STATE OF WORKING INDIA 2026

Youth in the labour market: Pathways from learning to earning

Centre for Sustainable Employment

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Youth in the labour market: Pathways from learning to earning

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About Azim Premji University's Work on Sustainable Employment

Azim Premji University was established in 2010, by the Azim Premji Foundation, with a clear social purpose of working towards a just, equitable, humane, and sustainable society. All of the University's programmes, teaching, research, and practice, work towards this purpose.

To contribute to the critical matter of India creating just and sustainable employment, the University has set up the Centre for Sustainable Employment (CSE), which conducts and supports research in areas of work, labour, and employment. It is part of the Centre for the Study of the Indian Economy, and provides empirically grounded, analytical insights as to the state of employment in India.

Website: https://azimpremjiuniversity.edu.in/centre-for-the-study-of-the-indian-economy-csie/cse

Email: cse@apu.edu.in

Report Team

Authors
Rosa Abraham, Tamoghna Halder, Amit Basole, Anand Shrivastava, Anand Kumar

Contributors
Akshit Arora, Angarika Rakshit, Anousha Gaia Peters, Chinmaya Kumar, Dontha Prashanth, Garima Agarwal, Mrinalini Jha, Pranav Kuttiah, Shiuli Vanaja, Srishti Yadav, Vijayshree Jayaraman

Research Fellows
Subhasree Ghatak, Krishna Priya Choragudi

Research Associates
M. K. Shravan, Bhargavi Shanigarapu, Yasar Arafath, Dhruva Vorkady, Sharad Sule

Interns
Arushi Sehra, Sreelakshmi K, Gowri R Lakshmi, Shrivats Sudhir, Vagdevi Tirlangi, Riddhi Samaddar

Design
Kshiraja Krishnan, Shraddha Bansode, Silja Bansriyar, Nanit B S, Susnata Paul, Palak Sharma

Outreach
Pragyan, Rohini Sen, Shashwat D C, Siddhant, Sony Shetty, Sudheesh Venkatesh, Vikram

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Abbreviations

AI: Artificial Intelligence

AICTE: All India Council for Technical Education

AISHE: All India Survey of Higher Educational Institutions

ASER: Annual Status of Education Report

ASI: Annual Survey of Industries

BFSI: Banking, Financial Services, and Insurance

CAGR: Compounded Annual Growth Rate

CMIE-CPHS: Centre for Monitoring Indian Economy – Consumer Pyramid Household Survey

CPI: Consumer Price Index

CTS: Craftsmen Training Scheme

CWS: Current Weekly Status

DGT: Directorate General of Training

EUS: Employment Unemployment Survey

GDP: Gross Domestic Product

GER: Gross Enrollment Ratio

GoI: Government of India

GSDP: Gross State Domestic Product

GST: Goods and Services Tax

IHDS: India Human Development Survey

IIPS: International Institute for Population Sciences

ILO: International Labour Organisation

INLD: Indian National Lok Dal

IT: Information Technology

ITI: Industrial Training Institute

IWS: India Working Survey

IWWAGE: Institute for What Works to Advance Gender Equality

LEAD: Leveraging Evidence for Access and Development

LFPR: Labour Force Participation Rate

MIS: Management Information System

MoHFW: Ministry of Health and Family Welfare

MOSPI: Ministry of Statistics and Programme Implementation

MPCE: Monthly Per Capita Consumption Expenditure

MSDE: Ministry of Skill Development and Entrepreneurship

MSME: Micro, Small and Medium Enterprise

NCVT: National Council for Vocational Training

NEP: National Education Policy

NEET: Not in Education, Employment or Training

NPE: National Policy on Education

NSDP: Net State Domestic Product

NSS-EUS: National Sample Survey – Employment Unemployment Survey

NSO: National Statistical Office

NSSO: National Sample Survey Office

OAW: Own Account Worker

OBC: Other Backward Caste

OECD: Organisation for Economic Co-operation and Development

OLF: Out of Labour Force

OLS: Ordinary Least Squares

PLFS: Periodic Labour Force Survey

POA: Programme of Action

RBI: Reserve Bank of India

ROI: Returns on Investment

SC: Scheduled Caste

SSC: Secondary School Certificate

ST: Scheduled Tribe

STEM: Science, Technology, Engineering and Mathematics

STR: Student–Teacher Ratio

SWI: State of Working India

TFR: Total Fertility Rate

TSR: Teacher–Student Ratio

TUS: Time-Use Survey

UDAYA: Understanding the Lives of Adolescents and Young Adults

UGC: University Grants Commission

UN: United Nations

UPS: Usual Principal Status

UPSS: Usual Principal and Subsidiary Status

UR: Unemployment Rate

WPR: Workforce Participation Rate

WDI: World Development Indicators

Foreword

India has the largest youth population in the world. For many years, this has been described as a demographic advantage. Whether it truly becomes one depends on something quite basic: how easily young people are able to move from education into decent, rewarding work.

This year's *State of Working India* looks closely at that journey. Over the past four decades, access to education has expanded dramatically, especially for women and for groups that were earlier excluded. More young people today are educated, informed, and ambitious than ever before. These are real achievements of which we can be proud.

There are also important signs of progress in how young people are engaging with the labour market. Younger workers are moving away from traditional, caste- and gender-based occupations and entering a wider range of sectors. Young women, in particular, are finding new opportunities in manufacturing and modern services, and gender gaps in graduate earnings have narrowed considerably. Migration, while often a necessity, has also allowed many young workers to access better employment opportunities across regions.

At the same time, the transition into employment remains uncertain and difficult. Many young graduates struggle to find stable salaried jobs. Educational opportunities remain uneven across regions and social groups. Recent job growth has been concentrated in agriculture and self-employment, often with limited earnings growth.

This report brings together this and other long-term data to understand how these patterns have evolved and what they imply for the years ahead. Its aim is to provide a clear and accessible picture of where young people stand in India's labour market today. We hope it will be useful to policymakers, researchers, and the wider public as India moves in the next two decades towards its 100th year as an independent nation.

Indu Prasad
President, Azim Premji Universities

Executive Summary

India's youth population, defined as those between the ages of 15 to 29, is the largest in the world. The 367 million people in this age group account for a third of the country's working age population. The extent to which this large, increasingly educated and aspirational cohort is productively absorbed into the labour market will determine whether this massive, and continuing demographic dividend translates into an economic dividend.

Whether this will materialise or not will depend on the education and skills of Indian youth and the opportunities available to them in the labour market. As such, youth employment outcomes will be determined by their options and choices in higher education. How long should they study, and in what lines? Where can they access effective education and skill training for the jobs available? And how can they find remunerative work? This year's State of Working India report traces this arc of a young worker's transition - from education to job search into employment, and how this has evolved over the last forty years.

Since Independence, India has made remarkable progress in closing some of the educational gaps of the past. Gross enrolment ratios in higher education are in keeping with India's level of development. Socioeconomic barriers in access to education along gender and caste lines have been reduced (although there is still a long way to go) and India has a much more connected and capable workforce entering the labor market as a result.This has not however been accompanied by an effective transition into employment. Unemployment rates are stubbornly high for young graduates. Access to education is uneven. The school to work transition is uncertain, and for many, not into stable, remunerative employment.

Young people are also entering a labour market that is challenging. While recent discussions have raised concerns about the advent of Artificial Intelligence and its potential impact on entry-level salaried employment, as of yet, its full effects remain uncertain. What is not in doubt though, is that the last half decade has not been one in which salaried employment has been generated in adequate numbers, despite some notable successes. In the post-Covid period India's employed population has increased from 490 million to 572 million, with employment rates rising from 71 to 74 percent for men and from 26 to 34 percent for women, between 2021-22 and 2023-24. But the majority of employment creation has been in agriculture. Of the 83 million jobs added between 2021-22 and 2023-24, 40 million have been in agriculture, with women accounting for a large share (38 million). The number of women in own-account self-employment has seen a nearly four-fold increase since 2017. Self employment earnings among women and salaried earnings (for men and women) have largely stagnated. Given uneven economic development across the country, migration has emerged as an important mechanism among the youth to access employment.

It is in this context of a recent structural slowdown, a more educated and aspirational youth population and the challenge of new technologies that this year's Report addresses the question of youth employment in India. The report is primarily backward looking - we use official databases going back four decades to see how youth participation in education and employment has changed, how well we have been able to use this demographic dividend, and the challenges and opportunities that arise in integrating them into the workforce. The hope is that it provides a clear eyed view for thinking about current and future levers to ensure that the substantial youth dividend is put to proper use.

Highlights from the report

- **India is nearing the peak of its demographic dividend, with the share of the working-age population expected to begin declining after 2030:** The 15 to 29 year olds, India's youth, number about 367 million and account for nearly a third of the working age population. Of them, 263 million are not in education and constitute the potential workforce. The pace of employment creation for this young generation in the coming decade will be critical in determining whether India's demographic dividend can be translated into an economic one.

- **Educational attainment among the youth has risen substantially over the past four decades, particularly among women:** India's tertiary enrolment rate of 28 percent is on par with that of countries at similar levels of per capita income. Between 1983 and 2017, the country made considerable gains in higher education, particularly among women.

- **Recent trends suggest a reversal in tertiary enrolment trends among men:** The share of young men in education fell from 38% in 2017 to 34% in late 2024, with a large share citing the need to support household incomes as reason for their withdrawal. The most common reason given for withdrawing from education is the need to support household incomes. In 2017, the share citing this reason was 58 percent. By 2023, it had increased to 72 percent.

- **India's expansion in tertiary education has been accompanied by a rapid increase in the number of institutions, largely driven by private providers:** Since liberalisation, the number of higher education institutions has increased from 1,644 to 69,534. The availability of colleges has steadily improved from 29 colleges per lakh youth in 2010 to 45 colleges in 2021. However, there are large regional disparities with northern and eastern states still having relatively fewer number of colleges per lakh youth.

- **Increase in number of teachers has not kept pace with increase in student numbers:** AICTE norms prescribe between 15 to 20 students per teacher. However, private colleges have, on average, 28 students per teacher while public colleges have 47. Hiring and filling up of vacancies in teaching positions remain crucial to ensure that learning outcomes are not compromised due to resource constraints.

- **Expansion of vocational training institutes since the 2010s:** The number of Industrial Training Institutes have increased by nearly 300%, led largely by private ITIs. But this expansion has been accompanied by decline in institutional quality, particularly among private providers. The link between ITI training and employment remains tenuous with no perceptible association between location of ITIs and location of manufacturing firms.

- **Higher education has become increasingly democratised but financial barriers remain:** Between 2007 and 2017, the share of students in tertiary education who belong to the poorest households increased from 8 percent to 15 percent.

- **Financial barriers continue to restrict access to higher education, particularly in professional fields such as engineering and medicine:** Youth from richer households are far more likely to be enrolled in professional courses like engineering and medicine. The cost of pursuing these degrees often exceeds the annual per capita expenditure for poorer households, resulting in their underrepresentation in these fields and reinforcing inequalities in access to high-paying occupations. This gap has narrowed somewhat between 2007 and 2017, although disparities remain.

- **The transition from education to employment remains a major challenge, particularly for graduates.** Graduate unemployment among the 15- to 29-year-olds remains high – nearly 40% among the 15- to 25-year-olds, and 20% among the 25- to 29-year-olds; and, only a small share secure stable salaried jobs within a year of graduation.

- **The rapid expansion in the number of graduates has not been matched by commensurate growth in graduate employment:** Between 2004-05 and 2023, while approximately 5 million graduates were added each year, only around 2.8 million found employment, and an even smaller share entered salaried employment, contributing to rising graduate unemployment and slowing earnings growth.

- **Graduate salaried earnings exceeds non-graduates at the time of entry into employment and over their lifetime:** Graduate salaries are twice that of non-graduates at the time of entering the labour market. These differences widen over their lifetime.

- **For men, the earnings premium has stagnated in recent years:** However, growth in entry-level salaries of young graduate men have slowed down. At the same time gender gaps in graduate earnings have narrowed significantly, indicating improved labour market outcomes for young women.

- **Young workers are exiting agriculture faster than older cohorts and increasingly entering manufacturing and services:** Young women, in particular, have seen rising employment in manufacturing and modern services, including information technology, automobile manufacturing and business support services, indicating changing sectoral pathways into the labour market.

- **Caste- and gender-based occupational segregation has weakened over time:** Younger cohorts are less likely to be concentrated in traditional occupations associated with their social background. Industries traditionally associated with SC/STs have a fewer share of young SC/STs, indicating that newer generations are not adopting traditional employment pathways. For instance, in 1983, young SC/STs accounted for 40 percent of SC/STs employed in leather and footwear industry. By 2023, their share had fallen to 24 percent. For women too, we see fewer shares of younger women in traditional female-dominated sectors such as tobacco and personal services.

- **Migration has emerged as an important mechanism through which youth respond to uneven regional development and labour market opportunities:** Younger, poorer states continue to be major sources of migrant workers, while more economically advanced and ageing states increasingly rely on migrant youth to meet labour demand.

The rest of this Executive Summary elaborates on the above points with reference to the corresponding figure or table in the Report.

