and the bureaucracy in industrial development is insufficient, which leads to a trickle-down effect?

Prof. Thomas: One of the important scholars on East Asian development is Professor Alice Amsden, who was a professor at MIT. She studied the South Korean and Taiwanese industrialization experiences. She argued that these industrializations succeeded by getting 'relative prices wrong'.

We study in economics that the way to succeed in industry is by getting 'relative prices right'. That is, a labour surplus country should focus mainly only on growth in labour-intensive industries. And to be successful in labour-intensive industries, this country must get its relative prices right, which means that the relative price of labour is low, or wages remain stagnant. At the same time, the cost of capital or interest rate should remain relatively high, reflecting the scarcity of capital in that country.

But the East Asian countries proceeded in the opposite direction. On one hand, they provided subsidies to industries and interest rates were made lower, or capital was made cheaper, even though these were labour surplus and capital-scarce countries at the time they started industrializations. At the same time, wages rose rapidly in these countries, from low initial levels, and living conditions of the working classes improved.

We must remember that in East Asia, much of the industrial growth was led by the private sector, but the government supported industrialization by acting as a planner and providing the private sector with subsidies and incentives. At the same time, the government could instill discipline in the private sector, making sure that they meet the growth targets. Thus, while on the one side, the state provided the carrot—the subsidies, there was also the stick—in the form of the government disciplining the market. This meant that the private sector firms, which received state support, acted on their promises and met the production and export targets. The industrial structures of these countries diversified, with South Korean firms excelling in steel, ships, electronics, and so on. But all of that was possible because there was a strong economic bureaucracy that pushed the industrialization efforts. There is, in fact, a study by Chalmers Johnson on how MITI, which is the Ministry of International Trade and Industry in Japan, aided that country's economic growth.

India needs to have, clearly, a much bigger bureaucracy. When a country's population is growing, you need a bigger governmental machinery for planning and effective implementation of government programmes. The size of our government workforce, or the number of persons employed in public administration and defense, in India was around 10 million in 1993-94, and this number has not increased after that. We need many more civil servants in the country. We need many more doctors, teachers, and other professionals. There are only 0.7 doctors per 1000 population in India compared to 8 doctors per 1000 population in Cuba. Even if India tries to achieve the Chinese level of around 2 doctors per 1000 population, the country will need a million doctors more. A huge expansion in the numbers of skilled professionals in various areas is urgently needed for India.

Book Reviews

The Face You Were Afraid To See

(ISBN: 9780143068273)

&

Development with dignity by Amit Bhaduri

(ISBN: 978-8123745961)

***Reviewed by* Arohi Kumari**

Background

The dominant view in India after the LPG reforms has been to see the pre-reforms period as "dark economic times" and post-reforms as "golden days". The euphoria for post-reforms figures flows from a very cynical perspective. Such growth figures are celebrated because they are almost always propagated as "better" in relation to something: pre-reform days or other countries' growth. This euphoria is patronised by the government, media, and intellectuals alike. This misguided bonhomie hides the misery of millions of people who can not even meet their basic needs. This failure is not a by-product of an otherwise successful strategy; this is the very outcome of such an approach to development. India needs to introspect on its market-oriented developmental approach when millions of people are excluded from this development process. Bhaduri has precisely tried to do this: to make India reflect on its development approach. The book "Development with Dignity" was written in the year 2005 as a cautionary tale for Indian people to understand the ghastly outcomes of the market-based development approach which is often disguised as a mere "normal-failures" of the market system (When there was complete unanimity of mind and soul in support of the approach). The GFC of 2008 provided a clear reminder of this. Bhaduri wrote "The Face You Were Afraid To See" in the backdrop of this, when the flaw of market-based developmental institutions started to become clear. The books are significant for their contribution to the "developmental debate", especially given the context when there was monolithic faith in market-based development. Probably, there could have been no better time to revisit this book now, when countries are revisiting their developmental approaches, both the global north and south and the relevance of earlier developmental structures is being revisited across the world. The author has tried to present an objective assessment and has criticised the so-called “right” and “left” equally.

The Face You Were Afraid To See

The current world scenario is compelling for revisiting the idea of development that India has been pursuing. India, though started as a proud innovator, charting its own path of development, has thoroughly shifted to the “ common queue”. It is now a market-based economy with complete intellectual and institutional support for the so-called “Washington Consensus”. The negative aspects of such a strategy started to become clear much earlier; it is only now too visible and has more proponents than before. Bhaduri, in ‘The Face You Were Afraid to See’, calls for an alternative path of development for India. Bhaduri criticises the TINA (there is no alternative) syndrome of intellectuals and policymakers who have taken the free-market path to development as gospel truth. The political convergence in this respect is remarkable. Political parties of all colours have come to the understanding that market-based development is the only feasible strategy. Bhaduri argues that the price of this development has been paid by the most disadvantaged sections of this country, who have been the perennial losers of such a strategy. The dissatisfaction among the poor is clear. The U-turn of all political parties near elections towards state-provided provisions is a clear manifestation of this. The coalition government that introduced the reforms lost the next general elections. NDA lost in 2004, which had ushered in new neo-liberal reforms during its tenure. State elections are no exception to this pattern. Until such an economic disaster is accounted for by identity politics, the outcome will remain the same. This argument is particularly important given that we have seen a consistent switch towards politics of identity in the last decade, rather than a discussion on genuine matters of economic and social development. Bhaduri says that the power wielded by large corporations is daunting. Bhaduri cites an example when, in 2004, UPA came back to power, the stock market started to fall dramatically; it was only when a team of neo-liberal intellectuals were named as the economic managers that the market became stable. This shows how vulnerable the state has become to the whims of corporations often controlled by foreign powers due to its neo-liberalism. True development is impossible in such a scenario. Bhaduri calls neo-liberalism full of “vested interests”. This strategy is propagated by institutions like the IMF and the World Bank, not because they genuinely believe in it, but because it serves their interests.

Countries like Argentina and others in Latin America have only got worse after following this market-based development approach. The institutions which compelled them to adopt this strategy took no accountability for its failures. Such news is quietly disguised from public view. The state machinery has become a tool of corporate development. In the name of development, corporations are given large plots of land at throwaway prices. In many cases, the people displaced (Mostly adivasis and dalits) are not even given compensation. Adivasis make up 8 per cent of the total population, but are 40 per cent of the displaced population. The big figures of growth are misleading. It hides underneath a structure which is essentially anti-poor. 7-8 per cent growth of GDP is accompanied by less than 1 per cent growth of employment.

The widening of the unorganised sector is concerning. In such a sector, there is hardly any social insurance, the working hours are long, etc. Output is rising, but without a corresponding rise in employment. This is done by increasing productivity. Most of this rise in productivity comes from the informal sector simply because the formal private sector is too small to account for the entire gain in productivity. The miserable employment conditions in the informal sector are no secret. Bhaduri argues that in an economy where employment levels are low, the demand for goods and services comes from relatively richer sections of society. The society produces luxury goods. Such goods can not be produced by unskilled and semi-skilled workers. Thus, though there is an increase in output, major sections of society are excluded from this. Bhaduri calls it predatory growth. There is double exclusion for the poor as consumers as well as producers. Low employment levels combined with a continuous cut in social spending as part of the "Washington Consensus" package have created extreme destitution in the country. Bhaduri has particularly chastised the FRBM (Fiscal Responsibility and Budget Management Act) for binding the hands of the government in spending. Bhaduri criticises the emphasis on the external market, emanating from globalisation. Competition in the global market requires cost competitiveness. Developing countries try to secure this by cutting labour costs. This triggers "a race to the bottom". The surplus in a globalised setting is not from increasing output but from cutting labour costs, and the consequent surplus is accrued in the form of profits. Bhaduri has termed such an anti-poor growth cause of the Maoist movement of the time (still active in some pockets of India) and the terrible performance of India in terms of poverty, inequality and Human Development Index. The current situation (15 years from the date of the publication of this work) is not much different: India ranked 102nd out of 123 countries in the hunger index in

2025. This puts India in the “serious” category. 32.9% of children are stunted, child wasting stands at 18.7% (NFHS 2019). This is worse than many sub-Saharan African countries. Bhaduri calls the obsession to follow China’s path imprudent, given that the political conditions in India are entirely different. India needs to chart its own path of development. Bhaduri goes on to give a blueprint of such an "indigenous" development strategy. Bhaduri calls for an emphasis on expanding the domestic market. He says that “we must learn to rely far more on the internal rather than on the external market. The biggest driving force of the internal market is the purchasing power of ordinary people derived from employment growth. Bhaduri argues that economic growth must be seen as the outcome of employment growth, not the other way round.

Development With Dignity

Although “Development with Dignity" was written much earlier than “The Face You Were Afraid To See", after a read of two, ex-ante, it feels like it should come after “The Face You Were Afraid To See”.

In "Development with Dignity”, Bhaduri claims that the neo-liberal development approach is highly exclusionary. Bhaduri argues that Indian political democracy is incomplete without economic democracy. Only when political democracy is accompanied by economic democracy is true development possible. Bhaduri argues that political democracy is based on one adult, one vote, whereas the market is based on more income, more votes. This makes the market-based approach essentially contradictory to that of political democracy. Bhaduri calls for participatory development. Bhaduri criticises both the market-based approach and the socialist approach, where the state acts as a patron. Bhaduri calls for a development strategy where the poor are not just recipients but also active participants in it. Bhaduri says “the essence of a participatory democratic process in development lies in our ability to define an economic role for the poorest and the most disadvantaged, both as a producer and as a consumer”. Such a strategy will also have positive gains for political democracy. Employment is indispensable for development with dignity. Bhaduri calls for a universally guaranteed scheme of employment at minimum wage. Bhaduri argues that the scheme has a double advantage: through self-selection, and provision of an insurance cover reaching the poor without the need for supervision, would reduce the administrative costs. This scheme should be implemented at a decentralised level. It should be the local government that supervises the finances and other functions. It is easier to ask for accountability at the local level, even after accounting for its elite capture. Bhaduri argues that such a scheme is financially feasible. The finance should simply come from printing money by creating liabilities with the Reserve Bank of India. By this arrangement, the government borrows from the Reserve Bank, and this liability of the government becomes an asset of the same value in the books of the Reserve Bank, which now creates its own liabilities in the form of currency notes. This will require some legal changes. In the meantime, Bhaduri notes that the government can borrow money from its own public. Bhaduri sees no merit in arguments of debt-explosion if debt is used for productive purposes because the cost for debt can be easily borne through return on such productive investments.

Concluding Remarks

At present, everyone has come to realise that the neo-liberal approach to development has some high costs. Such costs are ample enough to reflect on this approach. There is some serious merit in Bhaduri's argument for charting one's own path to development and having a universal employment scheme. There is already a call in some quarters to extend the NREGA to urban areas. Given its demographic and social structure, it is simply not sustainable for India to continue with "jobless growth". It will have serious negative economic and social repercussions for India. But how much of Bhaduri's suggestion on securing finance for such a scheme is feasible is a big question. In charting an alternative development path, Bhaduri has ignored the success strategy of East Asian economies, whose growth came from an externally looking policy (If not market-based). Bhaduri also makes an assumption that India has a lot of excess capacity, which can be used for meeting the increased demand due to the guaranteed employment scheme. This is a very bold assumption. Two things are there in this regard to be empirically seen is whether there is actually excess capacity, and if it can be immediately put to use. However, the works are pivotal in initiating intellectual discussions focused on creating an alternative that leads to true development.

The Precarious Migrant Worker: The Socialization of Precarity by Panos Theodoropoulos

(ISBN: 978-1-509-56500-9)

&

Precarious: The Lives of Migrant Workers by Marcello Di Cintio

(ISBN: 9781771966603)

Reviewed by **Annavajhula J C Bose, PhD**

Former (Economics) Professor, SRCC, DU

The Police Scotland know, and know well, what is migrant labour exploitation as a form of modern slavery even as it is a moot question if they really catch and punish the capitalists and their agents relentlessly indulging in it. It is also a moot question if such enlightened police offer genuine migrant help. And it is amusing to note how economists and the like traditional intellectuals have the luxury of theorizing about the absence or presence of capitalist exploitation. Anything can be logically stylized and mathematicized. Even reputed social historians can make us wonder if historiography reveals unbiased truth, with Dierdre McCloskey praising bourgeois goodness on the one hand and Jurgen Kocka reckoning with bourgeois meanness on the other, for example.

Organic intellectuals a la Antonio Gramsci or radical intellectuals such as Nicholas Vrousalis and Ben Burgis are very clear about labour exploitation as a fact even if Karl Marx's labour theory of value is discarded by Marx-friendly economists— "Slavery, serfdom, and the patriarchy are part of its lineage. Guest and sex workers, commercial surrogacy, precarious labour contracts, sweatshops, and markets in blood, vaccines, or human organs are contemporary manifestations of exploitation under capitalism." They also know how capitalist bosses rely on the workers' lack of knowledge of labour rights to behave with near impunity, i.e. get away with atrocities.

The two books on migrant work in the West, taken up for review here, are written by down-to-earth organic intellectuals. That means, the authors have played, by Gramsci's Marxism, the role of articulating the experiences of the migrant working people in relation to the challenge of changing the existing power structures of capitalism militating against their welfare at least in the sense of ILO's decent work agenda. Panos Theodoropoulos (PT, hereafter) had, in fact, worked as a Greek migrant worker in Bradford and Glasgow before completing his sociological PhD and becoming an academic at King's College, London. And Marcello Di Cintio (MC, hereafter) has excelled in writing via ethnographic research about a variety of real-world people—Palestinians, taxi drivers, sex workers—including, lately, migrant workers in Canada. Their experiential and empathetic communication of the human condition of the migrant workers is corroborated by some other research as well in Europe and North America, as mentioned in the references below. There should, therefore, be absolutely no confusion as to whether there is no exploitation and so 'the west is the best' as the late Jim Morrison of The Doors had sarcastically lamented in his poignant 'The End' lyrics.