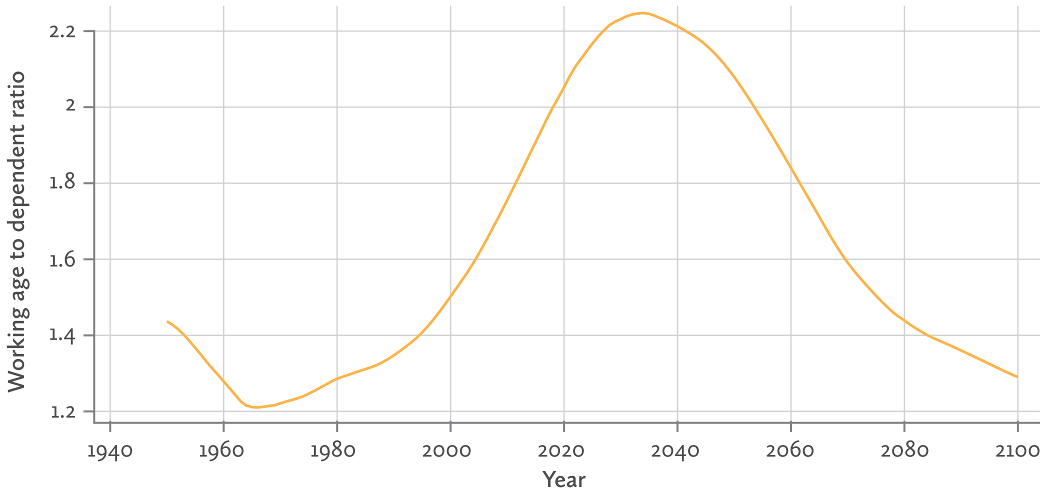
A. The demographic dividend

1. With a median age of 28 years, India is among the youngest economies in the world. However, with the share of youth beginning to decline, the window to reap the demographic dividend is narrowing.

a. In 2023, the working age population in India accounted for nearly 70 percent of the total population. An age structure where the working age population increases relative to the dependent population as is the case now in India, is referred to as the "demographic dividend". If this demographic dividend is to translate into an economic one, employment is crucial.

b. India is nearing the final phase of its demographic dividend. The ratio of the working age population to the dependent population is expected to decline from 2030 onwards as a result of the falling share of the youth population and an increase in elderly population.

India's demographic dividend is expected to peak in 2030



Source and notes: World Population Prospects, 2024, UN Population Division. This is Figure 2.4 in the report.

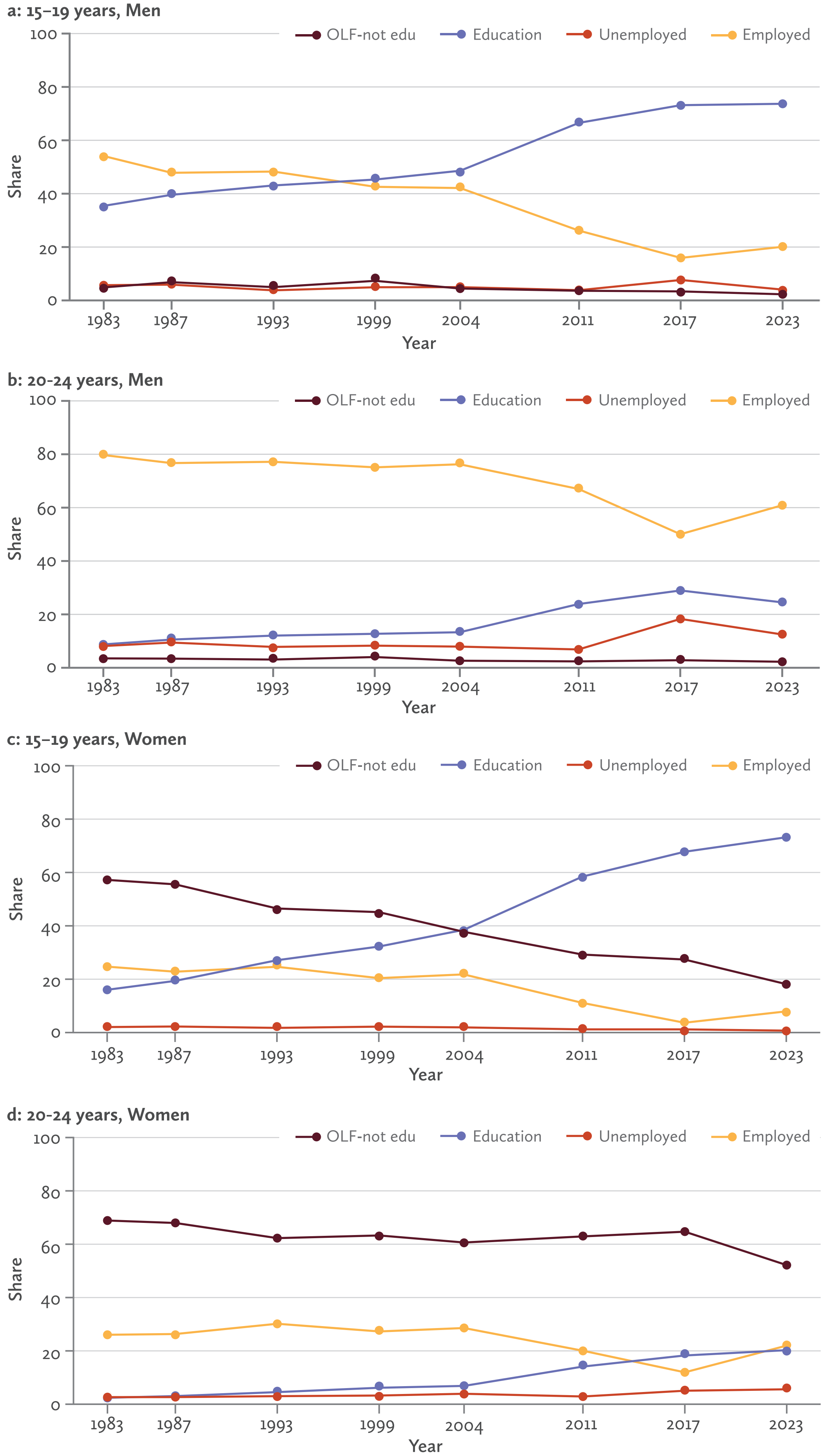
c. The youth, i.e. those between the ages of 15 and 29 years, are a subset of this working age population and currently account for a third, around 367 million. If we exclude those who are in education, this amounts to about 263 million - our potential young workforce. Never before have so many young Indians been as educated and as connected. Creating remunerative and meaningful employment for this highly aspirational cohort is imperative if we are to reap the dividends of demography.

B. Training the workforce – higher education and vocational training

2. In the last forty years, India has made considerable progress in higher educational enrolment, particularly among women.

a. Educational enrolment has risen sharply over the past four decades, alongside a decline in employment. Among men aged 15–19, enrolment increased from 49 percent in 1983–84 to 73 percent in 2023–24, For women, the increase has been even sharper, from 38 percent in 1983 to 68 percent in 2023. For the older cohort, 20 to 24 year olds, the increase is seen from 2004 onwards. These gains reflect substantial progress in secondary and tertiary education participation, particularly for women.

Steady increase in educational enrolment, especially among women

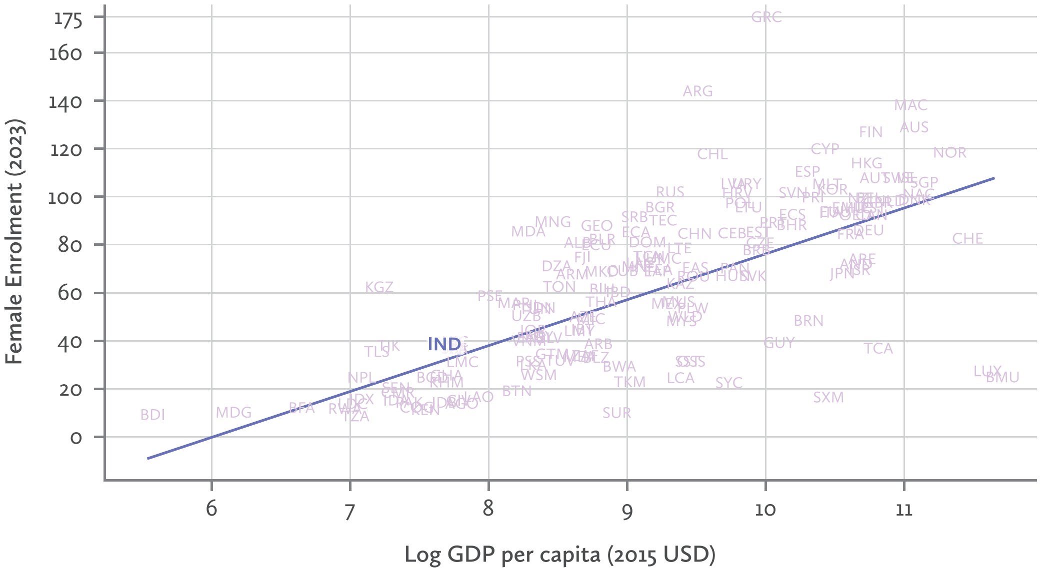


Sources and notes: NSS-EUS and PLFS various rounds. This is Figure 2.9 and 2.10 in the report

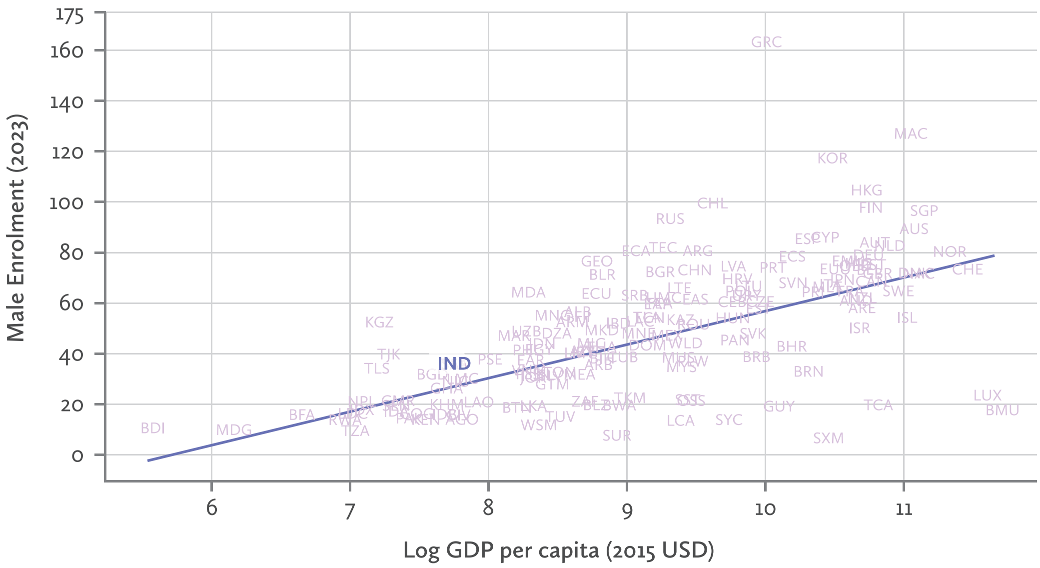
b. Gross tertiary enrolment rates among men and women are in line with that of other countries at similar per capita income levels suggesting that India's performance has been broadly consistent with global benchmarks. However, persistent caste-based inequalities continue to constrain equitable access to tertiary education. Although enrolment rates among Scheduled Castes increased from 11 percent to 26 percent, and among Scheduled Tribes from 8 to 21 percent between 2011 and 2023, both remain below the national average of 28 percent. Therefore, participation in higher education still remains unequal.

From a global perspective, India is on track in terms of GER, given its per capita income

a: Female



b: Male



Sources and notes: World Development Indicators 2023. GER refers to tertiary school enrolment (%, gross). This is Figure 4.5 in the report.

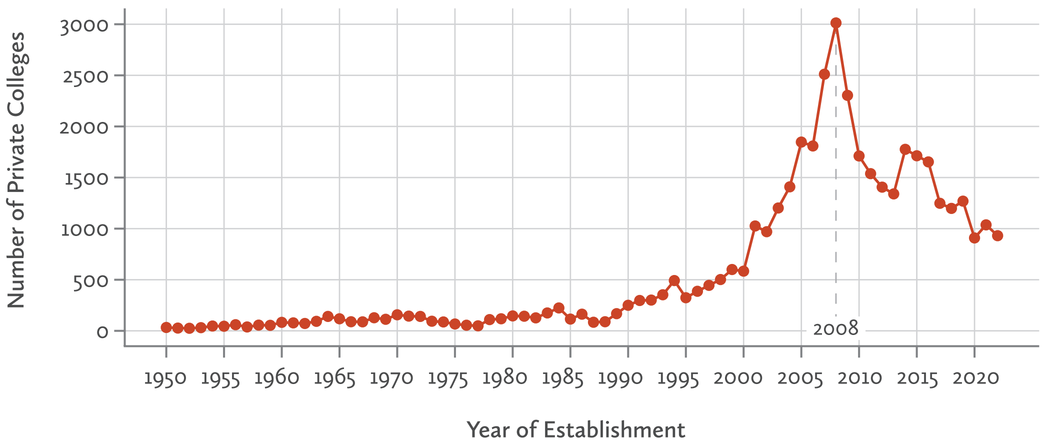
3. The increase in educational enrolment has come against the backdrop of expansion of higher educational institutions across the country, and of vocational training institutions, particularly post-liberalisation.

a. From 1,644 institutes of higher education - colleges and universities - there are now 69,534 institutions registered in AISHE. The years between 2000 and 2010 saw the sharpest increase with the number of institutions rising by 150 percent. The majority, 80 percent, of higher education institutions are private, a shift from the 1950s to 1980s, when there were nearly equal shares of public and private institutions.

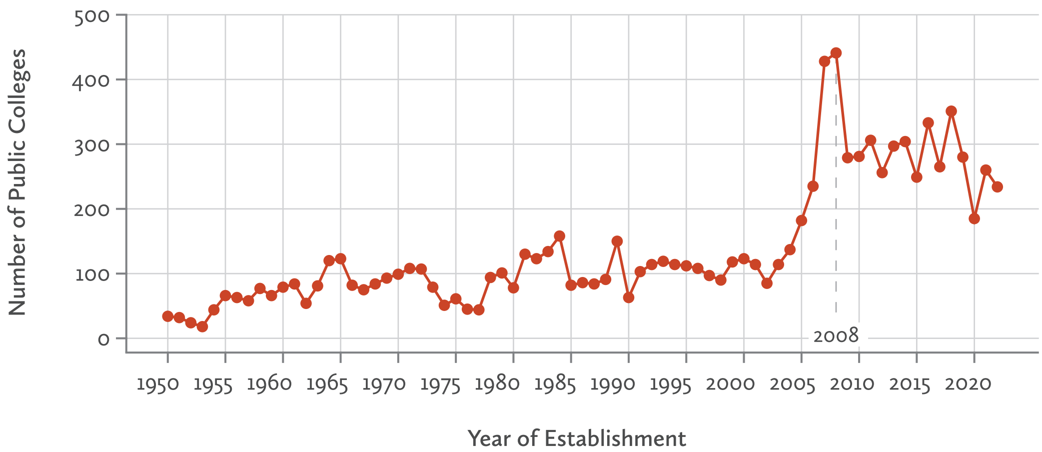
b. Since the 2000s, the number of ITIs have also increased by nearly 300 percent, from 3,674 in 2005 to 14,582 in 2025. And, much like higher education, this increase was driven by private ITIs - about 80 percent of ITIs currently are private ITIs.

Increase in the number of educational institutions - colleges and ITIs - till the first decade of 2000s

a: Private Colleges



b: Public Colleges

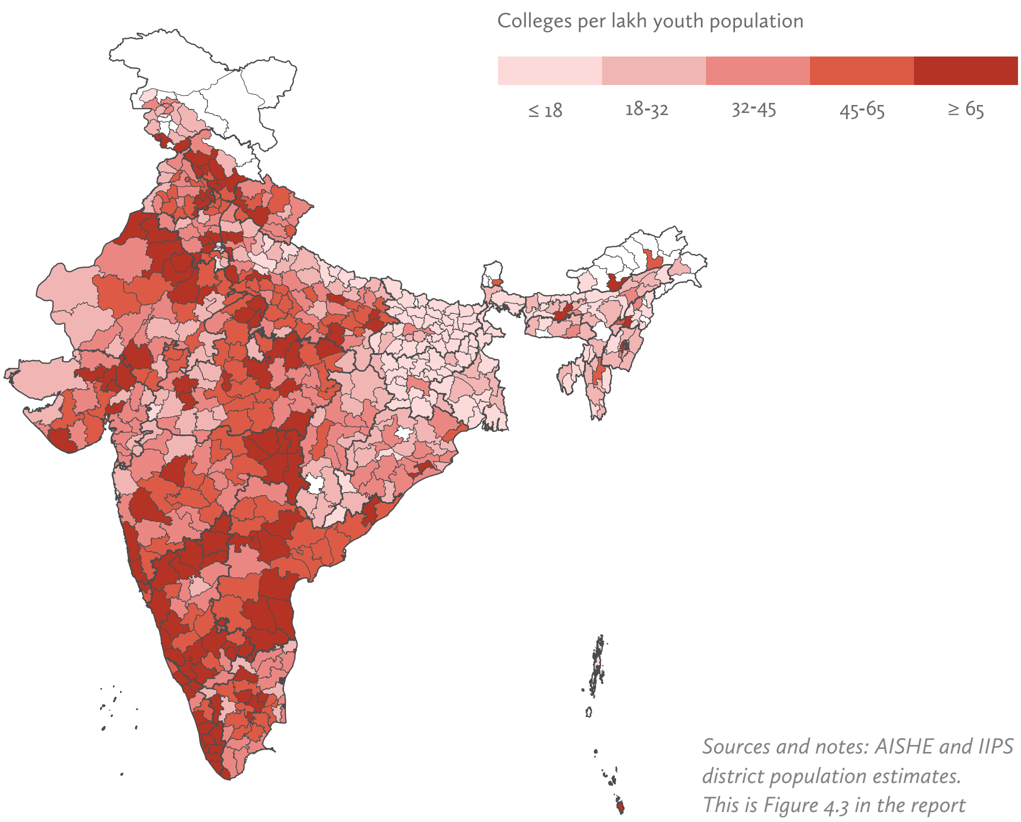


Sources and notes: Higher educational institutions from AISHE. ITIs from NCVT-MIS (institution-level data). This is Figure 4.2 in the report.

4. The expansion of institutions of higher education has proceeded unequally across the country and large regional variations remain. Among ITIs, expansion has been accompanied by a deterioration in quality.

a. College density, measured by the number of colleges available per lakh youth population in a district, steadily improved between 2010 and 2021 from 29 to 45 colleges per lakh youth. Central and Western states like Madhya Pradesh, Gujarat and Rajasthan have closed the gap with southern states and have similar per capita institutional availability. However, among the northern states of Bihar, Jharkhand and West Bengal, institutional availability remains low compared to the rest of the country.

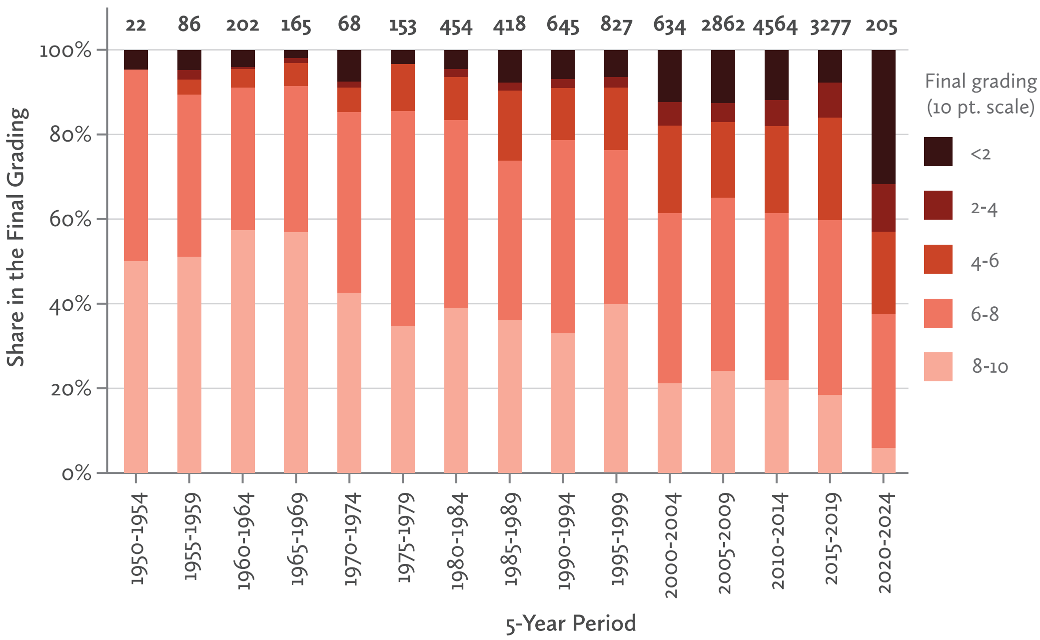
Regional disparities in the per capita availability of colleges



Sources and notes: AISHE and IIPS district population estimates. This is Figure 4.3 in the report

b. ITI expansion since the 2000s has come at the cost of institutional quality. Based on eight indicators including enrolment, pass percentage and trade diversity, ITI quality rankings have deteriorated in the last few decades and the more recently established ITIs score relatively worse on these and other parameters of quality. Private ITIs have lower rankings on an average, compared to public ITIs.

Newer ITIs fare much worse on quality parameters compared to older ITIs



Sources and notes: NCVT-MIS (institution-level data). Grading is based on admission percentage, female participation, trade diversity, pass percentage, CBT exam participation, average marks, DST enrolment, and SC/ST/PwD enrolment. A grade of 8-10 indicates best quality, 6–8 good, 4–6 average, 2–4 below average, and below 2 poor. Numbers on the top of the bars refer to the number of ITIs. This is Figure 5.4 in the report

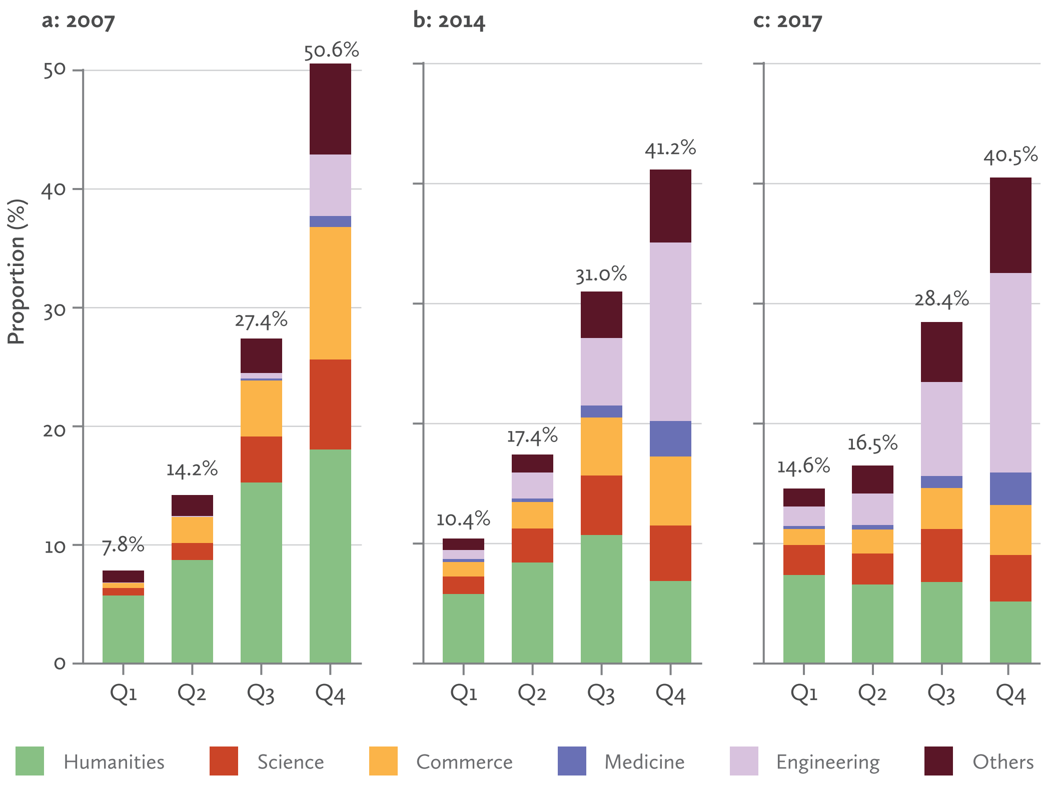
5. Despite institutional expansion, higher education remains prohibitively expensive for many.

a. Despite institutional expansion, the cost of education, particularly professional degrees have risen significantly over the years. Medicine and Engineering degrees are among the most expensive. A Medicine degree costs approximately ₹97,400 and an Engineering degree costs about ₹1,23,000 annually as of 2017-18.

b. Enrollment rates are higher in richer households, but between 2007 and 2017, we see some narrowing of this disparity with a rise in the share of students from poorer households. In 2007, only 22 percent of students came from the bottom two households. By 2017-28, their share had increased to 32 percent.

c. Youth from richer households are far more likely to be enrolled in professional courses like Engineering and Medicine which are also the higher earning courses with more guaranteed and stable employment outcomes. Conversely youth from poorer households are far more likely to be in Commerce and Humanities. This divergence has increased between 2007 and 2017.

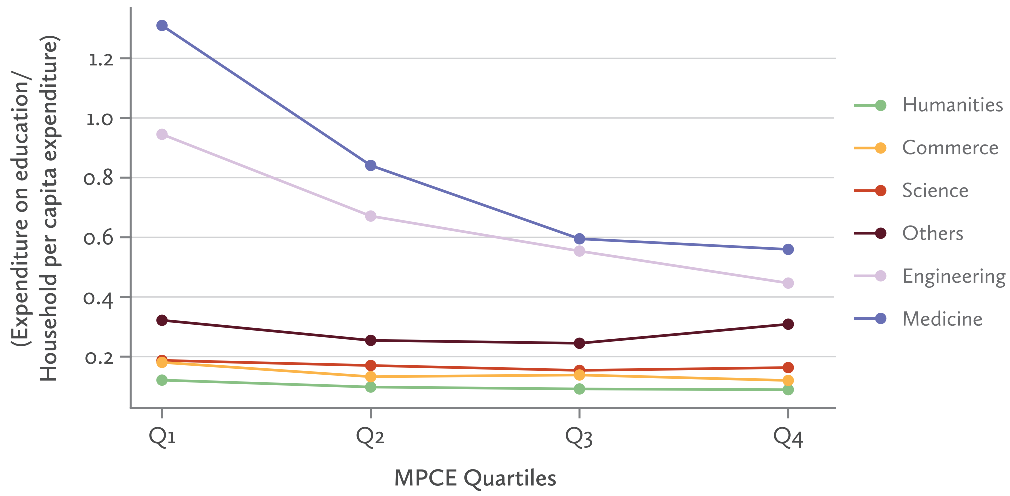
Steady increase in students in engineering courses, particularly in the richer households



Sources and notes: NSS Social Expenditure on Education surveys. This is Figure 4.14 in the report.

d. If we calculate educational expenditure as a share of a household's per capita expenditure, then among the poorest quartile of households, the cost of pursuing a professional degree like Engineering and Medicine exceeds their annual per capita expenditure. Poorer households cannot afford professional degrees.