There is a chronic problem unresolved, though—the ineffectiveness of anti-slavery efforts as LeBaron (2020) and LeBaron et al. (2021) have addressed. There are three components of global labour governance. First, there is transnational private regulation via Corporate Social Responsibility. Second, there is "state-based regulation, enforcement and power relations which is supplanted and sabotaged by private governance domination. And thirdly, international conventions related to labour standards and corporate accountability, which are non-binding. All these have turned out to be much ado about nothing for worker dignity and welfare" (Bose, 2024). Relatedly, there is global as well as national failure of migration governance, which is similar to global and national failure in governing climate change.

Despite all this well-established backdrop, these two books must now be read on two counts. First and foremost, they help us overcome the drawback of Marxists in understanding why there has been the failure of class consciousness and popular rebellion to take hold in western industrialized countries. They also make us understand why there has been ineffective labour governance since long. Secondly, they serve the purpose of educating the public to transcend the malicious right-wing populist demagoguery and misgivings against the immigrants that is now rampant everywhere in the world. And related to this, it is high time the so-called non-migrants (citizens) of the host country or state within a country saw the immigrants and related to them as not "subhuman, nonhuman, non-anything" value-producers. They need to understand the push factors spurring migration such debt crises, austerity and lack of opportunity in the countries of migrant-origin (Eastern and

Southern Europe, for example, in Europe). Conflicts, disasters, mindless urbanization, generalized violence and human rights violations also lead to forced displacement and migration in terms of refugees and asylum seekers.

Nearly every migrant worker that MC spoke to had been done wrong. “Cheated. Threatened. Beaten.” Canada’s temporary foreign worker structure is indeed “a breeding ground for contemporary forms of slavery” with excessive working hours and unpaid overtime; employers forcing workers to perform dangerous jobs or tasks outside their contracts; workers being denied access to health care, language courses, and other social services; workers being physically abused, intimidated, and sexually harassed by employers; and workers in overcrowded and unsanitary living conditions that deprived them of privacy and dignity.

MC as a grandchild of an Italian immigrant worker in Canada and evolved over time to be a patriotic Canadian bemoans thus: “Our migrant labour system doesn’t just provide Canadians with a supply of invisible workers to pick our strawberries, glaze our doughnuts, and bathe our elderly. The system also lowers the bar for our perceived come-from-away virtue. All an employer needs to do to be deemed a good boss—and, by extension, a good Canadian—is to treat migrant workers with the most basic humanity. The system expects so little from us and tolerates so much. We don’t have to be good as long as we’re good enough. And yet still so many of us fail to meet even these low expectations. During my time with the workers, I’d seen them denied safety, wages, privacy, medical care, and justice. I heard stories of fraud and violence and rape that I couldn’t adequately verify but wholeheartedly believe. I lost track of the number of workers who wept as they recounted all they’d been through for meagre promises of minimum wages. I’d heard so many accounts of workers whose lives we left in shambles they started to feel banal. Unremarkable, even. But each untold story contributes to workers’ invisibility. I felt in awe of those who refused to be invisible. We should feel empathy, and responsibility, for what these workers experienced. We should also admire their agency. Their bravery. Their ferocity. We should admire too, those workers who lower their heads and silently endure. To persevere in the service of their loved ones is itself a form of resilience. These workers don’t complain. Not to their employers. Not to the authorities they don’t trust. Not to the media. Sometimes not even to their own families for fear of appearing ungrateful or unmotivated or causing them unnecessary worry. But secrecy—theirs, ours—not only fortifies the delusion of our own goodness. It abets the abusers. The program’s defenders are quick to point out that the money workers send home, the PR cards they eventually earn, or the family reunions they’re finally granted, balances out whatever hardships they face. Nearly all the workers I spoke to felt their trials were worth it. But this doesn't absolve migrant labour structures of their crimes. Just because workers might emerge grateful from the gauntlet we've constructed, doesn't mean the gauntlet should persist. Canada renders today's migrants as permanent outsiders. We don't invest in their lives beyond the cheap labour they provide because they are not one of us. We define them solely by their functionality, by the singular task we've hired them to do. We assume they define Canada in similarly shallow terms: not a place to live but a place to work. And yet the migrants I met all transcended their low-paying jobs. They had a larger purpose than grinding out a biweekly paycheque. They worked for their futures and for the reunification of their families. They formed communities. They stood up against injustices perpetrated against themselves and others. These are the values we consider to be Canadian. These are the same values my grandfather held. He brought more than just his labour to Canada. Migrant workers don't want much from Canada. I met no worker with unreasonable expectations. They want fair wages and fair treatment. Like all of us, they want a better life. By diminishing the dignity of our most precarious workers, we diminish our own."

PT arrived at two conclusions after a protracted period of "finding work, covertly, in Glasgow's warehouses, factories, and kitchens, and deeply observing how the drudgery of precarity sculpts workers' subjectivities, and also speaking with hundreds of migrant workers through formal and informal methods." First, "precarity is naturalised and comes to be perceived as a component of migrant worker identities. In the course of daily labour, as your body sweats and fatigues fighting for a job that is by no means guaranteed, with your ability to work being your sole vehicle for achieving some semblance of security, I saw that people converted their exploitation into a badge of self-worth: they came to identify the difficult conditions they faced not as something to be changed, but as something one must survive through, alone. Their self-worth, their identity as powerful, autonomous humans, became fused with their daily, solitary toil. This is the insidiousness of capitalism: it imprisons us precisely by relying on our desires to feel free. To put it succinctly and rather crudely, in the same way that men become socialised to oppress women – and each other, and their own selves – while feeling that we are somehow doing things 'the correct way', workers can become socialised to oppress and exploit themselves, while being proud of it." This is what is meant by socialization of precarity. Second, there is the absence of "social movements and unions from the environments in which most working class people live and work. It is precisely due to this absence that the socialisation of precarity can take root. This reality is ignored by most texts that are written by social movements and progressive academics.” They only write “eloquently about two million different theoretical topics and approaches, about so many things that we should do, think, or address, but they ignore the fact that social movements are entirely absent from most people’s lives.”

PT endeavours to convince people of five main things out of his book: first, immigrant labour is essential to the British economy, by design. Migrants, on zero-hours contracts, are not taking your job. Rather, the economy is structured in a way that inherently relies on migrants for specific jobs in specific sectors. Western economies are organized in a way that umbilically depends on the labour of precarious migrant workers. “It is not migrant workers who fill vacancies undesired by the locals; rather, the real reason typically underlying employers’ calls for migrants to help fill vacancies is that the demand for labour exceeds supply at the prevailing wages and employment conditions; second, poverty is not an aberration; it is a systemic component of capitalism. Our bosses understand, and value, the fact that our insecurity forces us to overexert ourselves – this anxiety directly supports their profits. Furthermore, our desires to feel free and empowered within the confines of the existing socioeconomic system may, paradoxically, fortify its foundations; thirdly, therefore, we need to seriously reconsider how we value certain behaviours, and why. How do we identify with our oppression, and how are we complicit in reproducing it? Non-status-secure migrant workers are directly dependent on their employer’s goodwill and might be reluctant to unionize or otherwise claim better conditions. Citizenship and migration restrictions could therefore be seen as a clear way of establishing a primary differentiation between ‘included’ and ’excluded’, but they afford the possibility of further qualifying this initial division and thereby distributing different ethnicities according to the requirements of labour markets and popular stereotypes. Simultaneously, the spectacle of detention and deportation, the ultimate expression of the State’s power over migrants, is constantly operative in the background and imbues every moment with fear of expulsion. This experience is increasingly beginning to apply to previously status-secure EU migrants; fourth, despite all the above, and despite the tendency to identify with components of precarity, workers nevertheless remain acutely critical of the existing social system. This awareness emerges through their experiential, material understanding of their lives as workers – in short, migrant workers understand that their exploitation is tied to their wider socioeconomic position. It is only in the absence of an empowering alternative narrative that they then may re-internalise this exploitation and convert it into a badge of self-worth; and fifthly, it is high time social movements became firmly embedded in the social body; only then can the socialisation of precarity begin to be dismantled, through the development of new cultures and narratives of collective value, care, solidarity, and resistance… these narratives must emanate from accessible, physical institutions in workers' communities, such as workers' centres."

The heart and soul of PT's book is its Chapter 3, titled "The Socialization of Precarity". This chapter alone is more than enough for PT to deserve his PhD. His explanation encapsulates the multiple complex mentalities, tendencies and behaviours that may emerge from migrant workers' prolonged interactions with the "daily realities of precarious occupations": "As their lives are constantly mediated by stress and insecurity, workers may become socialized in and through them. This socialization stems from multiple aspects that are inseparable features of precarious occupations, such as the lack of social bonds between workers, the agency arena (the constant, underlying competition with other precarious workers in the same workplace and across society), the 'good worker paradox' (the knowledge that, as one is attempting to as productive as possible in order to secure a job, one is also simultaneously at risk of reducing one's necessity to the employer), and the constant pressures to perform while knowing that labour security is far from guaranteed. In such precarious workplaces, precarity permeates almost all interactions, significantly disrupting the potential for the formation of substantial bonds of affinity, mutuality and trust. The stress associated with precarious occupations, where one can be fired without any protection, induces an ever-present sense of anxiety and competition amongst workers; their interdependence and coexistence, instead of being tools of solidarity, can instead be a source of added pressure which distances workers from each other. Cumulatively, these experiences can lead to a wider fortification of the conditions that breed precarity. More precisely, workers are liable to internalize the conditions they face and reconstitute them into proud aspects of their identity. This individual survivalism extends to further isolate workers. This entails important complications in relation to the issue of collective action and organization, since the shared experiences of exploitation that, under different conditions, would lead to workers identifying with one another, are now interpreted as individual difficulties. Even more problematically, they are difficulties which may become intimately connected to workers' ideas of themselves, as one's ability to overcome them by surviving through them is the measure of one's self-worth and dignity. One's identity as a worker is therefore attached to surviving conditions rather than changing them. In this context, while instances of resistance do occur with various degrees of tenacity and success, they mostly assume the form of individualized expressions of dissent rather than collective struggle. Occupational mobility emerges as the main technique that migrant workers, especially those from the EU with some relative security in their right to remain in the UK, prefer to search for a better job. However, escaping precarity, for most, remains an unfulfilled dream. Moreover, in their attempts to improve their working conditions through relying predominantly on their individual capacity to switch jobs, workers reinforce the underlying foundations of both the precarious structure and the socialization of precarity."

The Marxist-Leninists cut off from the working people's daily lives, badly need this understanding. So also impotent global organisations such as the ILO which can never see or bring about ubiquitous decent work. Work has become more precarious, insecure, dangerous and taxing across the Western world (Global North). Workers seek to survive through it alone. One can imagine work's rock bottom Darwinian race in the Global South. Mistreatment at work, the withholding of wages and holiday pay, and punitive dismissals remain the daily occurrences of the migrant labour's precarious lives. In the absence of trade unions and other class and community-based institutions, there are charities, NGOs and state-associated employment tribunals to offer 'rescue remedies' for the workers. But their "aims and methods largely complement the modern capitalist structure": "Their existence and operation mirror the wider proliferation of control throughout society, since they rely on the disempowerment of the groups they profess to help: at the same time that the welfare and penal systems place the individual in a series of conditional relationships relative to the State and fail to address the social, rather than individual, origins of poverty, these organisations come in to provide a form of relief that (1) does not challenge the foundations of the economic or social system, and (2) hinders the possibilities of autonomous community empowerment."

In light of all this, subjecting the migrant workers to fascistic hostility and violence is unwarranted and outright inhumane. The world has grown numb to the predicaments and trauma of the migrant workforce like it has to the harrowing stories of human suffering unfolding everyday in Gaza and Ukraine.

I am gratefully beholden to Panos Theodoropoulos and Marcello Di Cintio for writing these ennoblingly humane books. They surely give us the immersive experience of the migrants and their environment and eventually make us embrace our humanity. They were indeed "tough projects" to complete for their authors, though.

They are to be wholeheartedly welcomed now, as regrettably, "much of the literature that explores the lives of migrant workers partakes in excluding their voices". And these books and their authors resonate well with my own PhD fieldwork findings about Indian automobile labour three decades ago. I belong to researchers and their contributions such as these, and like them, I, despite belonging to the middle class, hope against hope for better times for the labouring poor.

References

Annavajhula J C Bose. 2024. On Labour Governance Failure: Critique and Way Forward. HRC Journal of Economics and Finance. 2 (2).

Fay Faraday. 2014. Profiting from the Precarious. Metcalf Foundation.

Genevieve LeBaron. 2020. Combatting Modern Slavery. Polity Press.

Genevieve LeBaron et al. 2021. Fighting Modern Slavery and Human Trafficking: History and Contemporary Policy. Cambridge University Press.

Gregory Feldman. 2016. We Are All Migrants: Political Action and the Ubiquitous Condition of Migrant-Hood. Stanford University Press.

Hannah Lewis et al. 2015. Hyper-precarious Lives. Progress in Human Geography. 39 (5).