Financial burden of professional degrees exceeds household's per capita expenditure among the poorer households



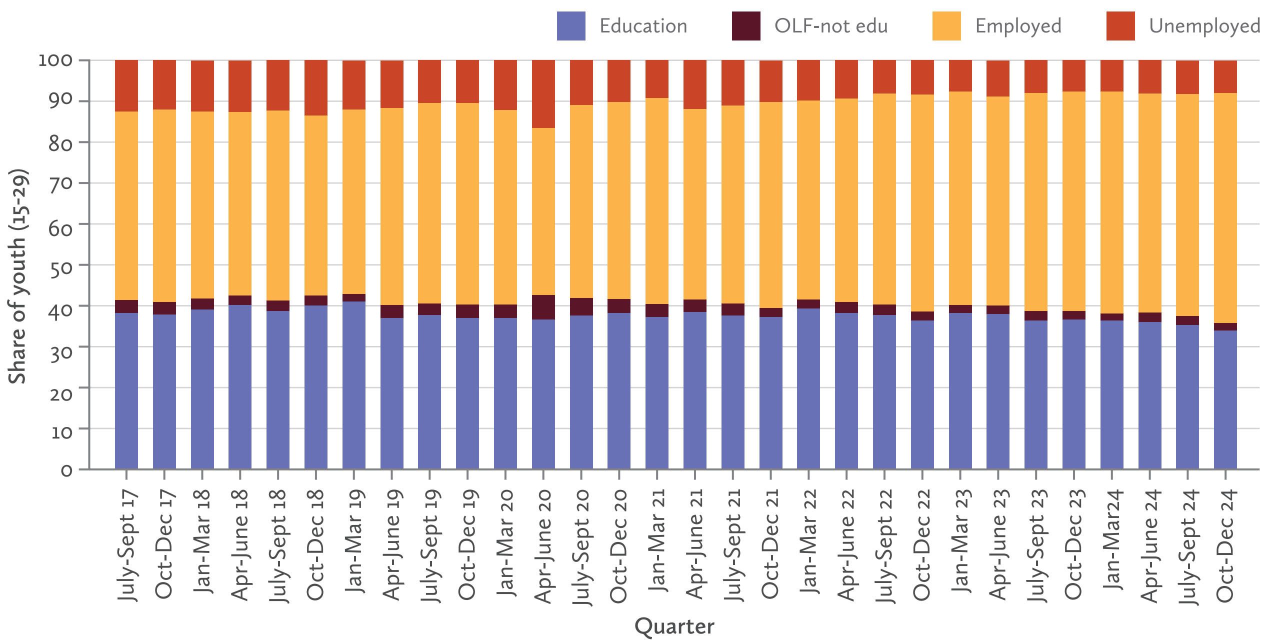
Sources and notes: NSS Social Expenditure on Education surveys. This is Figure 4.15 in the report.

e. Students from poorer households face a dual disadvantage in higher education - barriers to accessing tertiary institutions, and constraints in pursuing professional courses that offer higher labour market returns but involve substantial private costs. This can limit their access to more remunerative employment opportunities underscoring the importance of policy measures to improve affordability and ensure more equitable access across institutions and fields of study.

6. Since 2017, among young men, there has been a reversal in these trends and their share in education has fallen.

a. The share of young men in education has fallen from 38 percent 2017 to 34 percent in the last quarter of 2024. This has been accompanied by a corresponding increase in their share in employment. For women too there is an increase in employment, although this is not accompanied by a decrease in education, but rather in their share out of the labour force.

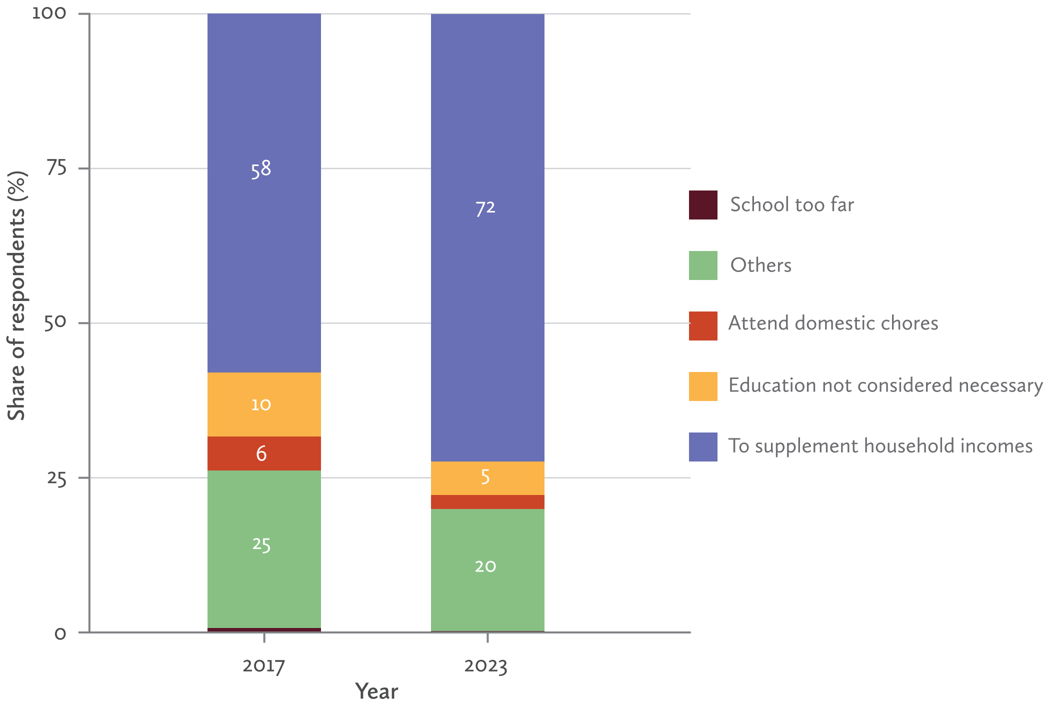
Increase in young men's employment has come with a reduction in their share in education



Source and notes : Periodic Labour Force Survey (PLFS), all quarters, 2017–18 to 2023–24 and OLF-not edu : Out of labour force and not in education.This is Figure 2.12 in the report.

b. When asked for the reason for not being enrolled in education, an increasingly large share of young men between the age of 15 to 24 years respond with the need to support household incomes as the reason for withdrawal from education. This share has increased between 2017 and 2023, from 58% to 72%.

Increasing share of young men cite supplementing household incomes as reason for withdrawing from education



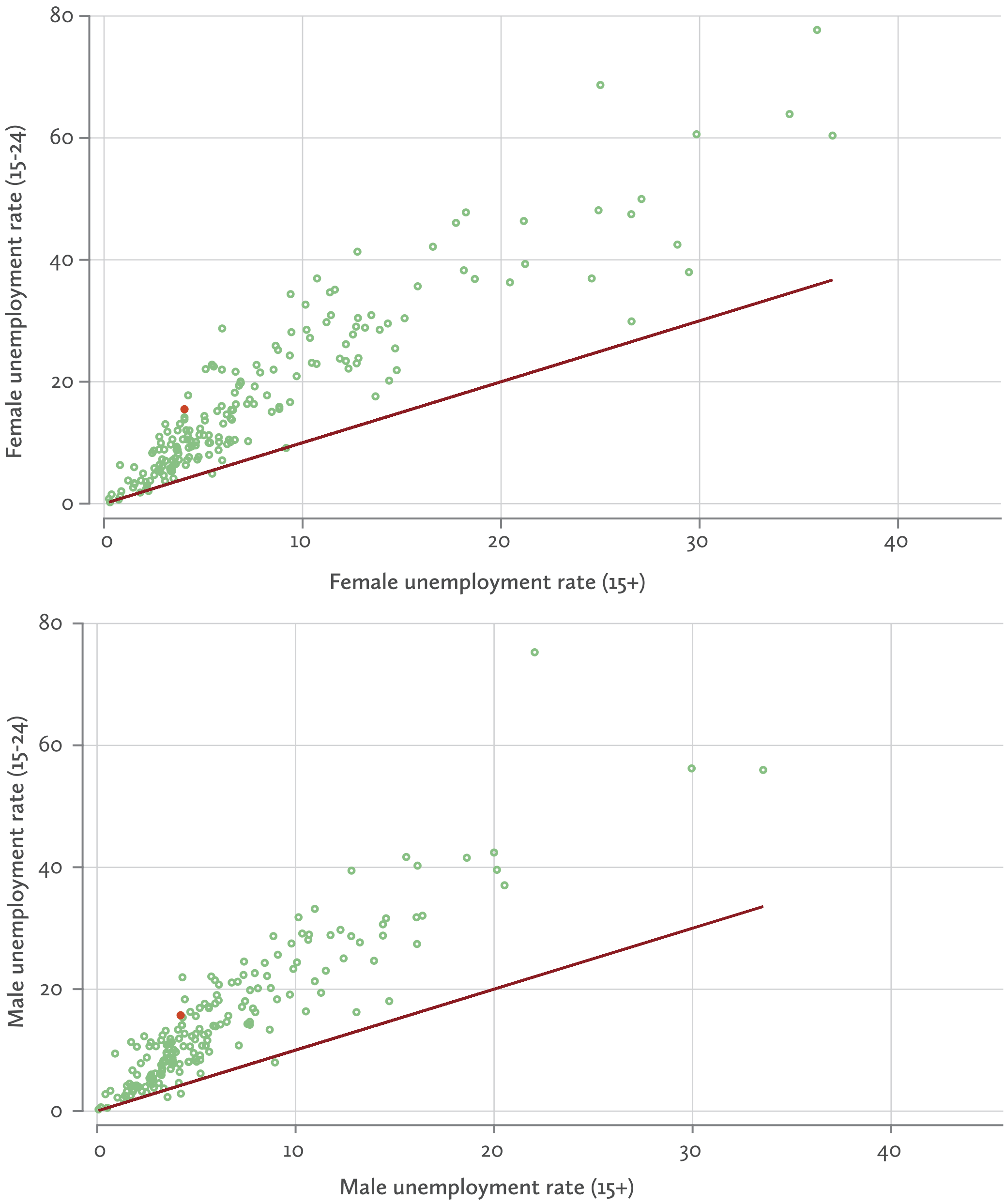
Sources and notes: Periodic Labour Force Survey (PLFS) 2017-18 , 2023-24. This is Figure 2.13 in the report.

C. Finding employment – the school to work transition

7. The transition from completion of education to finding a job is a critical phase for the youth. In India, for the majority, this transition lasts for at least a year, and there is no certainty of finding salaried employment.

a. Youth unemployment rates are significantly higher than overall unemployment rates globally, but in India, this gap is particularly pronounced. While this pattern reflects common labour market frictions faced by new entrants including limited experience and networks, it also signals deeper constraints in labour demand.

In India, youth unemployment is four times non-youth, much higher than global average



Sources and notes: World Development Indicators, 2023. The red dot corresponds to India. This is Figure 6.1 in the report.

b. Open unemployment tends to be higher at higher levels of education and lower among older cohorts. The former, high unemployment rate among graduates reflects higher aspirations and the willingness and ability to wait for a good job. The latter, declining unemployment with age, indicates eventual matching with jobs and limits to how long one can remain out of the labour market. Therefore young workers and in particular, young graduates will be expected to have among the highest recorded open unemployment rates

c. In India, 40 percent of graduates in the labour force report open unemployment. However, this is not a new phenomenon - between 1983 and 2023, graduate unemployment rates have remained more or less unchanged between 35 and 40 percent.

Graduate youth unemployment has been a persistent problem in India

	Less than 25 years	25-29 years	30-34 years	35-39 years	40 years and above
Graduate & above	39.33	20.04	8.94	3.25	1.09
Higher Secondary	16.33	7.01	3.33	1.65	1.09
Secondary	9.97	4.10	1.60	1.17	1.17
Primary or middle	8.98	3.40	2.37	1.91	1.42
Literate but below primary	7.60	0.63	2.70	1.80	1.68
Illiterate	8.09	1.06	2.17	1.67	1.60

Sources and notes: PLFS 2023-24. This is Figure 6.2 in the report.

d. However, the problem of graduate unemployment has been magnified in recent years owing to the growing size of the graduate population. In the last few decades, the youth population has grown substantially. So has the tertiary enrollment rate resulting in an increase in the absolute number of young graduates. This, together with the high incidence of unemployment has resulted in a large number of unemployed graduates - 11 million out of 63 million graduates between the ages of 20 to 29 were unemployed as of 2023.

As the number of graduates increased, so did the incidence of unemployment

	Graduates		Unemployed graduates	
	As a share of 20-29 year olds (%)	No. (in million)	As a share of 20-29 unemployed (%)	No. (in million)
1983	4%	5	13%	0.7
1993	6%	9	22%	2
2004	10%	19	32%	3
2011	16%	32	44%	4
2017	22%	49	46%	10
2023	28%	63	67%	11

Sources and notes: NSS EUS and PLFS, various years. This is Table 6.1 in the report.

e. Using panel data we track young graduate men for a year from when they report themselves as unemployed. Half of these young men find employment within a year. But only a small share find permanent salaried or white collar employment. Among graduates, only about 7 percent find permanent salaried employment within a year of reporting themselves as unemployed.