Hannah Slaughter and Imogen Stone. 2025. Precarious Prospects. Resolution Foundation.

https://www.scotland.police.uk/what-s-happening/campaigns/2021/labour-exploitation/

https://polsci.institute/political-theory/role-of-intellectuals-in-gramsci-theory/

https://journals.sagepub.com/doi/10.1177/04866134231224043

https://journals.sagepub.com/doi/abs/10.1177/04866134221139011

https://thepolicy.us/capitalism-is-not-exploitative-9207b4e70ca4

https://fee.org/articles/reviewing-deirdre-mccloskeys-bourgeois-trilogy/

https://ecosocsrcc.com/bourgeois-goodness/

https://www.ghil.ac.uk/fileadmin/redaktion/dokumente/annual_lectures/AL_2017_Kocka.pdf

https://www.researchgate.net/publication/329955486_Problem_of_Truth_in_Historiography

https://www.hamptonthink.org/read/why-didnt-the-revolution-happen

https://jacobin.com/2022/06/karl-marx-labor-theory-of-value-ga-cohen-economics?mc_cid=92a0a571ca&mc_eid=5020b46f12

https://www.cfr.org/report/domesticating-giant-global-governance-migration

https://time.com/6344740/global-immigration-system-reform/

https://www.tandfonline.com/doi/full/10.1080/01419870.2018.1388424 https://iimad.org/publications/inter-state-migrant-workers-in-india-policy-for-a-decent-world-of-work/

https://www.scribd.com/document/235061971/Full-Thesis-in-PDF (Annavajhula J C Bose)

https://www.kcl.ac.uk/the-making-of-the-precarious-migrant-worker-an-interview-with-panos-theodoropoulos

Jürgen Kocka. 2016. Capitalism: A Short History. Princeton University Press.

Kornelia Anna Kerti. 2025. Beyond Precarious Migrant Work. Tilburg University.

Mojca Pajnik. 2011. Precarious Migrant Labour Across Europe. The Peace Institute. Institute for Contemporary Social and Political Studies.

Nicholas Vrousalis. 2023. Exploitation as Domination: Why Capitalism is Unjust. Oxford University Press.

Ruth Milkman. 2020. Immigrant Labour and the New Precariat. Polity Press.

Sabah Boufkhed et al. 2024. 'They Treat Us Like Machines'. BMJ Glob Health. 9.

Articles

The Inverse Dance: Understanding Gold's Rise Amid US Dollar Decline

By Divyanshi Rastogi

"Gold price is heating up again. Wells Fargo now forecasts gold prices to soar between $4500 and $4700 per ounce by the end of 2026."

– The Economic Times

Gold continues to attract substantial interest from both institutional investors and retail consumers, as prices have attained record levels throughout 2025. This price escalation has imposed notable affordability constraints on households, substantially reducing purchasing power for this conventional store of value compared to preceding periods. As stated in the reports by The Financial Express[2] and the Rupeezy[3], where Nifty gave a return of 2.46% and Sensex gave a return of 2.41% in the last one year, gold delivered approximately 61% over the past one year and 130% over the last five years, significantly outperforming benchmark stock market indices. This phenomenon raises substantive questions regarding the drivers of global gold demand and, as an extension, the stability of the current reserve currency, the US Dollar. It is a complex interplay of war, politics and global power, reflecting deep-seated anxieties regarding global monetary stability and geopolitical power shifts. Here we examine the gold rally through the lens of economic theories, frameworks and literature.

Over the past five years, China has significantly increased its gold purchases, reflecting a strategic effort to diversify reserves. The April 2025 report of LSEG confirms that the Chinese reserves have increased by 17% over the past five years. The Bank of Russia has also exhibited the underlying shift in its composition reflecting a change in reserve management strategies[9]. The RBI, in its October 2025 bulletin, states that India alone expanded its reserves to over 880 metric tonnes by September 2025, buying approximately 0.6 metric tonnes of gold[14][15]. This movement somewhere reflects a silent revolution driven by a lack of trust in the US dollar and the position of gold as a safe haven and strategic asset[9]. This rally is underpinned by major macroeconomic, geopolitical and microeconomic factors.

Macroeconomic Factors

The Bretton Woods System and the Post-Nixon Exchange Rate Regime

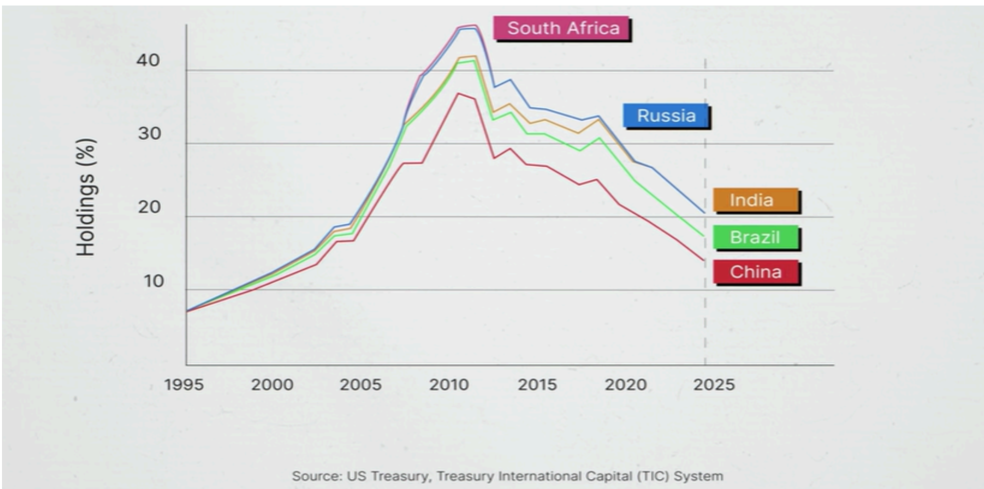
It is quite empirical that the prices of gold rise during war time. History gives ample proof of it. The explanation as to why it happens finds its roots in an agreement made in the year 1944 post World War II. United States emerging with its economy largely unscathed, having approximately 66% of the world's gold even post the war and dollar's role as primary reserve currency and its position as the default safe haven led it to becoming the world's leading economic power when much of Europe and Asia suffered devastating destruction to infrastructure and industry, resulting in severe economic challenges.

Under the Bretton Woods System, the US Dollar assumed the role of the dominant reserve currency. The dollar was convertible to gold at a rate of $35 per ounce. Later, termination of dollar-gold convertibility by Richard Nixon, known as the "Nixon Shock," in 1971 meant that the US dollar was no longer backed by gold. This eliminated the gold standard constraint on monetary expansion. However, as economic theory suggests that the removal of commodity-based constraints on currency issuance increases the probability of the currency to depreciate, while the US still remained the dominant force in world trade and debt, the price of gold rose sharply as investors and governments began to see gold as a safer store of value than the dollar. This principle derives from the Pure Theory of Fiat Money contrasted with Commodity Money theory developed by Knut Wicksell and later formalized in Milton Friedman's analyses of monetary regimes. Looking at the data of the last 9 years, there has been a 458% rise in the prices of gold. The period after this saw the emergence of gold as the 'ultimate safety net'.

Lack of trust in the US Dollar

As seen below in the chart by Treasury International Capital (TIC) System, economies like China, Russia, and India have been decreasing their US treasury holdings owing to multiple reasons including diversification against the US treasury and lack of trust in the dollar. This is evidenced by active buying of gold, tonnage growth of gold and changes in reserve composition. The post 2008 monetary expansion represents a significant driver of gold demand. The US had printed almost $2.1

trillion in the name of 'quantitative easing'. This asset purchase program aimed to lower long-term interest rates and stimulate the economy when traditional monetary policy became ineffective. Economic theory, particularly the quantity theory of money by Irving Fisher, predicts that sustained monetary expansion unmatched by corresponding productivity gains precipitates currency depreciation and inflation. Additionally, the 2022 freezing of Russian Central Bank assets of about $300 billion, including US controlling about $5 billion, as Russia invaded Ukraine represented a significant economic sanction aimed at reducing Russia's ability to finance its war efforts. While this was a major event, it followed a long history of the US using its financial dominance to influence international behaviour, proving its control over the world economy.



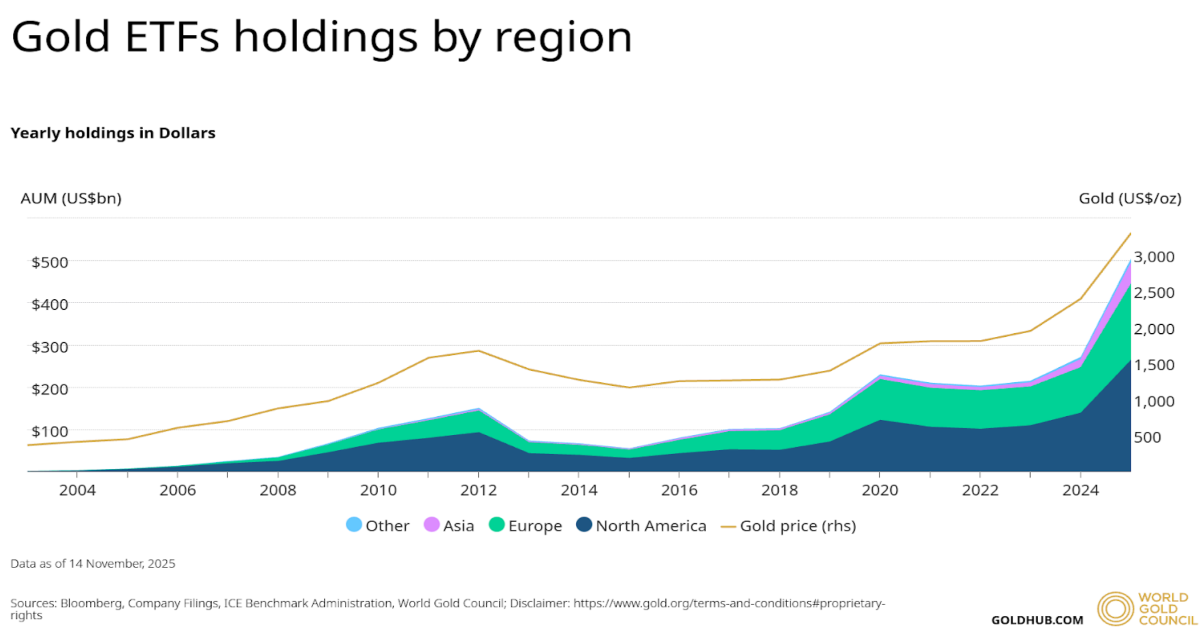
This caused an upheaval by demonstrating that the US and its allies have the power to freeze or block the assets of any nation if deemed necessary by them under the geopolitical circumstances. This brought about the kick start of the 'silent revolution' of the dollar losing its worth and gold reserves expanding across the globe. From a theoretical perspective, this shift reflects a rational response to heightened counterparty risk associated with concentrated reserves in assets subject to unilateral freezing or seizure. Data from 2022 to 2024 by the World Gold Council indicates that central banks have accumulated around 3200 tons of gold, making it the biggest buying spree in history, with China, India and Russia accounting for the majority of these acquisitions. In short, while the dollar still maintains a dominant and pragmatic role in global trade and finance, there is a significant, strategic effort by many nations to prepare for a future less reliant on the US dollar, understanding that this transition is not a short-term shift but a structural change spanning over several years.

However, the influence on gold isn't just due to the above macro factors but also due to micro factors. The following section analyses demand-side factors operating at the level of individual investors, institutional asset managers and national consumer cohorts.

Microeconomic Factors

Global citizens and investors

Apart from the geopolitical reasons, another reason for this gold rally is the behaviour of the population.



As per the above chart by the World Gold Council, an asset seemingly gaining popularity is the gold ETFs. ETF stands for Exchange Traded Funds and a gold ETF simply allows you to invest in gold without actually buying tangible gold. The transactions are done digitally but it needs to be backed by real gold of equivalent amount. Fund managers keep these transactions in check.

With all the geopolitical tensions, panic buying rose among the general public which led to an increase in the demand of digital gold. Fund managers buy more and more gold to match the demand which results in supply squeeze, ultimately resulting in a gold rally. The total value of ETFs in India in 2019 stood at Rs.5768 crores which rose to Rs.90136 crores in 2025, almost 15 times growth in 6 years. This is the result of both price appreciation and massive volume inflows from investors. Global physically backed gold ETFs recorded their largest monthly inflow in September 2025 totalling to $26 billion.

Exchange Rate Effects and Domestic Currency Depreciation

The Indian Rupee is depreciating while gold and dollar are appreciating. As the Indian Rupee weakened from Rs.61 to Rs. 89.64 per Dollar between 2013 and 2025, gold reasserted its status as the 'ultimate safety net,' with prices for 10 grams climbing from ₹29,600 to ₹1,22,170. This dual movement, domestic currency depreciation coupled with gold price appreciation, reflects the operation of relative purchasing power parity and creates incentives for domestic gold accumulation. From a microeconomic perspective, consumers operating under currency depreciation expectations exhibit heightened demand for non-monetary stores of value like gold since when consumers expect their currency to lose value, it poses them a guaranteed loss to hold cash. Hence, gold is not just expensive for them, but an asset serving as the ultimate safety net.

The Role of Cultural and Festive consumption

Retail gold demand in India exhibits pronounced seasonality driven by cultural and ceremonial occasions. Festivals like Diwali, Dhanteras, and wedding seasons traditionally drive significant gold buying, accounting for approximately 40-50% of annual gold consumption within 4-6 months window, which tends to push prices upward. This demand pattern reflects intertemporal consumption rather than purely speculative behaviour. This phenomenon aligns with behavioural finance literature on loss and portfolio rebalancing during uncertainty which highlights how loss aversion and the disposition effect cause investors to hold losing assets too long while prematurely selling winners. As the currency value erodes, investors and institutions are systematically shifting towards gold to mitigate the loss caused by depreciating currency. The 2022 freezing of Russian assets served as a major behavioural catalyst, highlighting the nature of US Treasuries. This accelerated the shift towards gold as a neutral asset that is independent of any government and cannot be frozen or cancelled. The World Gold Council data indicates a 12% YoY increase in Indian retail gold demand that reached 3,457 metric tons in 2024.

Alternative Asset Underperformance and the Demand for Precious Metal

A significant driver of gold accumulation in East Asian markets reflects underperformance of traditional equity and real estate classes. While, in the last 5 years, Nasdaq and Sensex gave returns of approximately 94% and 108% respectively, Shanghai Composite Index (SCI) gave only about 17% returns. Additionally, Chinese citizens have been witnessing a fall in real estate prices. Concurrently, 2024 saw a 4.5% contraction in Chinese real estate prices, which, by simple economics, has resulted in an increased supply of real estate and a drop in prices following years of regulatory intervention and mortgage market dysfunction. From portfolio theory, when primary investment assets yield returns below required rates of return, rational investors substitute towards alternative assets, including precious metals, here gold. The collapse in returns from both stock and real estate markets has left the Chinese investors with no choice other than to invest in gold.

Conclusion

The gradual decline of the US dollar can be attributed to a complex interplay of geopolitical tensions, macroeconomic challenges, and microeconomic shifts. Geopolitically, the growing scepticism toward the US Dollar has eroded confidence in the dollar as the world's sole reserve currency. Macroeconomic factors, including diminished trust in the dollar due to prolonged wars and economic crises have exerted downward pressure on the dollar’s value. At the microeconomic level, the growing popularity of exchange-traded funds (ETFs) as alternative investment vehicles, increasing demand for gold, driven by investors and central banks seeking a stable store of value amid currency depreciation and economic uncertainty, has bolstered gold prices significantly.

As the recent research of Goldhub, World Gold Council, states, the “total gold demand in 2025, including OTC, exceeded 5,000t for the first time”. This was accompanied by a record breaking run in the gold prices. It set 53 new all-time highs during the year 2025. The overall demand growth was driven by heightened investment activity where global gold ETF holdings grew 801t, the second strongest year on record, while bar and coin buying accelerated to reach a 12-year high. A consistent driver to it was noted to be safe haven and diversification motives along with price driven motivations. Central bank purchases of 863t reached the upper end of the expected 2025 range remaining “historically elevated and geographically widespread but have slowed from their recent pace” as per the research.[17]

The bifurcated analysis suggests that the ongoing accumulations of gold reserves represent not a temporary speculative phenomenon but rather a rational, systematic reallocation within global portfolio structures.

These forces illustrate a slow but significant reshaping of the global financial landscape, signalling a transitional era away from dollar dominance and toward diversified asset preferences including gold, factoring in that this is not a quick transition but a paradigm shift spanning over at least 50 years or more. Such a shift reflects a deep-rooted change in economic power dynamics, international trade relations and monetary policy frameworks. It underscores the evolving nature of global finance, where reliance on a single dominant currency is gradually giving way to a multipolar currency system and diversified investment strategies.

References

1. https://economictimes.indiatimes.com/markets/stocks/news/foreign-holdings-of-us-treasuries-slip-for-first-time-in-six-months/overall-treasury-holdings/slideshow/125426896.cms
2. https://www.financialexpress.com/market/gold-pulse/gold-performance-compared-to-stocks-over-1-3-5-10-15-20-and-25-years/4044543/
3. https://rupeezy.in/blog/gold-silver-outshine-nifty-50-over-past-5-years
4. https://ies.princeton.edu/pdf/e132.pdf
5. https://fred.stlouisfed.org/tags/series?t=gold
6. https://www.bloomberg.com/asia
7. Gold price forecast: Gold rate to surge to $4700 in 2026? https://m.economictimes.com/news/international/us/gold-price-forecast-gold-rate-to-surge-to-4700-in-2026-heres-what-wells-fargos-gold-price-prediction-says/articleshow/125254045.cms
8. India Diversifies Reserves Amidst US-China Tensions: Reducing Dollar dependence https://www.markets.com/news/india-diversifies-reserves-amidst-us-china-tensions-962-en-EU/
9. https://www.lseg.com/en/ftse-russell/research/gold-in-a-fragmented-world-safe-haven-and-strategic-asset
10. An Historical Perspective on the Reserve Currency Status of the U.S. Dollar https://home.treasury.gov/system/files/206/Appendix1FinalOctober152009.pdf

11. The US Dollar Crisis: Explained.
https://www.linkedin.com/pulse/us-dollar-crisis-explained-yash-narendra

12. https://b2b.dw.com/assets/product_document/59fa0e7a-ff57-11ef-a390-005056b2c57e-1863f0520aacb80411e852552cdb5c31.rtf?cb=20250312153331

13. America's Currency Crisis: Declining Global Confidence
https://www.forbes.com/sites/bobhaber/2024/08/21/americas-currency-crisis-declining-global-confidence-in-the-dollar/

14. World Gold Council https://www.gold.org

15. https://economictimes.indiatimes.com/news/economy/finance/rbis-gold-reserves-cross-880-metric-tonnes-by-september/articleshow/124740787.cms?from=mdr

16. Reserve Bank of India. (2025). Foreign exchange reserves and gold holdings statement, September 2025. RBI Bulletin, October 2025
https://www.rbi.org.in/Scripts/BS_ViewBulletin.aspx?Id=23750

17. https://www.gold.org/goldhub/research/gold-demand-trends/gold-demand-trends-full-year-2025

18. Bretton Woods Committee. (1944*). Articles of Agreement of the International Bank for Reconstruction and Development and the International Monetary Fund.* Washington, DC: US Treasury Department.

19. World Gold Council. (2024). *Central Bank Gold Reserve Demand Report 2024*. London: World Gold Council.

20. World Gold Council. (2024). *India Gold Demand Trends, Full Year 2024*. London: World Gold Council.

21. Shanghai Stock Exchange, NASDAQ, & Bombay Stock Exchange. (2025). Index performance data, 2020–2025.

22. National Bureau of Statistics of China. (2024). *Real estate statistical yearbook 2024*. Beijing: NBS Publishing.

23. Frankel, J. A The rise and fall of the dollar. Brookings Papers on Economic Activity, 2011

24. Purchasing Power Parity Theory: Cassel, G. (1921). The world's monetary problems. New York: E. P. Dut

When Man becomes God

By Shreya Narula

Introduction

If one looks up the definition of God, they'll find a plethora of different meanings, sourced from multitudes of religions. Perhaps it's the creator of this universe, a superhuman who rules the world or the protector of humanity. Since the advent of our race, it is quite evident that man has always been fascinated by the idea of God.

Throughout history, many have tried to wield the power-or at least imitate-the power of God. Many Egyptian pharaohs and Emperors of Greece claimed divine status, believing themselves to be chosen by the higher forces to rule. Yet history tells us that most subjects do not take kindly to self-proclaimed gods. Their tyranny, born out of arrogance and greed, often led to their untimely demise. Interestingly, all these ambitious rulers had one thing in common: wealth.

Money has oftentimes granted humans the illusion of absolute control and power. In ancient times, the rulers believed their riches to be proof of divine favor. The power once reserved by monarchs is now concentrated in the boardrooms. According to the works of Peter Hagel, in today's day and age, extreme wealth acts as a form of power that allows individuals to operate as "super actors" in global governance, often acting with high autonomy and limited accountability, akin to a form of digital-age feudalism[1].

In order to understand the level of wealth these billionaires hold, consider this: if you made $10,000 a week – a princely sum by the standards of most people – you would have to work every week from the year of Jesus's birth until now to earn over a billion dollars. To earn as much as Elon Musk's net worth at that rate – currently $342 billion, according to Forbes[1]– you'd have to work every week for more than a third of a million years – that is, since before Homo sapiens first emerged in Africa.

The Dominion of few

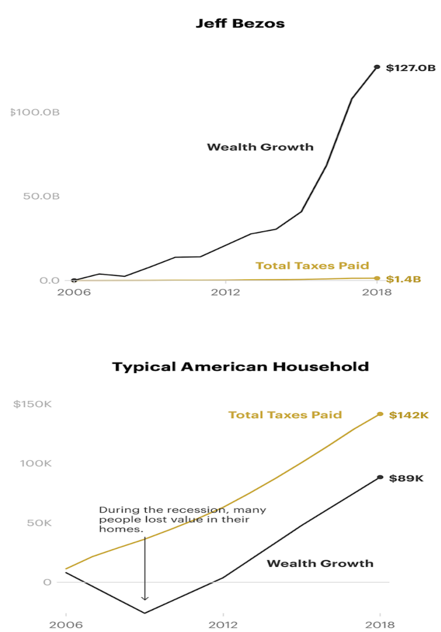
To understand why this situation of wealth being concentrated in the hands of a few occurs, we turn to Piketty's law of inequality[16]. Thomas Piketty had defined capital as the stock of all assets held by private individuals, corporations and governments that can be traded in the market no matter whether these assets are being used or not. Piketty based his argument on a formula that relates the rate of return on capital (r) to economic growth (g), where r includes profits, dividends, interest, rents, and other income from capital and g is measured as growth of society's income or output. Mathematically, this inequality can be expressed as follows:

$$r > g$$

(rate of return on capital > economic growth)

Whenever the rate of return on capital exceeds economic growth, wealth tends to concentrate. This basically means that whenever the overall rate of increase in output or income in the economy is less than the annual return from private wealth (interest, dividend, rent and profits), an economic system of inherited fortune is created. This occurs because in a situation such as this, wealth compounds faster than labour/wages; which leads to an inequality where the rich grow richer due to the assets they already possess, while the wage earners' income stagnates or diminishes.

If the rate of return to capital declines, which could occur due to competition, saturation, regulation, crises, etc; wealth accumulation slows and asset prices stagnate. But, rather than the inequality being corrected, modern capital often preserves high returns through institutional power structures. This implies that capital adapts through diversification globally, financialisation and political influence maintains the high returns on capital.



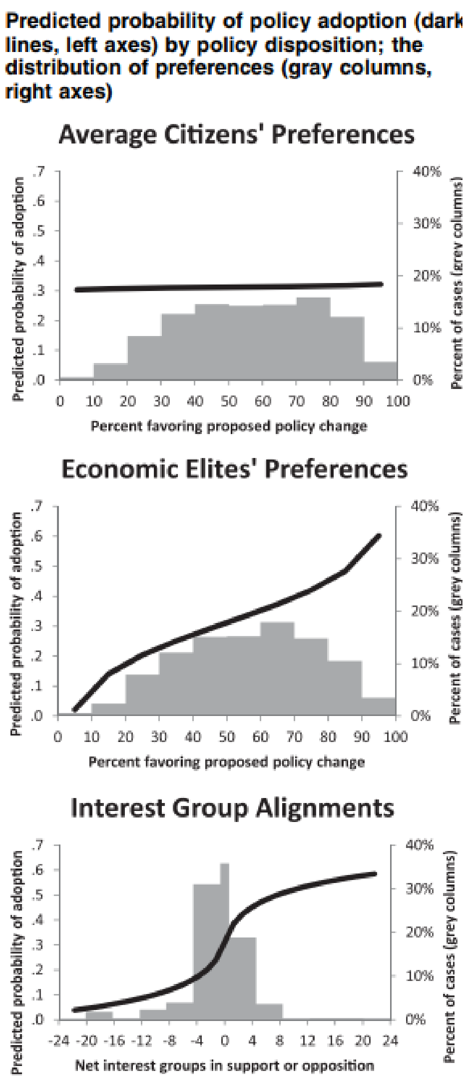
Monarchs had ruled through divine right, billionaires now rule through capital control. Capital controls employment, technological direction, political lobbying, and even public discourse. The economic might of billionaires grants them indiscriminate control and influence over governments, policies, public opinions and nature itself. Piketty too, believed that inequality is not an inevitable outcome, but a political one.

He suggested the usage of systems such as progressive taxation, wherein the higher income groups are charged more; along with redistribution of wealth wherein excess of wealth with an individual is redistributed to those in need. He also vouched for global wealth taxes (with international cooperation from tax havens as well), democratic ownership of companies (where the society is given a stake in the wealth generated) as well as increase in public investment.

Yet any harsh policy that could possibly be applied is rejected and suppressed by these individuals that do not wish to lose their wealth. They shape policies in a manner such that they do not have to pay more than absolutely necessary and/or find ways to work around paying the huge amounts of money that was *supposed* to be levied upon them in the form of taxes.

The aforementioned concept is called tax avoidance. Tax avoidance is the act of legally reducing one's tax liability, using legal provisions, such as deductions, credits and exemptions[8].

The United States



To capture the financial reality of the richest Americans, ProPublica undertook an analysis that has never been done before[2]. They compared how much in taxes the 25 richest Americans paid each year to how much Forbes estimated their wealth grew in that same time period.

Let this be called their true tax rate.