Fifty percent of young graduates find employment within a year, but finding salaried employment is rarer

Education level	Any employment (%)	Permanent Salaried (%)	White Collar (%)
12th Standard Pass	51.9	4.0	1.5
Graduate & above	48.8	6.7	3.7
Overall	51.2	4.6	2.0

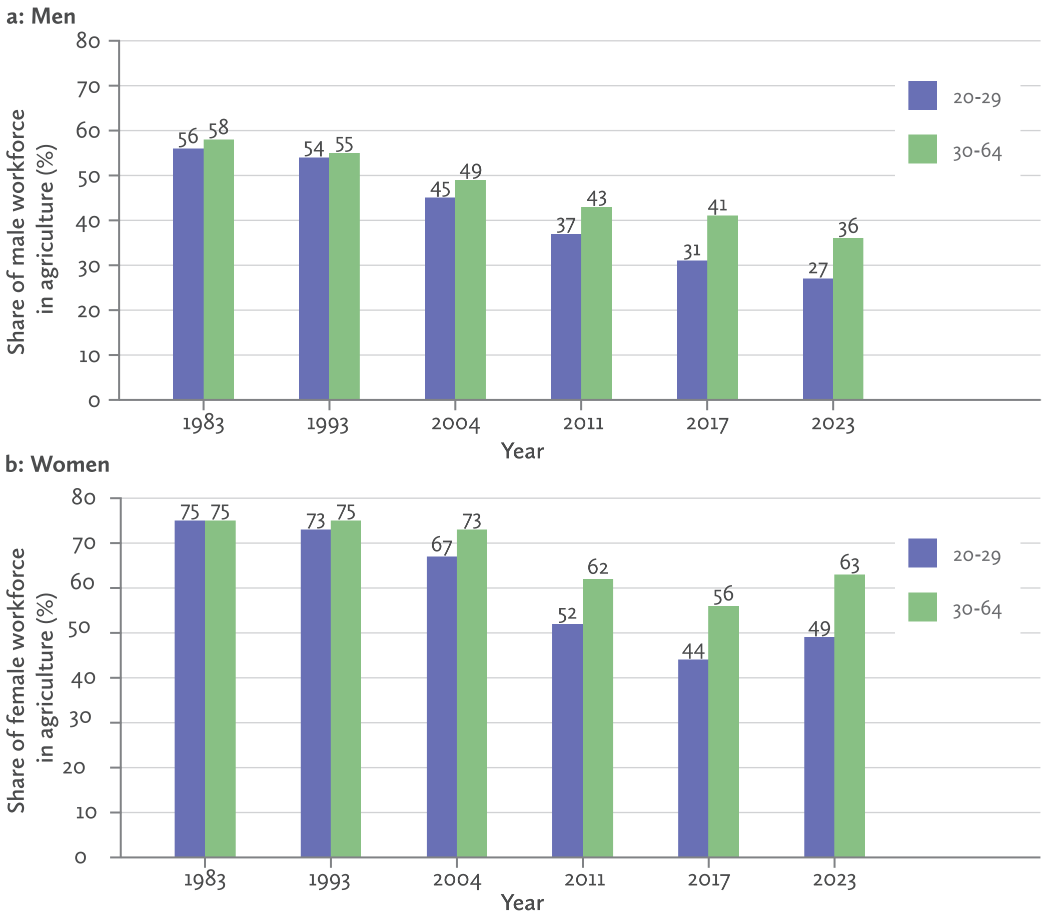
Sources and notes: CMIE-CPHS pooled sample. This is Table 6.5 in the report.

D. Young workers in the labour market

8. The exit of workers from agriculture that has characterised India's labour market has happened at a much faster pace for young workers, particularly young women.

a. The share of young workers in agriculture has fallen much faster than that of the older workers. However, from 2017 onwards we see a change in this trend. For women, the share of workers in agriculture - young and old - has increased. And, among young men, there is a relative stagnation in the share in agriculture, between 2017 and 2023.

Younger workers have exited agriculture faster



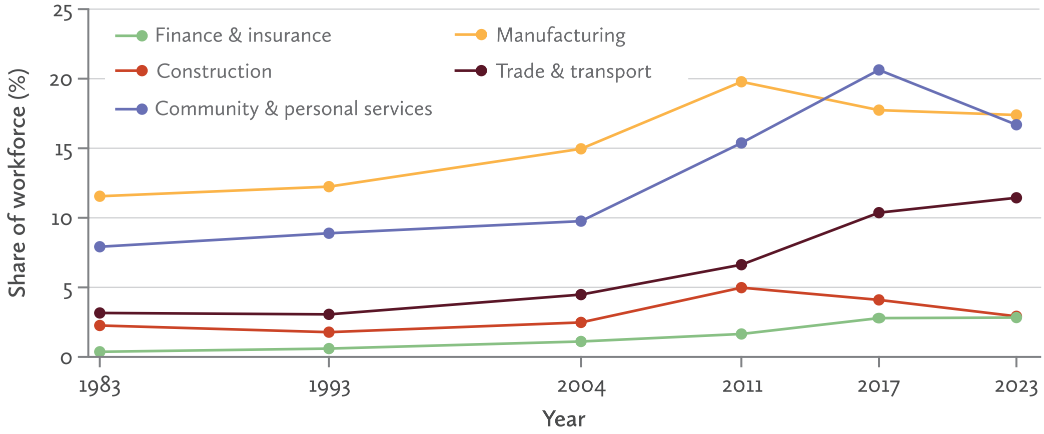
Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. These are Figures 3.1 and 3.2 in the report.

9. Young and old men work in similar non-agricultural sectors. Among women, however, in recent years, major non-agricultural employers differ substantially between the young and old.

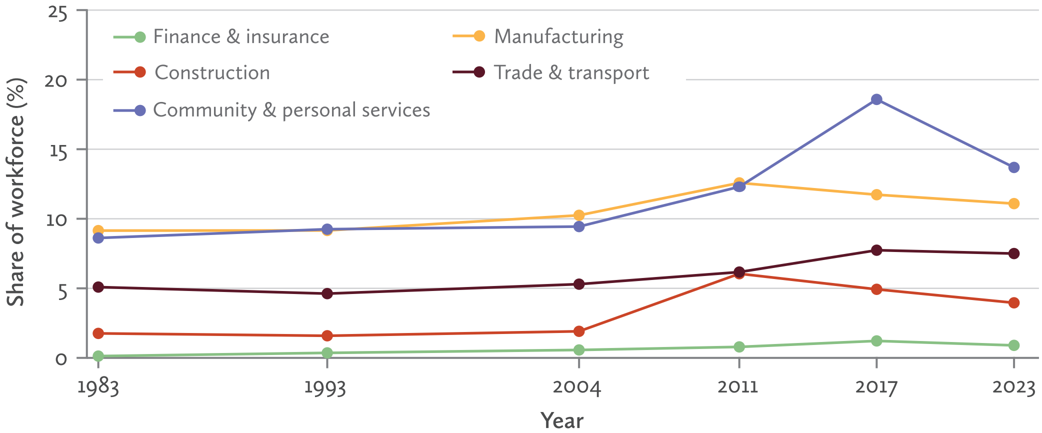
a. Young women are increasingly employed in manufacturing. This is driven largely by employment in the Textile and Apparel industry. Older women, on the other hand, are predominantly engaged in Community and Personal services. For young men, the major entry-level non-agricultural employers are Trade, Transport, and Construction, not very different from the major employers of older men.

Manufacturing has emerged as a major employer for young women in recent years

a: Young women (20-29 years)



b: Older women (30-64 years)

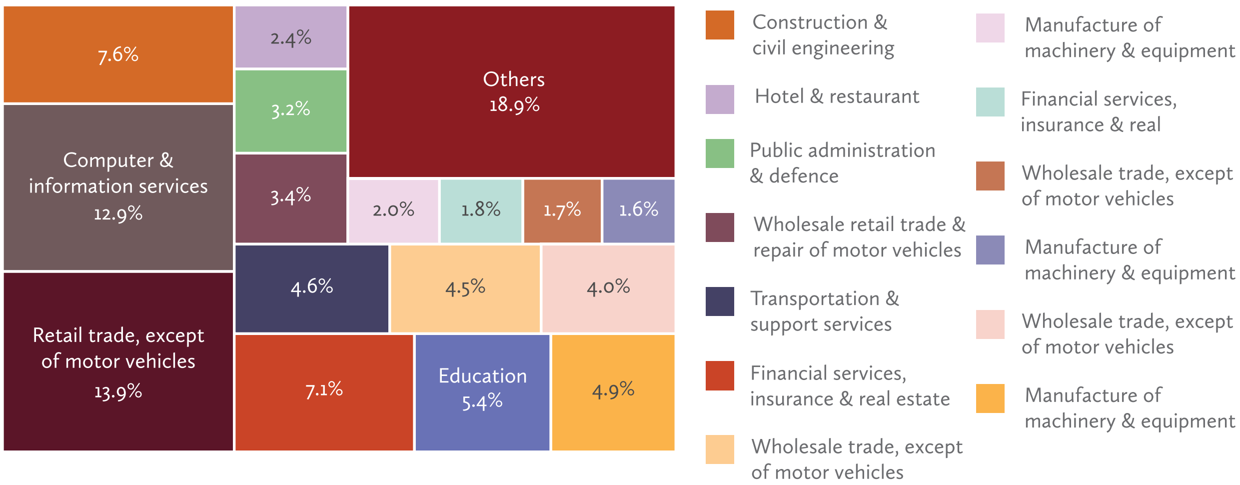


Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. These are Figures 3.4a and 3.4b in the report.

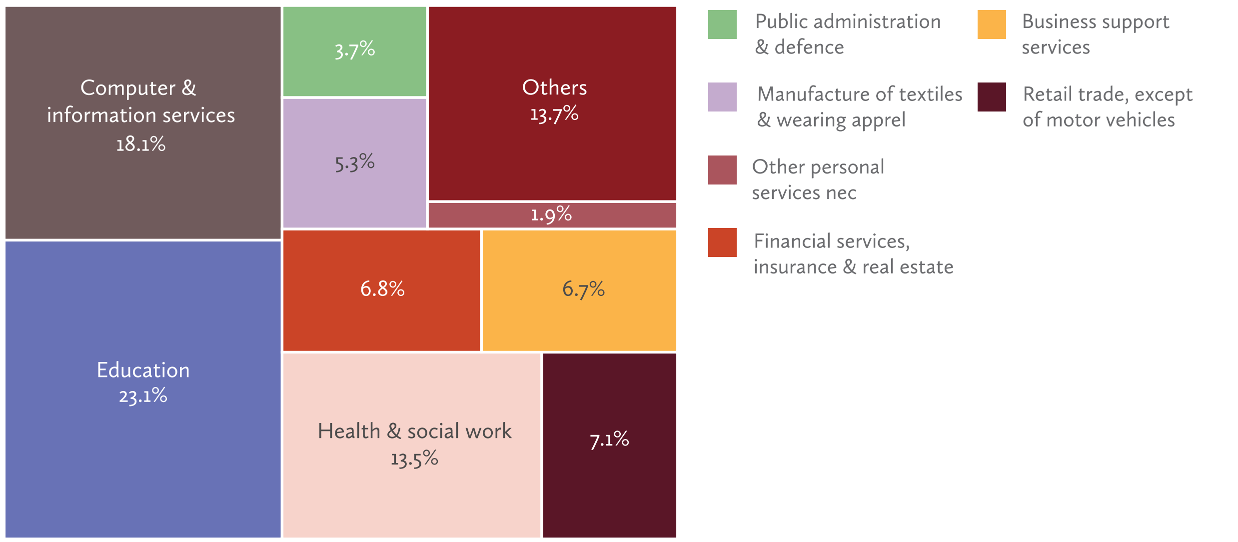
b. In 2023, Computer and Information services, retail trade, construction and civil engineering were major employers for men. For women, Computer and information services, health and education accounted for the majority of graduate employment.

Major non-agricultural sectors of employment

a: Men



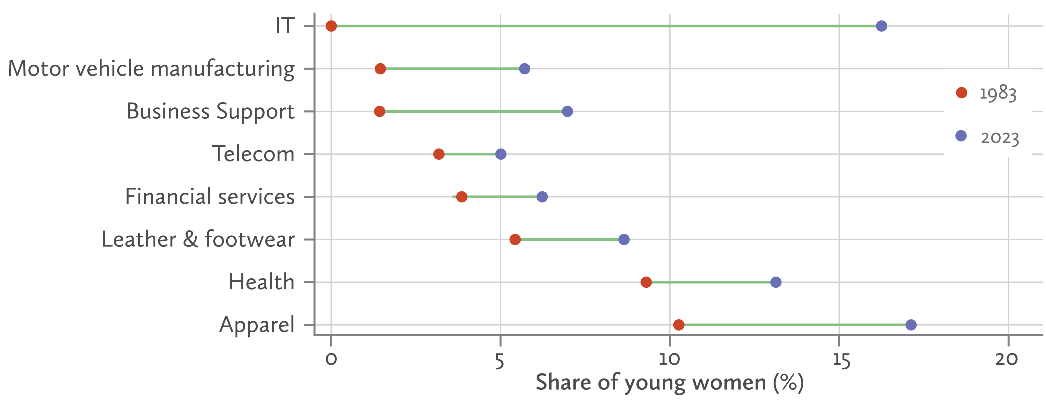
b: Women



Sources and notes: PLFS 2023-24. Includes only young (20-29). Shares correspond to non-agricultural workforce. These are Figures 3.5b and 3.6b in the report.

c. Traditionally female dominated industries of women were tobacco, education and health. These industries are seeing less entry of young women. For women, it is the services sector industries along with apparel manufacturing that has seen the largest increase in young women between 1983 and 2023. We examine the top ten industries that have seen the largest increase in employment within young graduate women. These are IT, motor vehicle manufacturing and Business support services.