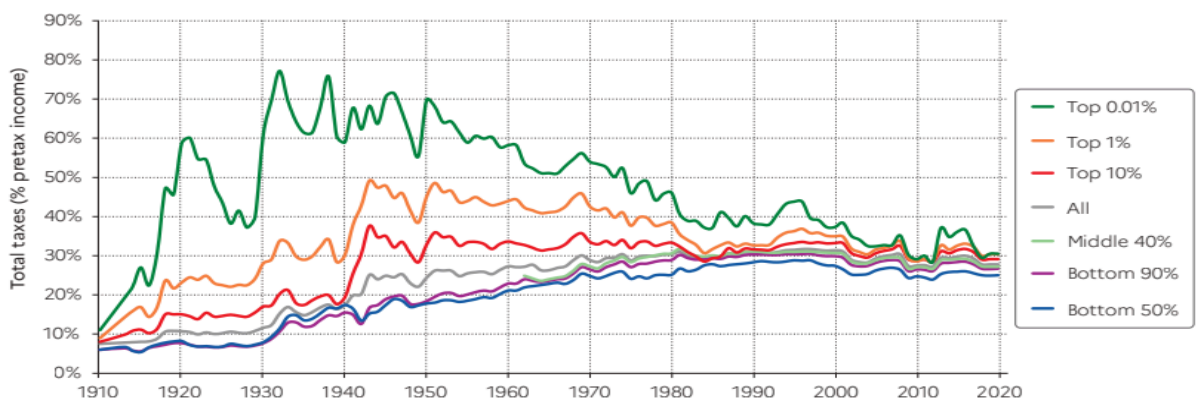
The results are stark. According to Forbes, those 25 people saw their worth rise a collective $401 billion from 2014 to 2018[2]. They paid a total of $13.6 billion in federal income taxes in those five years, the IRS data shows. That's a staggering sum, but it amounts to a true tax rate of only 3.4%.

But this laxation is not provided to the common people. In order to understand this, let's compare an average American to Jeff Bezos. Jeff Bezos' wealth exponentially rose from 2006 to 2018, increasing by $127 billion, according to Forbes, but he reported a total of $6.5 billion in income. The $1.4 billion he paid in personal federal taxes is a massive number — yet it amounts to a 1.1% true tax rate on the rise in his fortune. Yet the common American household struggled to make ends meet after the 2008 financial crisis; the amount of taxes they had to pay continued to rise, yet their wealth growth took an extreme hit during the crisis and hence grew slower in amount than the taxes they had to pay.

This is also evident in the World Inequality Report published in 2022, wherein it can be seen that almost all sections of the society paid an equivalent percentage of tax. On the contrary, a progressive taxation system would have been more just (as also suggested by Piketty), and the public funds collected could be used for public welfare. But instead, the economically weaker sections of society that can barely make ends meet don't get enough public funds that they rely on due to widespread usage of tax avoidance.

This unjustness is further realized in the United States, where the top 0.1% owns roughly as much wealth as the bottom 90%, a stark reminder that capitalism's rewards are no longer evenly shared. This disparity is also represented in widely-used measures of inequality.

Figure 8.1 **Total taxes paid by income group in the US. 1910-2020**



Sources and series: *wir2022.wid.world/methodology and Piketty, Saez and Zucman (2018).*

According to the U.S. Census Bureau income inequality in the country has been steadily increasing, with the income Gini coefficient rising from about 0.39 in the early 1970s to above 0.48 in the recent years[19]. As a standard measure of inequality, the Gini coefficient illustrates how economic gains have increasingly accrued to the top, while a significant share of the population experiences stagnation; showing that wealth is concentrated with the esurient, while the mortals survive off crumbs. These numbers show that modern inequality is structural rather than incidental, shaped by institutional and policy decisions that allow for disproportionate accumulation at the top.

In Affluence and Influence (2012),[4] Martin Gilens argues that even when measured differences between the policy preferences of economically elite Americans and median citizens appear small; they often conceal substantial divergence and variance. Policy making decisions need not be a zero sum game where one party loses and one wins; but anywhere where the economic elite and the average citizen may disagree, it generally won't be the common man that wins. He notes, *"Moreover, we must remember that in our analyses the preferences of the affluent are serving as proxies for those of truly wealthy Americans, who may well have more political clout than the affluent… even rather slight measured differences between preferences of the affluent and the median citizen may signal situations in which economic elites want something quite different from most Americans and they generally get their way."*

This also concurs with the ideas of elite theory proposed by early political theorists Vilfredo Pareto[14], Gaetano Mosca[11], and Robert Michel[10]; along with C. Wright Mills who developed the modern "power elite" concept in the 20th century. The elite theory posits that a small minority, that comprises corporate, political, and military leaders, holds the vast majority of power, shaping economic policy and societal outcomes to serve their interests. This is evident in the society we currently live in, and can also be seen by the research of Martin Gilens as previously discussed.

The policies favour these elites and allow them to accumulate wealth well beyond justifiable limits. The average citizen has very less say in these policies due to not being economically pertinent. Hence, ultimately, the funds that could, *and should*, have been utilized for the welfare of the citizens are cached by few.

Global Patterns of Concentration

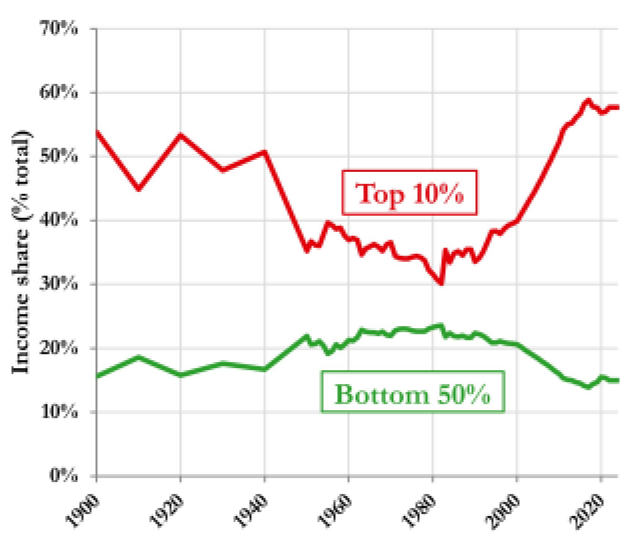
By pushing for lower corporate taxes and taking advantage of offshore havens, the ultra rich reduce the tax revenue that supports essential services like healthcare, education, and infrastructure. The IMF estimates that governments lose over $500 billion each year due to tax avoidance by the wealthy and multinational companies[7]. This amount is enough to lift hundreds of millions out of poverty. As public systems decline, private wealth increases, resulting in what economists describe as "privatized abundance amid public scarcity."

These patterns can also be seen in economies across the world.

While this evasion of taxation affects all economies, its consequences are seen to be particularly severe in developing countries such as India, Nigeria, and Brazil. Unlike wealthier states, these governments rely heavily on tax revenue to finance basic public services and development programs since a huge proportion of their citizens are unable to make ends meet by themselves. When multinational corporations (operated by the economically elite) shift profits to offshore jurisdictions or exploit legal loopholes in international tax systems. This leads to developing countries losing critical fiscal capacity, and consequently, their ability to help their citizens. Funds that could otherwise be invested in healthcare, infrastructure, education, and climate adaptation, are hoarded.

Consequently, global inequality is not only a matter of individuals accumulating wealth but also of nations possessing vastly unequal fiscal resources to respond to economic and environmental challenges.

Figure 1: ***Top 10% and bottom 50% income shares in India, 1900-2024***



Interpretation: The Top 10% income share is equal to 58% in 2024. Income is measured after the operation of pensions and unemployment insurance systems and before income tax.
Sources and series: wir2026.wid.world/methodology.

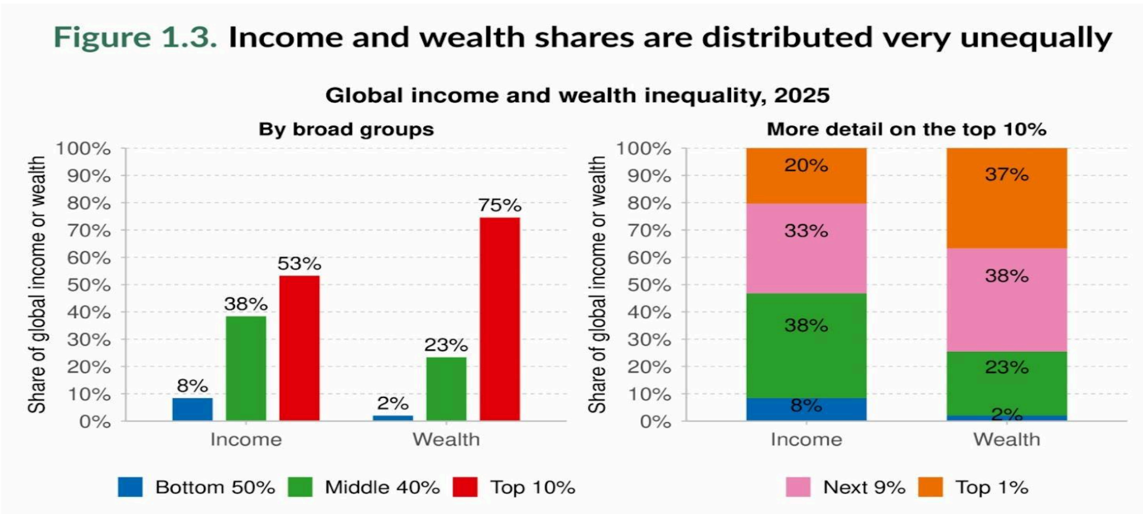
Inequality in India is amongst the highest in the world and has shown little movement in recent years. The top 10% of earners capture about 58% of national income, while the bottom 50% receive only 15%[20]. Wealth inequality is even greater, with the richest 10% holding around 65% of total wealth and the top 1% about 40%.

This also shows that the normal wage earners' income share has actually fallen, while the income share of the top 10% continues to increase. This displays that though India has had an exponential increase in national income from the 1900s, the growth is not inclusive in nature.

This distribution illustrates the widening gap between capital-owning elites and wage earners within emerging economies. When the majority of national income is concentrated among a small group of individuals, economic growth does not translate into widely distributed improvements in living standards.

This disparity further reinforces the fact that inequality is not merely about income, but about who is allowed to accumulate wealth without accountability.

This accumulation can be seen through the data of the World Inequality Database[20]. According to the World Inequality Database, the top 10% of the global population's income-earners earn more than the remaining 90%, while the poorest half of the global population captures less than 10% of the total global income.



In fact, as per WID, the top 0.001% of the population has 3 times more wealth than half of the entire world population combined.

Climate Change

The richest 1% of humanity is responsible for more carbon emissions than the poorest 66%[12]. But they aren't the ones taking the brunt of the hit. These rich individuals have plenty to live healthily and sustain a comfortable life while the common people suffer from the consequences of these actions. Owing to luxury yachts, private jets and investments in polluting industries, the consumption of the world's wealthiest people is also making it increasingly difficult to limit global heating to 1.5C. Oxfam's research found that fifty of the world's richest billionaires produce on average more carbon emissions in under three hours than the average British person does in their entire lifetime.

A study done by Sarah Schöngart shows that the wealthiest 10% contributed 6.5 times more to global warming than the average, with the top 1% and 0.1% contributing 20 and 76 times more, respectively. In fact, on average, in 2024, 50 of the world's richest billionaires took 184 flights in a single year, spending 425 hours in the air[12]. These individuals produced as much carbon as the average person would in 300 years and are not called out for the same. Actions such as these exacerbate one of humanity's most essential common resources: a stable climate.

Climate change is driving extreme heat and people's risk of suffering potentially deadly heat-related illnesses[17]. London School of Economics' analysis shows that in just four years, from 2015 to 2019, the consumption emissions from the world's richest 1% will cause 1.5 million extra deaths between 2020 and 2120. This amounts to a little over 15,000 extra deaths each year over the next century. That number is greater than the current annual death toll from natural disasters[9].

Hotter temperatures hurt annual economic growth[1], as they impact labor productivity, agricultural productivity, and energy use. Research from London School of Economics shows that from 1990 to 2050, the economic cost of the super-rich 1% will add up to $52.6 trillion[13], with most of this cost borne by poorer countries. In fact, the damage already done to low and lower-middle-income countries between 1990 and 2023 by the consumption emissions of the top 1% is about three times the total climate finance developed countries have given to poorer countries. The cost of the overconsumption of the rich is paid in full by people who had no opportunity to partake in the exuberance.

Traditional economics models are built around the concept of scarcity[18], the fact that the consumption of a being is governed by the availability of limited resources. However, this law of economics does not apply to these "gods"; they do not care for the consequences of their erratic and dangerous consumption patterns simply because it does not affect them.

This also depicts a very familiar economic concept known as the tragedy of the commons. Tragedy of the commons refers to a situation where people, pursuing their own interests, over utilize a shared resource. In this case, each person who engages in this excessive consumption gains from it; and since no one individual singlehandedly faces the total cost of these emissions, there is little motivation to cut back voluntarily. But ultimately, the cumulative effect of these individual decisions results in the degradation of a resource that is essential for all, which in this case is the climate[5].

This acts as a negative externality; since these billionaires do not bear the consequences of the harmful actions that they are responsible for. An externality occurs when the actions of one actor imposes costs or benefits on others who are not directly involved in the transaction or activity. Negative externalities arise when private activities generate social costs that are not reflected in market prices, often resulting in overproduction and underpricing[15]. The environmental impact of excessive carbon emissions represents one of the most significant examples of such externalities. Shared resources such as clean air and water, along with stable ecosystems are depleted by the pursuit of private gain. Just as overfishing and overgrazing degrades a common resource, the overconsumption of the rich harms the welfare of the common people.

Echoes of Altruism

The damage caused by unchecked accumulation runs deep and can be seen across economies. Yet, a few rare figures remind us that wealth can be used to heal the society rather than harm it.

These rare individuals know that power without purpose can harm both people and society. Azim Premji, one of India's most respected business leaders, has quietly donated over half his fortune to improve education in rural communities. Chuck Feeney, the co-founder of Duty Free Shoppers, gave away nearly all his wealth of $8 billion during his lifetime for philanthropic purposes; choosing to remain anonymous rather than seeking praise. Closer to home again, Ratan Tata had been a symbol of responsible capitalism. He has funneled much of the Tata Group's profits into charitable trusts that have established schools, hospitals, and livelihoods throughout India.

While such examples indeed do show that wealth can be deployed for social good, philanthropy cannot replace the need for systematic redistribution of resources. The theory of voluntary provision of public goods holds that when public goods such as education, healthcare and environmental protection are funded voluntarily, they tend to be underfunded due to the issue of free riders and uneven contributions.

Because philanthropy is by its very nature selective, discretionary, and reliant on personal preferences, donors are able to set priorities without being held democratically accountable. By pooling resources through taxation and distributing them according to collective need rather than individual preference, state-led redistribution, more successfully combats inequality. While charitable giving may lessen the symptoms of inequality, institutional mechanisms that can redistribute wealth on a large scale are necessary to address its structural causes.

These individuals are not saints, but they offer an alternative view. They show that even within the system of capitalism, a sense of conscience and morality can exist. Their stories remind us that altruism can bring about positive change. But such examples are rare, and they only highlight the larger truth: that the modern world and economy often rewards accumulation, not empathy.

Conclusion

Today, technology has increased this illusion of divinity. Billionaires no longer just own companies; they own platforms that shape global reality. Social media sways election results by shifting opinions, biotech firms change lives by making new discoveries and AI continues to push the boundaries of what we thought was possible. The power to create, manipulate, and destroy is now in the hands of the wealthy. So, when man ascends as God, one must wonder, can everyone rise alongside them?

Yet, hope still exists. For every person who sees themselves as God, there are others who remember what it means to be human. The question isn't whether man can become God, but whether he can harness that power without losing his soul.

References

1. Dell, Melissa, Benjamin F. Jones, and Benjamin A. Olken. "Temperature Shocks and Economic Growth: Evidence from the Last Half Century." American Economic Journal: Macroeconomics 4, no. 3 (2012): 66–95.

2. Eisinger, Jesse, Jeff Ernsthausen, and Paul Kiel. "The Secret IRS Files: Trove of Never-Before-Seen Records Reveal How the Wealthiest Avoid Income Tax." ProPublica, June 8, 2021.

3. Forbes. "Elon Musk." Forbes Real-Time Billionaires List. 2024.

4. Gilens, Martin. Affluence and Influence: Economic Inequality and Political Power in America. Princeton, NJ: Princeton University Press, 2012.

5. Hardin, Garrett. "The Tragedy of the Commons." Science 162, no. 3859 (1968): 1243–1248.

6. Hegel, Peter. "Super Actors: The Rise of the Billionaire Class in Global Governance." Global Policy Journal, 2018.

7. International Monetary Fund. Corporate Taxation in the Global Economy. Washington, DC: IMF, 2019.

8. Internal Revenue Service. “Tax Avoidance vs. Tax Evasion.” Accessed 2024.

9. London School of Economics Inequalities Blog. “Billionaire ‘Pollutocrats’ Are Driving the Climate Crisis.” London: London School of Economics, 2024. https://blogs.lse.ac.uk/inequalities.

10. Michels, Robert. Political Parties. New York: Free Press, 1911.

11. Mosca, Gaetano. The Ruling Class. New York: McGraw-Hill, 1939.

12. Oxfam International. Carbon Inequality Kills: Why Curbing the Excessive Emissions of an Elite Few Can Create a Liveable Planet for All. Oxford: Oxfam International, 2023.

13. Oxfam International and Stockholm Environment Institute. Climate Equality: A Planet for the 99%. Oxford: Oxfam International, 2023.

14. Pareto, Vilfredo. The Mind and Society. New York: Harcourt Brace, 1916.

15. Pigou, Arthur C. The Economics of Welfare. London: Macmillan, 1920.

16. Piketty, Thomas. Capital in the Twenty-First Century. Cambridge, MA: Harvard University Press, 2014.

17. Romanello, Marina, et al. “The 2023 Report of the Lancet Countdown on Health and Climate Change.” The Lancet, 2023.

18. Samuelson, Paul A., and William D. Nordhaus. Economics. 19th ed. New York: McGraw-Hill, 2010.

19. United States Census Bureau. Income Inequality in the United States: 2023. Washington, DC: U.S. Census Bureau, 2023.

20. World Inequality Lab. World Inequality Database (WID.world). Paris: World Inequality Lab, 2026. https://wid.world.

When Labour Moves, Childhood stands still:

Gender, Child Labour and the Economics of Migration in India

By Raka Banerjee

Introduction

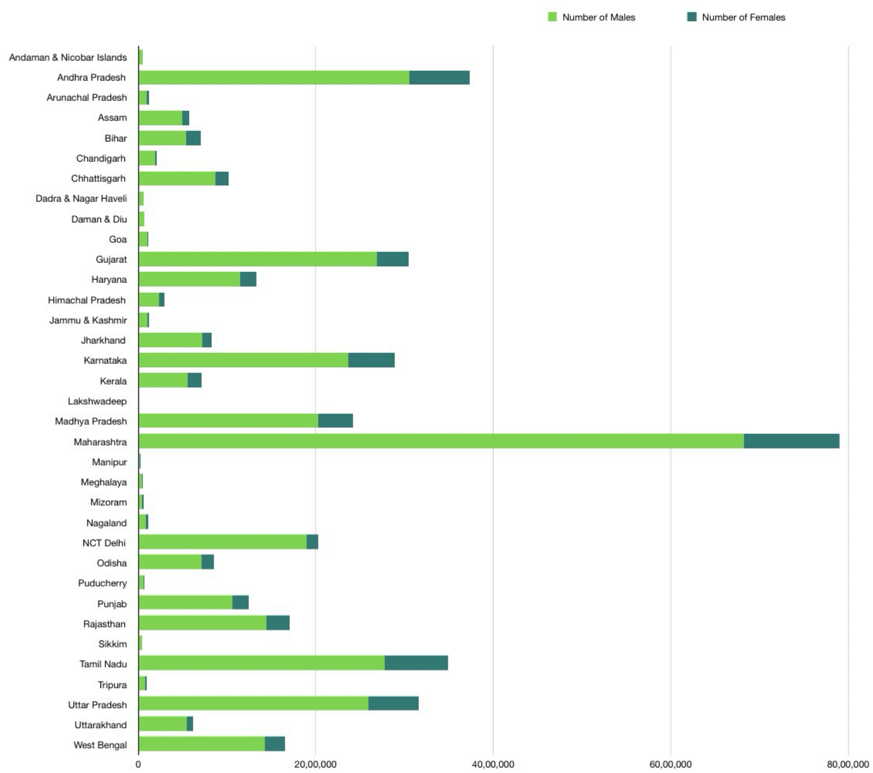
Economic systems predominantly rely on the intersectoral, interregional, and intergenerational movement of people within the economy. It is a common understanding that one of the most significant indicators of an economy's advancement is the movement of the workforce from one sector or region that yields lower productivity to another that yields higher productivity. In economic theory, workforce mobility is generally associated with positive economic advancement, increase in incomes and improvement in aggregate welfare. However, in the Indian context, the workforce is deeply interlaced with inequalities of gender, social class, caste and age. Therefore, migration of the workforce does not represent an economic advancement of a country, but rather an economy with fragmented socio-economic and labour markets, a limited social sector protective system, and a lack of socially upward economic movement.

India has recently witnessed a post-pandemic economic movement that has been called “labour on the move” which presents the migration movement of the labour force as an economic advancement or dynamism of an economy and its “flexible” labour markets. However, economic reports that include migration movement of labour force conceal a more troubling economic reality as the movement of labour force within India does not occur equally and is largely driven by distress. Therefore, regarding movement of labour force, especially distress driven labour movement, individual and free choice is removed by socio economic structural inequalities with age, class, and socio economic caste structures within an economy.

This article attempts to position labour force migration with three main economic concepts which are: labour market socio economic fragmentation, intergeneration cycle of poverty, and incomplete structural transformation. It argues that the mobility of children and women—rather than signalling progress—exposes the economy’s failure to generate secure, productive, and dignified employment.

Child labour and gendered mobility are therefore analysed not as isolated social phenomena but as economic outcomes of labour markets that reproduce inequality across generations. In this context, mobility functions primarily as a survival strategy rather than a pathway to economic advancement.

Fig.1: State-Wise Number of Migrant Workers in India (Census 2011)



Data Source: Ministry of Labour & Employment (Annexure; Census 2011)

Data And Methodology

The analysis employs a descriptive-analytical approach based on secondary data from official and institutional sources. These include the Census of India (2001, 2011), the Periodic Labour Force Survey (PLFS), E-Shram portal statistics, and reports published by the International Labour Organization (ILO), UNICEF, the Institute for Human Development (IHD), and other research institutions. State-level and sectoral trends are examined to identify patterns of child labour and gendered migration within the Indian labour market.

In addition, a case study of the brick kiln industry in Bihar and eastern Uttar Pradesh is used illustratively to demonstrate how macro-level labour market structures operate at the household level.

Child Labour And The Illusion Of Economic Mobility

The 2011 Census documented that India had more than 10.1 million children aged 5-14 that were classified as working. Although estimates from the National Sample Survey Organization (NSSO) and the Periodic Labour Force Survey (PLFS) suggest a decline in child labour over the last decade, progress has been uneven across regions and sectors. UNICEF estimates that 16% of working children remain engaged in the worst forms of child labour.

The economic dimension underlying child labour reflects an intergenerational cycle of poverty. When households have to use children's labour due to their economic structure, they have to focus on short term consumption instead of the long term human development they will have to forego. This will entrench lower-than-minimal productivity and ensure that the children of informal workers get sucked into the same low wage sectors as their parents. This inter-generational scenario of employing children does not signal economic improvement, but rather, the opposite, a stagnant system.

In India, child labour is mobile and child workers often migrate seasonally with their parents and then enter the informal employment sector in cities and their suburbs. This pattern of movement shows a facade of economic development, although children are not acquiring the skills that would make long-term economic advancement possible. Economic shocks, such as the COVID-19 lockdowns, further reveal the precariousness of the households' subsistence. According to a joint report by the ILO and UNICEF, school closures during the pandemic resulted in a spike of 1.6 million children entering informal work, underscoring the lack of social protection systems in the country.

Thus, the children working in the informal sector are not just a byproduct of poverty. The continued existence of child labour is a manifestation of a lack of adequate structure within the system. Within this environment, the work of parents and children is predicated on the demand of being in a subsistence and poverty driven condition. The resulting pattern is one of a loss of educational opportunities for children while their parents work. This adds to the cycle of informal employment, precariousness, and low economic output.

Table 1: State-Wise working children (2001-2011)

State/UT	Working Children (2001)	Working Children (2011)	% change (2001-2011)
Andhra Pradesh	13,63,339	4,04,851	-70.3%
Assam	3,51,416	99,512	-71.7%
Bihar	1,117,500	451,590	-59.6%
Chhattisgarh	3,64,572	63,884	-82.5%
Delhi	41,899	26,473	-36.8%
Gujarat	4,85,530	2,50,318	-48.4%
Haryana	2,53,491	53,492	-78.9%
Himachal Pradesh	1,07,774	15,001	-86.1%
Jammu & Kashmir	1,75,630	25,528	-85.5%
Jharkhand	407,200	90,996	-77.6%
Karnataka	822,615	249,432	-69.7%
Kerala	26,156	21,757	-16.8%
Madhya Pradesh	10,65,259	2,86,310	-73.1%
Maharashtra	7,64,075	4,96,916	-34.9%
Odisha	3,77,594	92,087	-75.6%
Punjab	1,77,268	90,353	-49.0%
Rajasthan	12,62,570	2,52,338	-80.0%
Tamil Nadu	4,18,801	1,51,437	-63.8%
Uttar Pradesh	1,927,997	8,96,301	-53.5%
West Bengal	8,57,087	2,34,275	-72.7%

Source: Census of India — Child Population and Child Labour Data (2001 & 2011)

Gendered Mobility And The Missing Women In India's Workforce

India's female labour force participation rate stands at 37%, substantially below the global average. Such a rate has continued to remain the case considering the many improvements made in female literacy, education, and life expectancy. This phenomenon reflects the paradox of structural decline in women's workforce participation; improvement in human capital has not resulted in sustained incorporation in the labour market.

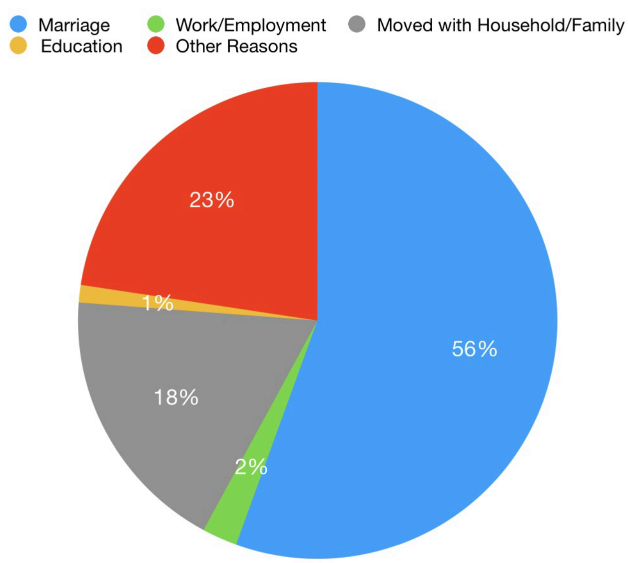
The paradox may be most accurately explained through the perspective of labour market segmentation. Women's concentration in agriculture and informal services remains disproportionate given that there is limited access to formal salaried employment. According to the most recent

Economic Survey, less than 10 percent of working women are employed in formal jobs. The migration of women, if it occurs, is often said to be "accompanied" as it is tied to marriage or family relocation, and not as a result of economic decision-making on her part. The Centre for Policy Research (2022) reports that 78% of female migrants migrate for family and marriage, while 4 % of male migrants do the same.