IT, Motor vehicle manufacturing and Business support services have seen significant increase in the share of young women in their workforce



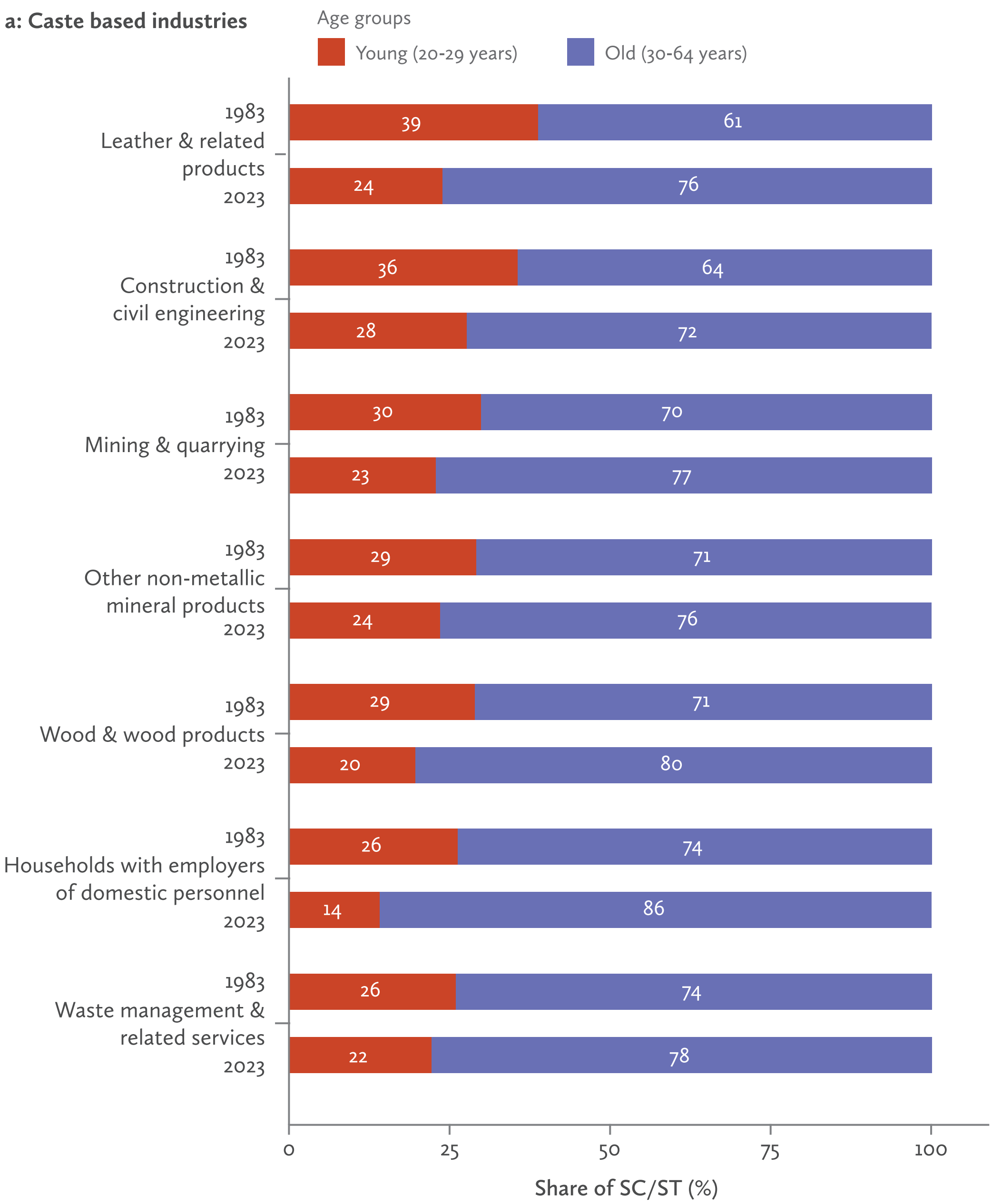
Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. This is Figure 3.11 in the report.

10. Caste and gender-based occupational segregation has weakened over time and younger generations of workers are less likely to be in industries that are traditionally associated with their caste or gender.

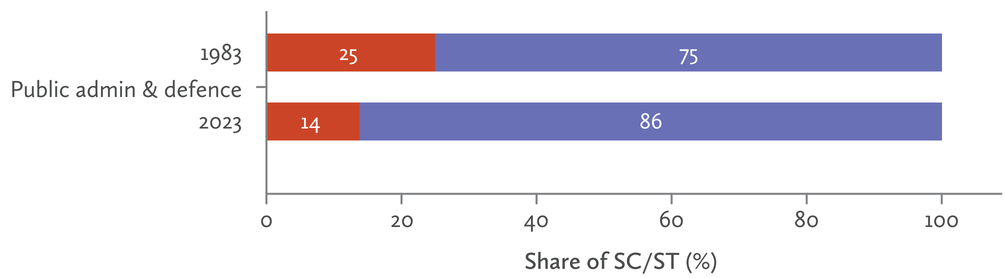
a. Industries traditionally dominated by Scheduled Castes and Scheduled Tribes are now less likely to be entry points into the labour market for young workers from these communities.

Declining share of young SC/ST workers in traditionally caste-based industries and in public administration

a: Caste based industries



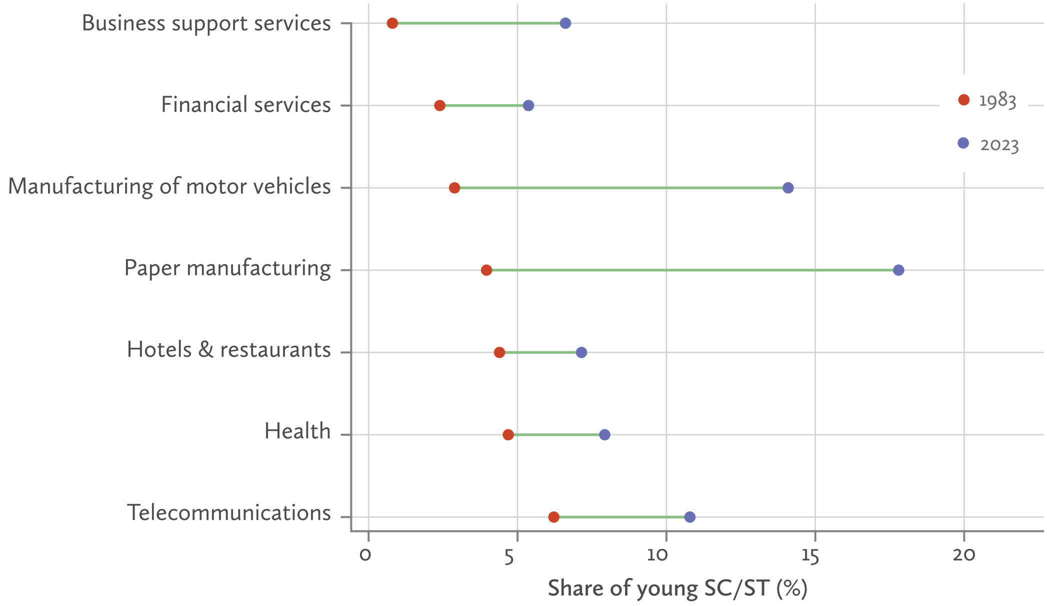
b: Public sector employment



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. These are Figures 3.8a and 3.8b in the report.

b. For Scheduled Castes and Scheduled Tribes, the largest increase in the share of young workers has been in Manufacturing of paper, vehicles and telecommunications equipment.

Top ten sectors that saw the largest increase in the share of SC/STs are those not typically associated with caste-based industries



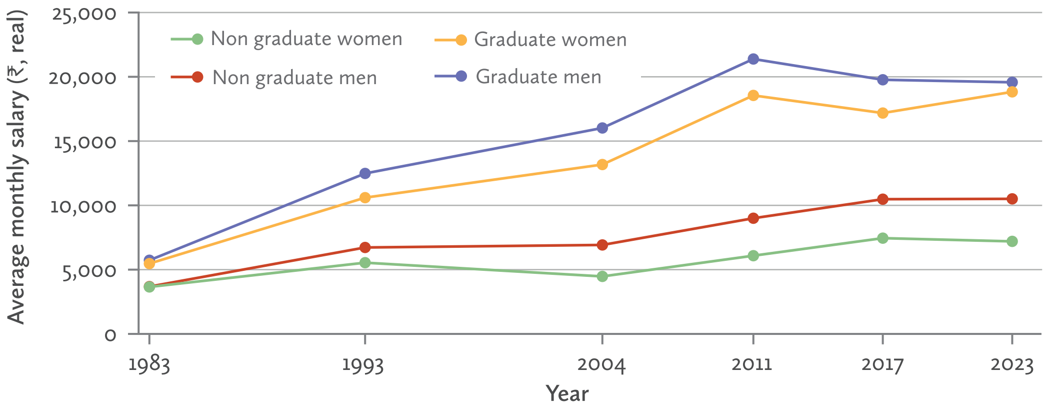
Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. This is Figure 3.9 in the report.

11. While young graduates earn more than double that of non-graduates, this premium is narrowing over time.

a. The gap between graduate and non-graduate earnings for youth increased substantially, especially between 2004 and 2011. However, since 2017, there has been a slowdown in earnings growth for young men.

b. The gender gap in earnings of young graduates has gradually converged, and by 2023, young graduate women are making as much as young graduate men.

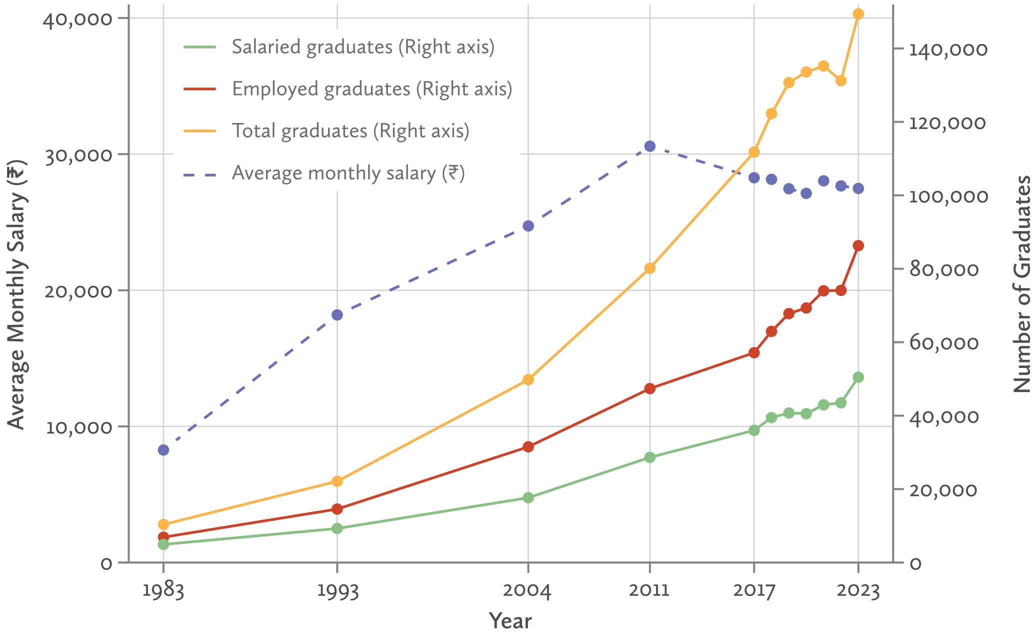
Graduate earnings have risen followed by stagnation



Sources and notes: NSS EUS, PLFS various rounds. Data pertains to young (20-29) men and women. Earnings are deflated using CPI-R and CPI-U with base year 2020. This is Figure 3.15 in the report.

c. Between 2004 and 2023, approximately 5 million graduates were added every year. During the same period, the number of employed graduates rose by only around 2.8 million graduates. Graduate employment, therefore, has not kept pace with graduate supply. And, if we are to consider salaried employment, only about 1.7 million graduates become salaried workers every year. The failure to create adequate jobs for the burgeoning population of graduates has resulted in a situation of too many graduates and too few jobs. This has also contributed to the slowdown in graduate earnings.

Graduate employment has not kept pace with the supply of graduates



Sources and notes: NSS EUS, PLFS various rounds. This is Figure 4.18 in the report.

12. Migration is an important mechanism through which youth respond to uneven regional development and labour market opportunities

a. Youth constitute about 40 percent of informal migrant workers. Younger states like Bihar and Uttar Pradesh are net senders, and states like Delhi, Haryana and Punjab are large net receivers.

Characterising the eShram worker

	Share of population (%)		
Age Groups	PLFS	eShram	eShram (Migrants)
Less than 25	11.64	19.2	20.26
25–29	11.35	15.56	20.95
30–34	13.44	15.49	19.24
35–39	15.46	14.25	15.2
40+	48.12	35.5	24.35

Sources and notes: PLFS 2023-24, e-Shram database (accessed via Datagov) . The PLFS sample includes only the pool who would be eligible for e-Shram registration.This is Table 2.1 in the report

b. Given the different stages of demographic transition and economic growth that regions across the country are in, migration has emerged as an important flow of workers - from poorer, younger states to richer, aging states.