The unpaid care work women take on, the lack of infrastructure for childcare, and safety issues at work all reduce women's ability to move across any given region or field. This results in women's mobility being lateral instead of the desirable upward movement whereby women in informal, low-paid work move to a higher earning position. The stagnant gender wage gap ensures that this movement is even more minimal, as women earn approximately 77 percent of male wages for comparable work.

Freedom of mobility does not equate to economic empowerment of women. This so-called "empowerment" only serves to highlight how women's work is still unappreciated, as women are forced to work within and around very strict socio-institutional boundaries.

Fig.2: Reasons for female internal migration in India



Data Sources: Pattern of Migration in India (Population Research Centre, Ministry of Health and Family Welfare, 2017), Migration in India 2020-21 (Ministry of Statistics and Programme Implementation, GOI)

When Childhood And Gender Collide

The intersection of child labour and gendered mobility is embodied in the feminisation of the informal sector. During seasonal migrations, young girls are pulled towards unpaid or low-paid labour, especially domestic work. ILO (2022) states that in South Asia, nearly 60 percent of child domestic workers are girls.

The COVID-19 pandemic exacerbated these conditions. The closures of schools and midday meal programs increased unpaid care work responsibilities, mostly falling on adolescent girls. With schooling no longer available, there was an increase in domestic work, leading to a form of immobility in the domestic sphere where girls were withdrawn from public spaces and from formal education. This reinforces gendered poverty traps, resulting from an early withdrawal from education, thus restricting future participation in the labour market.

The coexistence of child labour and female labour exclusion reflects a structural paradox. While households absorb economic shocks through child labour, adult women remain excluded from decent employment. These outcomes are not accidental but are produced by segmented labour markets that fail to provide secure, remunerative work across age and gender.

A Case Study: The Brick Kilns Of Bihar—-Families On The Move

The brick kiln industry in eastern Uttar Pradesh and Bihar illustrates the micro-level functioning of a segmented labour market. Whole families, under informal arrangements, migrate seasonally for work, with men, women, and children all contributing to production. The ILO India Country Report (2022) states that children make up 20-25% of the workforce and women are nearly half of the workforce, about 45%.

The Institute for Human Development (2023) conducted some field studies which report that children as young as 8 years old are part of the workforce and help with the production of bricks. Girls, in particular, take on a dual workload of manual work and domestic chores. Males, as the heads of the families, receive the entirety of the household's wage in a piece rate system, perpetuating the cycle of economic dependence and male dominance. The seasonal nature of this work causes the whole family to migrate during the school year, leaving children at risk of school dropouts, poor nutrition, and the family exposed to the risk of occupational ill health.

Weak enforcement of the Child Labour (Prohibition and Regulation) Amendment Act, 2016 is evident by the E-Shram data (2024), which show that only 21 percent of workers in kilns are linked to any form of social protection, and less than 10 percent of women claim to have signed contracts (if there are any).

This case study illustrates that there is no structural transformation from the mobility of labour without institutional mechanisms. Instead, it reproduces informality and intergenerational dependency. Movement in the face of adverse conditions is primarily intended to mitigate distress, which is why the migration of those highly constrained is of little economic benefit.

Table 2: Migrant Children in Bihar Brick Kilns (2017-2022)

Year	% Children working	Children per family (Ratio)	Stay in kilns (months)	% out of school
2017	38.0	1.74	5.2	41.7
2019	47.5	1.86	5.6	52.3
2021	42.8	1.82	6.1	49.1
2022	35.4	1.80	5.4	44.8

Data Sources: TISS—HARVARD JOGH (2017), APU—ICPS (2019), ILO India brick-kiln assessment (2021), IHD Bihar brick-kiln study (2022)

The Economics Of Immobility: Structural And Policy Failures

The primary challenge is not the absence of a labour movement, but the absence of a labour movement which is meaningful. With the shift in structure from agriculture to services, there has been limited expansion in the provision of decent formal jobs. According to the PLFS(2023), over 80% of India's workforce remains in the informal sector, with limited prospects for upward mobility. The lack of formal jobs within the labour market, coupled with the regional inequality and weak social protection, low productivity, and gendered immobility, sustain conditions that allow child labour to persist. This is the consequence of a labour market that is failing to support fluidity among its participants.

There is no doubt that the NCLP and E-Shram government initiatives are important as steps towards formalisation, but these remain partial and insufficient. Providing a social protection system to workers in the informal sector is pivotal (less than 30 percent of informal workers have access to a social protection system, according to the World Bank (2024), India Development Update informal workers have a social protection system). This problem is multi-dimensional for women. Challenges exist in the realms of childcare and care infrastructure, security in transport, and workplace flexibility. The absence of accessible childcare remains a primary constraint on India's female labour force participation. This shows the problem of gendered immobility is socio-political as much as it is policy oriented.

Conclusion: Towards Equitable Mobility

Labour mobility in India must be reconceptualised beyond physical movement. Genuine mobility implies the ability to transition across sectors, regions, and social hierarchies with dignity and agency. The persistence of child labour and gendered exclusion indicates that such mobility remains elusive.

To dismantle these cycles, policy interventions must address both prevention and empowerment. Investments in universal education, childcare infrastructure, safe and remunerative employment for women, and comprehensive social security for informal workers are essential. Mobility should not be driven by desperation but enabled by opportunity.

Only then can "labour on the move" represent not the reproduction of inequality, but India's progress toward a more inclusive and humane economic order.

References

1. Choithani, Chetan. "Gendered livelihoods: Migrating men, left-behind women and household food security in India." *Gender, Place & Culture* 27, no. 10 (2020): 1373-1394.

2. Deshingkar, Priya, and Shaheen Akter. "Migration and human development in India." (2009).

3. Kumari, Sunita, and Anuradha Banerjee. "Understanding issue of gender, caste and seasonal migration among the brick workers in Bihar." *Journal of Social Inclusion Studies* 3, no. 1-2 (2017): 36-46.

4. Majumder, Rajarshi. "Paternal migration, child labour and education: a study in brickfield areas of West Bengal." (2011).

5. Mazumdar, Indrani, N. Neetha, and Indu Agnihotri. "Migration and gender in India." *Economic and Political Weekly* (2013): 54-64.

6. Pande, Amba. "Feminization of Indian migration: patterns and prospects." *Journal of Asian and African Studies* 57, no. 6 (2022): 1249-1266.

7. Roy, Archana. "Impact of rural-urban labour migration on education of children: A case study of left behind and accompanied migrant children in India." *Space and Culture, India* (2015).

8. Roy, Satyajit. "The Challenge of Child Labour in India in Rural Areas: With a Special Focus on Migration, Agriculture, and Mining and Brick Kilns." *Agriculture, and Mining and Brick Kilns (February 7, 2011)* (2011).

9. Roy, Shamindra Nath, and Eesha Kunduri. "Migration to brick kilns in India: an APPRAISAL." *New Delhi, Centre for Policy Research* (2018).

10. Sharma, Rashmi. "Gender and international migration: The profile of female migrants from India." *Social Scientist* 39, no. 3/4 (2011): 37-63.

11. Srivastava, Ravi. "Internal migration in India." *Human Development in India* (2011)

Atmanirbhar Bharat vs Global Integration: Reconciling India's Trade Ambitions

By Pragati Joshi

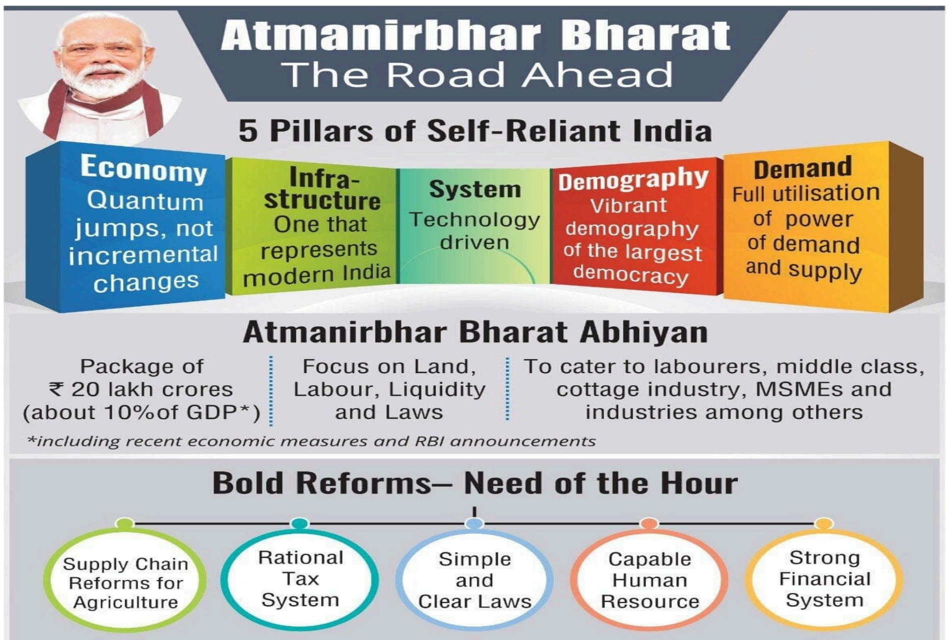
The COVID-19 induced lockdown served as a grim reminder of the unemployment crisis in our economy. It exposed the structural vulnerabilities of our nation. Millions of migrant workers fought for their survival and faced mass displacement. They had to choose between staying in the city that provided them with daily wage work and returning to their villages where there was a lack of employment opportunities. The painful images of workers walking hundreds of kilometres back to their villages revealed the fragility of India's labour market and the limited capacity of the economy to absorb shocks.

Indian migrant workers during the COVID-19 pandemic

Source: Al Jazeera

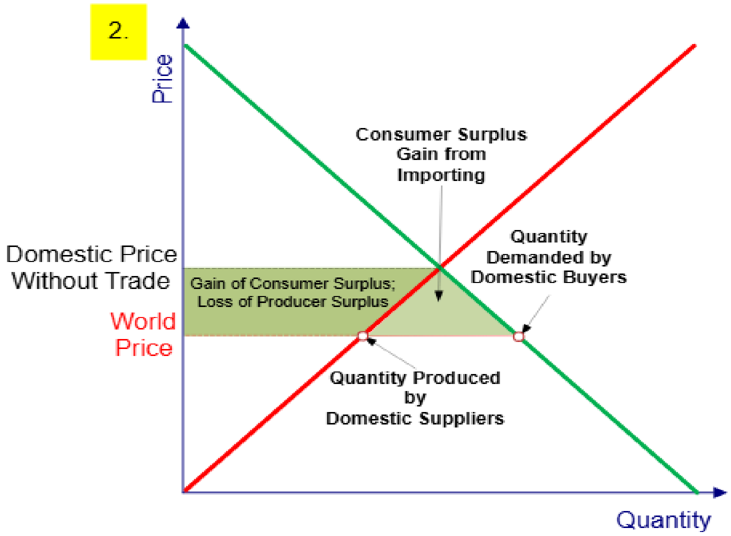
The crisis forced policymakers and citizens alike to reflect on India's growth model. In the backdrop of this crisis, the Government launched its initiative of "Atmanirbhar Bharat". The objective was to create a "self-reliant" economy that can thrive by optimising its own endowments- its labour force, natural resources, and growing technological capabilities. Unlike the inward-looking policies of the post-independence period, Atmanirbhar Bharat was a framework that aimed to strengthen the domestic economy while remaining connected to global markets. It was meant to make sectors like manufacturing, technology and defense more resilient.

To achieve these goals, the government introduced a series of policy measures. This included providing stimulus to export-oriented units (EOUs) that could produce for the purpose of generating export revenue. EOUs enjoy several benefits like subsidies and exemption from custom duties on imported capital goods. Furthermore, the Government launched a production linked incentive scheme across 13 sectors. They also announced Rs. 3 lakh crore collateral-free automatic loans for businesses, including MSMEs (Press Information Bureau 2020).



Source: Drishti IAS

The emphasis on self-reliance inevitably raised questions about India's long-standing commitment to global integration. Since the liberalisation reforms of 1991, India has gradually opened its economy to international trade, foreign investment, and capital flows. Most economists agree that trade is not a zero-sum game. By engaging in international trade, consumers benefit from greater product variety as well as lower prices. Moreover, increased competition from foreign producers pushes domestic firms to improve their productivity. We can export goods that we have a comparative cost advantage in and import goods that cannot be produced very efficiently in our domestic economy. Moreover, developing nations can import foreign technology and then create their own. Sustained economic growth requires us to invest in research and development of new ideas and technologies. These were some of the factors taken into consideration when Manmohan Singh opened up the economy in the 1990s.



International trade results in lower prices paid by the consumers

Source: This Matter

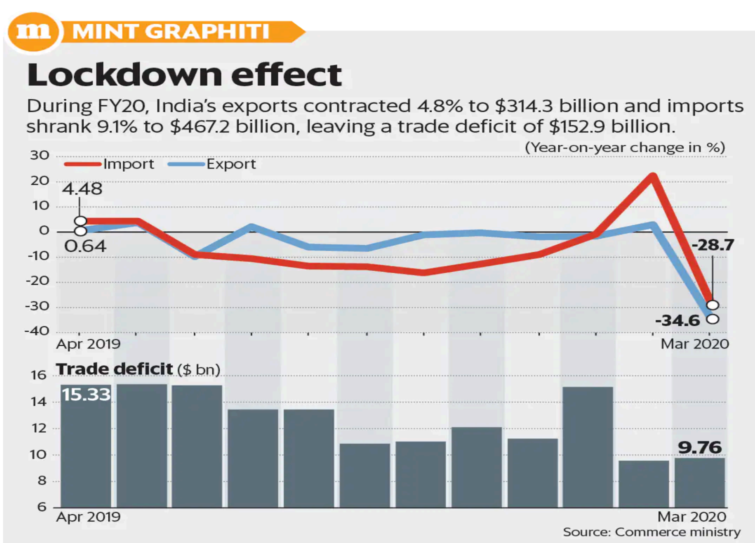
India's experience after liberalisation further supports this view. The opening up of the economy led to higher growth rates, expansion of the service sector and increased foreign investment. Export-oriented industries such as IT services and pharmaceuticals benefited immensely from global demand. These outcomes reinforced the belief that integration with the global economy was necessary for development. Yet, the pandemic revealed the risks of excessive dependence on global supply chains, especially for essential goods and critical inputs.

Historical experience also explains why self-reliance continues to resonate strongly in India's economic discourse. After India was drained of all its wealth by the imperialists, economic recovery seemed like a Herculean task. Although agriculture accounted for over 50% of our GDP, productivity was abysmally low and food shortages were widespread. The situation was so dire that we had to import food grains to feed the population. In the 1960s, we ushered in the Green Revolution that was greatly successful in achieving food security. Its stellar performance showed how state intervention, technological adoption, and domestic capacity-building could achieve food security. This is a very strong argument in favor of self-reliance.

India's imports of cereals post-independence

Source:The Times of a Better India

In the current global context, the case for self-reliance has been further strengthened by geopolitical uncertainties. Trade wars, sanctions, and disruptions caused by conflicts highlight the fragility of interconnected economies. United States' President Trump's unprecedented tariff policy and the uncertain geopolitical climate in his regime has made it clear that trade imbalance becomes a serious problem when international disputes emerge between countries. Foreign dependence, particularly for defense equipment, can be a threat to national security. Core industries like iron and steel are also pivotal to an economy as they provide raw material and are used to manufacture a variety of goods. An economy must have a strong industrial base of its own if it is to compete with its counterparts in the global market.



The Government promoted self-reliance to strengthen the economy and

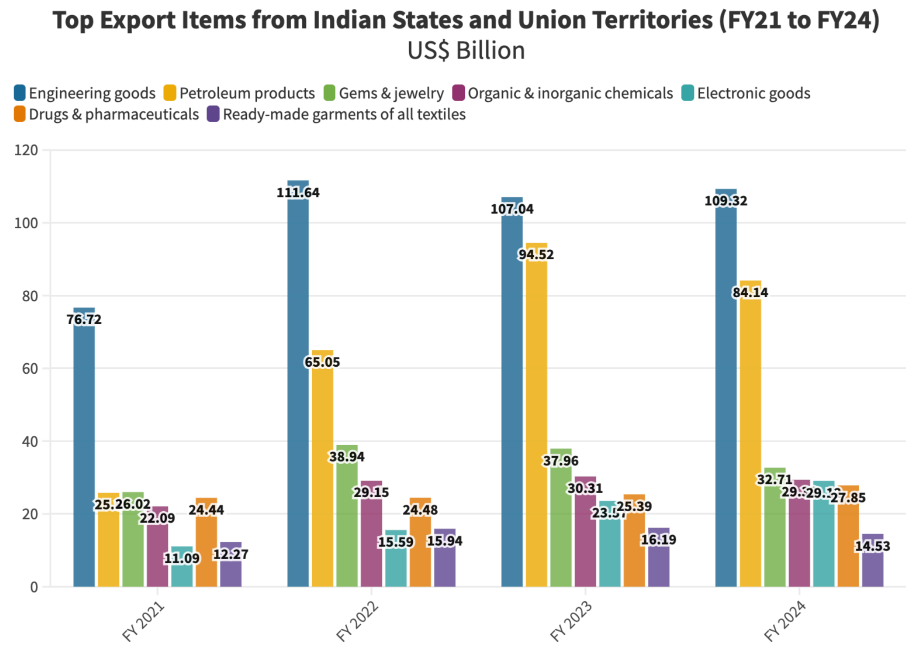
create jobs during the pandemic

Source: Live Mint

Global integration is a double-edged sword. It is a tool that must be used judiciously. Over-integration can expose an economy to external shocks, while excessive protectionism can lead to inefficiency, rent-seeking, and technological stagnation. The challenge for India lies in striking the right balance—leveraging global markets to achieve efficiency and scale, while ensuring resilience in critical sectors. We must not be over-dependent on other countries to meet our essential needs. We should be able to pay our debts and maintain a current account surplus, which reflects that export earnings exceed our expenditure on imports.

India has run current-account deficits in the past few years. In Q1 FY26, the CAD was 0.2% of GDP, an improvement from 0.9% in the previous year (India Macro Indicators 2026). The full-year CAD for this financial year is expected to widen, possibly between 1.0% and 1.3% of GDP. For a fast-growing economy, a deficit is not necessarily problematic, as imports of capital goods and energy are needed to boost growth. However, persistently high deficits can put pressure on the rupee, worsen inflation, and increase vulnerability. This makes it difficult to achieve growth in a sustainable way. We must try to minimize our CAD, even if we don't have a surplus. Reducing excessive import dependence while boosting exports therefore remains a key policy objective.

Through Atmanirbhar Bharat, the focus of the Government has been to establish India's global manufacturing leadership. According to data from the Annual Survey of Industries, Gross Value Added grew by 11.89% in current prices in the year 2023-24 over previous year. Industrial output grew by more than 5.80% and total estimated employment in this sector showed a robust growth of 5.92% (Press Information Bureau 2025). This suggests some success in job creation. On the investment front, India's global ranking as a destination for foreign direct investment improved to 15th in 2024, according to the UNCTAD World Investment Report. India also emerged as the leading recipient of greenfield investment in the digital economy among Global South countries between 2020 and 2024.



Source: India Briefing

Despite all these positive changes, the structure of India's exports raises serious concerns. Data shows that the share of labour-intensive sectors in total exports has declined from 32% to 25% in 2015 to 18% in 2024 (Observer Research Foundation 2025). These include sectors like textiles, apparel, leather and footwear. Most of the producers in these industries are MSMEs that provide employment to a large number of semi-skilled people. India's huge manpower availability makes these industries particularly important. We should be utilising our natural endowments properly to earn more export revenue. However, India has been unable to capitalize on this potential so far.

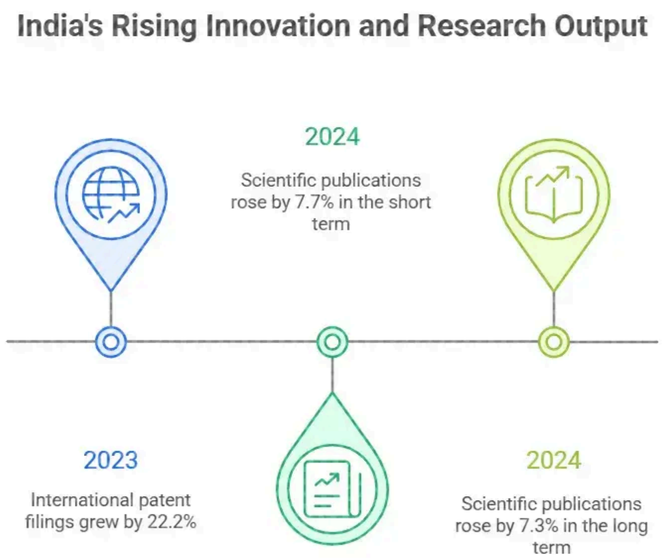
Several factors explain this underperformance. Complex labour regulations, high compliance costs, inadequate infrastructure, and logistical inefficiencies reduce competitiveness. Additionally, insufficient investment in skill development and human capital limits increase in productivity. While capital-intensive sectors have benefited more from PLI incentives, labour-intensive sectors have not received comparable support. If Atmanirbhar Bharat is to be inclusive, policy attention must shift towards industries that can generate mass employment rather than focusing solely on capital intensive manufacturing. To deal with the poor performance of labour-intensive exports from India, the Government needs to simplify compliance to the labour laws and tackle the inadequate infrastructure. They must focus on skilling people and improving the quality of human capital.

Another dimension that we must analyse is the management of capital flows and exchange rate. When India adopted the LPG policy in 1991, we also removed controls on capital flows. However, this drives up the price of the domestic currency due to increased demand by foreign investors. The result is an appreciation of the exchange rate, due to which our exports lose competitiveness in the world market. This is popularly termed as the "Dutch Disease"-when growth in one sector of the economy has a detrimental impact on another aspect. Dutch disease refers to the economic problems that arise when a country's currency strengthens sharply, often due to a resource boom, making other export sectors less competitive and weakening long-term growth. India must learn from past mistakes and should manage the capital inflows carefully so as to not hamper the competitiveness of Indian exporters.

After 5 years of "Atmanirbhar Bharat", India currently has a little over 3% of the global manufacturing share. We significantly trail behind China-with approximately 28%. This is an indicator of the fact that we have not come close to achieving our targets yet. It also highlights the scale of the challenge that lies before us. Innovation indicators further underscore structural weaknesses. We rank 39th on the Global Innovation Index 2024, having spent only 0.65% of our GDP on research and development. Research is an important pre-requisite for self-reliance as we must ensure that we are able to develop advanced technologies on our own. We have made some progress as our scientific publications and patent filings have grown in the last few years. However, in terms of the quality of research and number of citations we still lag behind. This suggests a below-average quality of research and development.

Economists like Adam Smith have established a relationship between research and economic growth. Most contemporary economists have also attributed the sustained growth in developed nations to their intensive research and development activities. In India, the major roadblock to innovative research is the way the funds are allocated (Muthukumaraswamy 2023). The current system of allocating public funds for R&D favors low-risk, low-return incremental research that have a lower risk of failure. This risk-averse mindset behind allocating funds severely hampers real, path-breaking innovation. We must account for the risks involved in innovative research projects and allocate sufficient funds to encourage researchers to continue working on them.

R&D is critical in order to ensure that our products remain competitive internationally, and we are able to develop new technologies and products consistently. Furthermore, we need local solutions to deal with our unique problems for which we cannot afford to rely on foreign ideas and technologies. We need to undertake applied research that is focused on areas of national importance like poverty, health, education and infrastructure. Without substantial investment in R&D and higher education, self-reliance risks becoming a slogan rather than a sustainable strategy.



Source: SSRNA

On 15th August, 2025, Prime Minister Narendra Modi announced that it is imperative for Bharat to be Atmanirbhar in the field of energy as well (Press Information Bureau 2025) This entails constructing new dams for clean energy production. We are investing thousands of crores of rupees under Mission Green Hydrogen. We are also taking major initiatives in nuclear energy with a resolve to increase our nuclear energy capacity tenfold by 2047. The Government aims to lay the foundation for an "Atmanirbhar Urja" sector - one where every solar module, wind turbine, and green hydrogen molecule comes from Indian soil, and powers Indian homes and industries. There has been some progress on this front as India now ranks 4th globally in Renewable Energy Installed Capacity, 3rd in solar and 4th in wind energy. We now have the world's fastest-growing renewable energy program.

To conclude, India must ensure that its critical sectors are resilient and not vulnerable to supply shocks. We can purchase capital and technology from other countries with some regulations on these imports. Critical sectors must be resilient to supply shocks, while openness to trade, investment, and technology must be preserved where it enhances efficiency and growth. Self reliance requires the

Government to facilitate production and employment creation in different sectors. They must boost manufacturing activities and the ease of doing business in our country.

Atmanirbhar Bharat must be designed not to create protective boundaries, but instead to push India to contribute to global growth. Ultimately, self-reliance means having the capacity to choose-when to produce domestically, when to import, and when to collaborate globally. Atmanirbhar Bharat can complement global integration rather than contradict it, enabling India to move forward with the world while safeguarding its economic sovereignty.

References

1. India Macro Indicators. 2026. "India's Current Account Deficit." https://indiamacroindicators.co.in/resources/blogs/indias-current-account-deficit.

2. India Brand Equity Foundation (IBEF). 2025. "Self-reliant India (Aatm Nirbhar Bharat Abhiyan)." https://ibef.org/government-schemes/self-reliant-india-aatm-nirbhar-bharat-abhiyan.

3. Jain, V. 2022. "India's Quest for Self-reliance in Post-Covid-19 World." https://journalspoliticalscience.com/index.php/i/article/download/232/67.

4. Observer Research Foundation (ORF). n.d. "Labour Intensive Product Exports Need Attention." https://www.orfonline.org/expert-speak/labour-intensive-product-exports-need-attention.

5. Press Information Bureau (PIB), Government of India. 2021. "Factsheet: GTAM." https://www.pib.gov.in/FactsheetDetails.aspx?Id=149232&reg=3&lang=2.

6. Press Information Bureau (PIB), Government of India. 2024. Press Release. https://www.pib.gov.in/PressReleasePage.aspx?PRID=2161192&reg=3&lang=2.

7. Press Information Bureau (PIB), Government of India. 2020. Press Release. https://www.pib.gov.in/PressReleasePage.aspx?PRID=1660691&reg=3&lang=2.

Meet The Team

Pictured, from left to right

Top row: Manya Marwah, Shruti, Rama Vivek Gulavani, Urvika Mehra, Jigisha Sharma, Prapti Mukherjee, Ananya Jaggi; ***Bottom row***: Noorpal Kaur, Anusmita Das, Sidra Abbas, Rini Singh

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