E. Policy: pathways from learning to earning

We began by underscoring the imperative of creating adequate salaried employment opportunities for India's large, highly educated, and aspirational youth cohort, central to realizing the country's demographic dividend. Below, we outline policy priorities to address this challenge:

- Expanding adequate salaried employment opportunities to meet the aspirations and capabilities of a highly educated workforce. The exact number of salaried jobs to be created will depend on different assumptions made on the structure of the labour market. For example, if we prioritise absorbing a larger share of graduate women into the workforce, that would entail creating a greater number of jobs than are currently available at the status quo.

- Integrating school and vocational curricula to bridge education and skills gaps and enhance employability. This, in turn, will take care of concerns around lower social prestige of vocational education itself, and position vocational education as a path of upward social mobility instead of reducing it merely to a fallback option.

- Strengthening the school-to-work transition by systematic strengthening of National Career Services (NCS) which offers the potential to reduce labour market frictions by improving linkages between prospective employers and jobseekers.

- In the face of scarce salaried jobs, young workers increasingly rely on informal work and migration. Social security systems need to be expanded to support young workers navigating the school-to-work transition, including migrant youth workers. Further, policy priorities should not only focus on strengthening the school to work transition, but also enable a worker to move from unorganised to organised sector jobs.

- For youth that cannot migrate for various constraints, local labour markets, whether urban or rural, will need to absorb a higher share of youth in dignified employment arrangements. This can be done by strengthening social security systems and providing employment scaffolding in local labour markets, especially in urban areas.

01

Youth and the labour market: A lifecycle framework

01 Youth and the labour market: A lifecycle framework

1.1 Introduction

Since 2004, nearly 13 million Indians have joined the working age population every year. Of them, many remain in education for several more years. About a quarter go on to complete their graduate education. This large and young cohort is India's demographic dividend. Employment is crucial to translating this demographic dividend into an economic one.

India's youth, the 15 to 29 year olds are only a part of this demographic dividend. Excluding those in education, they account for roughly a third of the working age population, about 263 million. Productively engaging this youth workforce is key from the perspective of both private returns in terms of earnings and career progression, and social benefits.

In this context, the early years of employment are foundational for long term labour market outcomes. They shape earnings now, and career pathways into the future. But besides this immediate impact, today's young workers will soon shoulder the responsibility of supporting a growing older population. Demographically, it is only a matter of time before India's age structure shifts towards an increasing share of older dependents (those above 64 years). Between 2011 and 2036, the share of those 60 years and above is expected to rise from 8.4 to 14.9 percent, a 6.5 percentage point increase. During the same period, the share in the working age group, 15-59 years is expected to rise from 60.7 percent to 64.9, a 4.9 percentage point increase (MoHFW, 2022). The dependency ratio - the number of dependents per working age adult -is set to rise increasingly driven by a growing share of older dependents. And, to add to this, the base of young earners who will eventually support today's youth in their old age is also shrinking. The current working-age population, particularly the youth, will need secure, stable and remunerative employment early in their careers so that they can support their dependents and themselves. Poor employment outcomes today can weaken the foundations of future growth.

Over the last 78 years since Independence, we have made considerable progress in educating our youth especially in primary and secondary education, and more recently, in tertiary education. However, the transition from education to productive employment remains a major challenge. And, over the years, entry-level industries, occupations and earnings have changed considerably, as have the lifetime trajectories of workers. With the advent of AI, a new set of somewhat unknown challenges and opportunities confront young people entering the labour market. In this year's State of Working India report, we look at the progress we have made and the challenges that remain in ensuring pathways from learning to earning for our youth.

Is there a separate labour market for the youth?

Throughout this report, you will see labour market outcomes of the young being presented against those of the older cohorts. Labour markets operate very differently for different sub-groups whether they are distinguished on the lines of caste, religion or ethnicity (SWI 2023). The structure of employment for women is very different from that for men. Workers from marginalised caste groups face higher barriers to entry in formal employment compared to their counterparts in dominant castes. Should we expect the labour market to operate differently for young workers compared to older workers?

There are several reasons why this may be the case. Firstly, young workers may possess a very different set of skills compared to older workers. If educational institutions keep pace with changes in resources and technology, then young, new entrants into the labour market may have more recent and advanced skills compared to older workers. In such cases, skill mismatches between employer needs and worker qualification may be less of an issue with younger workers compared to older workers.

The nature of economic growth can also affect the young and the old differentially. If economies are driven by new and high-tech industries that demand recent advanced skills, older workers, without access to on the job training or skill acquisition, may be at a disadvantage. Employers may prefer to hire younger workers who are more likely to have received formal training on these skills. Aspirations and preferences may be such that young workers do not prefer to work in certain industries, like agriculture or certain services sectors.

Together, these can imply that the labour market outcome and experience for young workers may be very different from the older cohorts. These structural differences imply that youth do not merely represent a younger version of the general workforce, but face distinct labour market dynamics requiring separate analysis.

In the rest of this chapter, we lay out an analytical framework to think about youth, education and employment, from a lifecycle perspective. Finally, we discuss the organisation of the report and the major datasets that have been used in the analysis.

1.2 Youth and the labour market: A lifecycle perspective

The lifecycle perspective offers a simple analytical framework for thinking about youth transitions - from education to job search to employment. At each of these stages, there are various social and economic factors that affect the nature of these transitions. We describe each of these stages and their potential interactions with the socio-economic contexts. This is in no way an exhaustive framing but rather an attempt to weave the various sub-themes of this report into a coherent framework.

Pre-labour market: Education and skilling

Youth employment outcomes are crucially dependent on many decisions and factors that precede the entry into employment - be it nutrition, early childhood education, school choice, duration of schooling, stream choice, etc. Their employment outcomes cannot be completely separated from these 'pre-labour market' aspects. In laying out this analytical framework, we do not attempt to consider all of these factors, but rather focus on education, specifically higher education, given its direct and undeniable influence on employment.

From an economic perspective, education is an important investment and is often considered to be the pathway into formal and better paid jobs. In the literature, this instrumental role of education has been dealt with under two strands of thought - screening/signalling, or as human capital attainment. The former argues that education is a means by which candidates set themselves apart from others, with their qualifications signaling a particular quality about them that others do not have (Arrow 1973; Spence 1973). The latter contends that education is a form of investment in human capital, and schools and colleges provide individuals with skills and knowledge that have a direct positive impact on their productivity at work (Becker 1964; Schultz 1961). While there is consensus that both of these can coexist, which of these channels predominate is unclear and varies across contexts. However, unregulated growth of institutions at the cost of quality of training, lack of institutional resources, and outdated curriculums can compromise learning outcomes thereby eroding the screening/signaling and human-capital enhancing roles of education. This has brought into the forefront discussions around 'employability' and job-readiness of workers. In many cases, employers now increasingly rely on independent testing of credentials rather than relying on degree certifications (Fuller 2022; Copestake 2023).

These economic motivations notwithstanding, the decision to acquire higher education is deeply intertwined with social norms and expectations. Children's education is an important signal of household prestige and a means for upward social mobility. A predominant pathway for this mobility is through marriage. Typically, educated grooms and brides match with similarly educated brides and grooms (educational homogamy). For young girls in India, education has become a vehicle for upward social mobility not through educational homogamy but rather through educational hypogamy - women marrying men who are less educated than them - but belong to a socially/economically higher group (Sarkar 2022; Lin et al. 2020). This, combined with restrictive norms around women's employment and work outside the home, it is perhaps not entirely surprising to see many young women remaining out of the labour market, despite acquiring higher education degrees.

The institution of caste and the systematic marginalisation of certain social groups also affects access to higher education with multiple layers of exclusion. SC/STs and other marginalised groups are often unable to afford higher education. Even if they do enrol, their choice and duration of education is constrained - not just because of economic constraints, but also social marginalisation, despite affirmative action policies in public education (Thorat and Sabharwal 2010; Hnatskova et al. 2012). This has resulted in the systematic under-representation of youth from marginalised groups in certain courses and streams. More often than not, this marginalisation has been in those courses and streams that are associated with higher earnings and stability.

Vocational training, in many countries is regarded as facilitating labour market entry, often even substituting for formal education. In India, however, it is perceived very differently, in large part due to its association with caste-based occupations and the accompanying stigma. Vocational education is consequently disparaged, creating a hierarchy in the choice of education. This, along with relatively higher costs associated with college education, implies that vocational education has come to be seen as a last resort choice and the domain of only certain groups.

Youth aspirations play an important role in shaping decisions around what to study and preferred employment pathways. In a world that is increasingly connected, there has been a democratisation of aspirations, but perhaps not a similar democratisation of the pathways to attaining them, whether it is education or skilling.

Job search and labour market entry

Following education, the next important phase is that of transition from school/college to employment. A quick transition is one of the indicators of a smoothly functioning labour market. Extended periods of unemployment or underemployment during this stage can have persistent scarring effects on future employment trajectories and lifetime earnings. However, in many contexts, this transition is neither smooth nor efficient. Job search extends for long durations and workers often resort to jobs that do not match their qualifications.

The low/middle income country context further complicates this understanding, two factors, specifically. One is the prevalence of poverty - poor households cannot afford to subsidise job searches indefinitely. In such situations, self-employment and informal wage work may become important 'fall-back' employment options, allowing entry into the labour market, although at lower earnings and in jobs that do not match workers' employment qualifications. The second aspect is the segmented labour market that is characteristic of economies like India. The labour market is deeply divided into the formal-informal, public-private, salaried-casual. These segments differ not only in wages, but also in job security, social protection, and opportunities for upward mobility. Movement between the segments, particularly upward, is limited. Entry-level employment and earnings matter well into the future underscoring the high returns to waiting and conversely, the relative costs of not waiting. As a result, prolonged job search and waiting for preferred employment - particularly secure salaried or public sector jobs may emerge as rational strategies rather than inefficient behaviour.

In recent years, in India, as household incomes have increased, searching for jobs or subsidising the unemployment of a young graduate may have become more affordable. Therefore, an increase in unemployment rates, particularly among young graduates, may simply reflect this phenomenon, at least partly.

Search and employment are often regarded as mutually exclusive strategies. However, for many workers, standard job search strategies may coexist alongside employment. Employment itself may be a job search strategy. If individuals perceive 'getting a foot in the door' as the strategic option, then in many cases one might observe new entrants matching themselves with jobs that are perhaps below their educational qualifications - a form of underemployment, with underemployment as a job search strategy. Workers may enter into 'less than ideal' types of employment (e.g. below their educational level) in the hopes of progressing upward from there either through building networks or through more formal employment progression. Of course, it is difficult to distinguish between underemployment as a voluntary job search strategy versus underemployment as an outcome of lack of other options, particularly for poor and marginalised households. Here too, we may see self-employment and precarious wage work as common entry-level employment for young workers.

Many unemployed youth spend a considerable amount of time studying and preparing for exams. In the presence of limited availability and increasing precarity of private sector employment, the public sector, in India, has emerged as the last bastion of highly secure and high earning employment. With entire cities dedicated to coaching centres and tuition academies, this can be seen as a job search strategy. Recent research shows that preparation for public sector examinations constitutes a significant labour market activity in itself, with many individuals allocating several years to exam preparation despite low probabilities of success, reflecting the high expected returns and security associated with government employment (Mangal, 2023).

Besides the economics of job search and waiting, like in the case of education, social factors come into play here. For women, marriage and social norms result in shorter search time available to them, if at all (Bandiera et al. 2025). As a result, open unemployment and long durations of open unemployment may be rare for women. For men, on the other hand, employment is imperative to further themselves in the marriage market. In particular, good salaried jobs become a very effective 'bargaining chip' in mediating the marriage market and getting 'better' matches. But it also means that men, too, cannot stay unemployed for too long.

Social institutions such as caste, gender, and marriage markets do not operate outside the labour market but fundamentally structure it. These institutions shape not only labour supply decisions, but also access to occupations, acceptable forms of employment, reservation wages, and mobility pathways. For instance, certain occupations carry stigma or are associated with particular caste groups, influencing both worker preferences and employer hiring practices. Similarly, marriage markets reward stable and prestigious employment, particularly for men, reinforcing preferences for secure salaried jobs and shaping job search behaviour.

These dynamics reflect significant labour market frictions, including imperfect information, limited formal employment opportunities, and high segmentation.

Entry into the labour market

An individual's first employment has been found to have a fundamental bearing on lifetime career trajectories. Who gets to enter into what kinds of employment?

On the demand side, the structure of the economy has a bearing. As economies develop, and agricultural jobs shrink with the process of structural transformation, they are replaced by either manufacturing or service sector jobs, the standard Lewis-Kuznets process. For young workers, their higher levels of education and aspirations often mean that the preference is towards office based, salaried jobs. From the employer perspective, if there is preference for on-the-job training and experience over new age skills/techniques that are taught in colleges, then older workers may be favoured. More recently, in the context of AI, there is concern over the potential disappearance of entry level jobs (Brynjolfsson et al. 2025).

As economies develop, one expects that traditional hierarchies and patterns of segregation will disappear. The expectation is that young workers from disadvantaged groups, with relatively higher education than earlier generations, will be able to move away from industries that their communities are associated with - young women from female-dominated industries such as tobacco, garments and textiles, Muslims from leather and footwear industry, and SC/STs from waste and sanitation, leather and construction. Therefore, one might expect at least a lower share of youth in the traditional industries and occupations that their community is associated with.

Finally, over their lifetime, how do youth fare compared to other generations? Crucial to this is their labour market mobility. If there exists a job ladder, then lifetime earnings will systematically increase. However, if, over time, the job ladder is broken or earnings growth slows down (for whatever reason), one can see, as is the case in many countries, younger generations doing not as well as their older counterparts were at the same age.

The report traces this arc of a young worker's transition - from education to job search into employment, and how this has evolved over the last forty years. We see that while we have made remarkable progress in closing educational gaps, we have not done very well in transitioning the educated young from school/training into employment. Structural transformation has allowed a fast exit of young workers from agriculture but high productivity and high earnings industries that can gainfully employ and meet the aspirations of these educated workers have been limited. Caste and gender-based occupational norms have weakened. However, many young women still remain out of the workforce. Caste-based social networks and informal channels remain important pathways to employment. Considerable time and resources are invested in entering into public sector employment in the face of lax private demand for labour and deep distrust of existing private employment options.

1.3 Organisation of the report

This report draws from nationally representative surveys including the employment and unemployment surveys and education expenditure surveys, official administrative data, and field-based insights from primary surveys.

In Chapter 2, we set out the demographic dividend in India comparing it to the international context, the variation across states and consequent diversity of opportunities and challenges that this implies. Ageing states are also richer states that have seen strong economic growth. Younger states, on the other hand, have struggled with employment creation alongside a large and growing youth share. Migration, as we explore using data from the e-Shram portal, then emerges as an important countervailing channel that can potentially balance high growth and aging with low growth and young states.

In Chapter 3, using nationally representative employment surveys for the last forty years, we see how youth have fared in the labour market - their exit from agriculture, the implications of the recent stalled structural transformation on the youth workforce and the gradual weakening of caste and gender-based norms in employment. Based on a survey of households in rural Andhra Pradesh, we learn about the role of caste and land ownership in mediating the agriculture to non-agriculture employment. From the employment surveys, we see how entry level industries have changed over time. Since standard surveys do not give us much insight into new forms of work, particularly gig work, we hear from interviews of young female gig workers in Bengaluru and the challenges they face in engaging in this kind of work.

Chapter 4 and Chapter 5 explore an important pre-labour market feature - higher education and vocational training. We look at the tertiary education landscape in the country - the expansion of institutions but prevailing spatial differences in availability of colleges, the costs of education and stream-wise variations in costs of education determining who gets to study what. In Chapter 5, we see how vocational education, through Industrial Training Institutes (ITIs) have fared over the years, their spread across the country and the continued persistence of caste-based segregation into these institutions. As we noted earlier, social norms and aspirations have a big role to play in shaping decisions around what and how long to study. Never before have so many young Indians been so virtually connected to others around the world. This has undeniably shaped aspirations and expectations. The Understanding the Lives of Adolescents and Young Adults (UDAYA) database, a panel survey of adolescents in Bihar and Uttar Pradesh between 2015-16 and 2018-19, gives us an unique insight into youth aspirations for education and employment.

Chapter 6 explores the school to employment transition. We know very little about job search, how long it takes and the implications of the nature and duration of job search on eventual employment outcomes. Recently introduced questions from the Periodic Labour Force Surveys give us some insights into different kinds of strategies. However, we supplement this with other data too. The Centre for Monitoring Indian Economy (CMIE)'s Consumer Pyramid Household Surveys, being a panel survey, allows us to track individuals over a sustained period giving us insights around the school to work transition, and the duration and success of job search. The latest NSS Time Use Survey (TUS) 2024 helps us understand how unemployed youth spend their time. However, these large sample surveys provide us little nuanced insights. For this, we rely on a number of primary surveys. From Bihar, primary surveys of public sector aspirants throws valuable insight on the queuing for jobs and the investment in preparation for these examinations. From interviews with workers in Assam and visits to job fairs in Karnataka, we get a nuanced understanding on various job search strategies and the role of the digital media in search and employment. And, household surveys in Haryana and Andhra Pradesh underscore the role of social networks in the job search process.

Finally, in Chapter 7 drawing on the conceptual framework outlined, we identify the landscape of potential policy levers that can help translate our demographic to an economic dividend.

1.4 Data and Definitions

1.4.1 Defining the youth

The right definition of youth really depends on the question we are trying to answer. Most organisations including the United Nations define the youth as individuals between the ages of 15 and 24 years (UN 2013). When understanding employment dynamics, particularly the school to work transition, the definition of youth is often extended to include individuals between the age of 24 to 29 years along with the 15 to 24 year olds. This is in recognition of the fact that for many youngsters, there may be an extended stay in education and restricting to 24 years often will miss out the employment dynamics beyond post-graduation. The ILO School to Work Transition surveys, for instance, are conducted for youth in the ages of 15 to 29 years (Nillson 2019).

In India, the National Youth Policy defines the youth as those between 15 to 29 years (GoI 2025). In this report, while we broadly use the 15-29 category, we further subdivide these groups into three categories: 15-19, 20-24, 25-29. Since 15+ is the legal working age and we are interested in employment, we begin with 15 years. Between the ages of 15-19 most individuals are likely to be in secondary school. By 20-24, youngsters are in tertiary education including four year medical or engineering programs. Of course, some within these groups may already be in the labour market. Finally, by 25-29 years, we expect most individuals to have completed their education and be either in employment or out of the workforce in other activities, or searching for employment. In the report, where we are interested in questions of education and enrollment, we focus on the first two groups 15-19 and 20-24. For questions related to job search and the school to work transition, our focus groups are 20-24 and 25-29.

Figure 1.1 reinforces the logic of the categorisation. For every age between 15 to 29 years, we show the distribution of individuals across employment, education, unemployment and out of the labour force and not in education. Between 15 to 19 years, more than half were in education, particularly in the later years. From 20 to 24 years onwards, the share in employment begins to increase, although there is still a moderate share in education, largely students in tertiary education such as four year medicine or engineering degrees. However, by age 25 onwards, hardly anyone is in education and most are either out of the workforce or in employment.

1.4.2 Data

We list below the sample surveys, administrative and field based surveys that have been used in the analysis of this report.

Census, sample surveys and projections

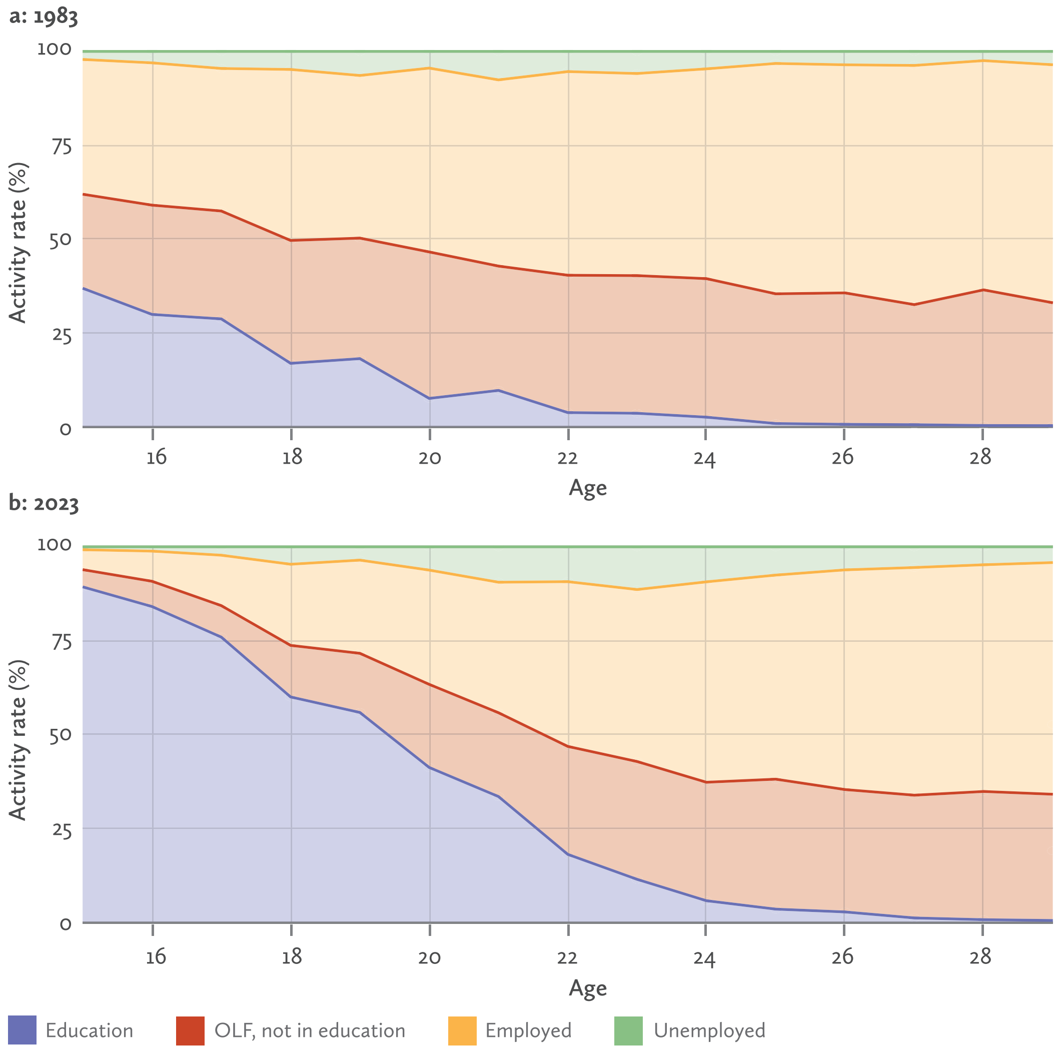
We use official sample surveys, as well as the World Development Indicators survey which brings together survey data from multiple countries. The Indian sample surveys used here are all representative at the state level.

- NSS Employment Unemployment Survey (EUS)
- Periodic Labour Force Survey (PLFS)
- NSS Household Social Consumption on Education survey
- NSS Time Use Survey (TUS) 2024
- Centre for Monitoring Indian Economy (CMIE) Consumer Pyramids Household Surveys
- Understanding the Lives of Adolescents and Young Adults (UDAYA) survey
- World Development Indicators
- Population Census 2011
- 6th Economic Census 2013-14
- Ministry of Health and Family Welfare: Population Projections
- International Institute for Population Sciences: District-level population projections (district-level)
- Our World in Data

Administrative datasets

The report relies on administrative data available on official ministry portals. The RBI Database on the Indian Economy is a compilation of national and state level economic estimates computed by various statistical offices. All the other databases - AISHE, e-Shram and NCVT data are self-reported.

Figure 1.1: Activity status by age, in 1983 and 2023



Sources and notes: EUS 1983-84, PLFS 2023-24

For self-reported administrative data, there may be concerns around representativeness. Data collection structures and mechanisms vary across regions e.g., registration drives, implicit enforcement mechanisms etc. To the extent possible, where we have relied on the self-reported administrative data, we benchmark the sample and relevant estimates against nationally representative surveys. This gives us some idea of how to situate this administrative data within a larger national/sub-national context.

- All India Survey of Higher Educational Institutions (AISHE)
- National Council for Vocational Training (NCVT) MIS portal data
- e-Shram portal
- RBI Database on the Indian Economy

Primary surveys

- Andhra Pradesh: household surveys in Karumanchi village
- Haryana: household surveys in Rewari district
- Karnataka: Interviews with young women employed as gig workers in Bengaluru
- Karnataka: Field visits of job fairs in Bengaluru
- Assam: Interviews with young workers in Barak Valley
- Bihar: Interviews with young public sector aspirants across 12 districts

This year's report brings together evidence from a diverse range of sources to understand the school to work transition, the progress we have made and the challenges that remain for young people in the labour market. In the chapters that follow, we use the conceptual framework outlined above with empirical evidence from the different sources to understand youth employment transition. This report does not aim to provide an exhaustive analysis. Instead, it seeks to trace these transitions using available data, examine how they have evolved over time, and identify key policy and institutional levers that could help facilitate smoother transitions for young people.

02

Youth demographics, education and employment at the national and state level

02 Youth demographics, education and employment at the national and state level

2.1 Introduction

Economic growth and demographic change have a relationship of mutual causation, with the link being mediated by socio-economic policies as well as the initial age structure of the population. High levels of economic growth can, with the right kind of policies, result in better healthcare and education facilities, lower fertility rates and reduced population growth. Population growth, depending on the age structure (and once again the policy mix), can accelerate or slow down economic growth. A larger dependent population (whether children or the elderly) means greater consumption relative to output and savings, potentially slowing down economic growth, whereas a predominantly working age population (if engaged in productive employment) implies higher savings and output, and faster economic growth. This is why an age structure tilted in favour of the working age population rather than the dependent population is referred to as the "demographic dividend" (James et al. 2024; Bloom et al. 2007).

More precisely, the demographic dividend refers to the temporary boost in per capita income growth that can occur when a country (or region) experiences a rising share of working-age individuals and a falling share of dependents. This shift in the dependency ratio can raise aggregate output per capita because more potential workers per person increases the economy's capacity to produce goods and services, even if output per worker remains constant.

But the demographic dividend is not automatic. It represents a potential growth bonus contingent on the economy's capacity to productively employ the additional workers. Without complementary investments in human capital, job creation, and governance, the dividend may be squandered (Bloom et al. 2007). Moreover, it is temporary. Once the demographic transition advances and the share of elderly dependents rises, the dividend period gives way to demographic headwinds, as seen in ageing societies.

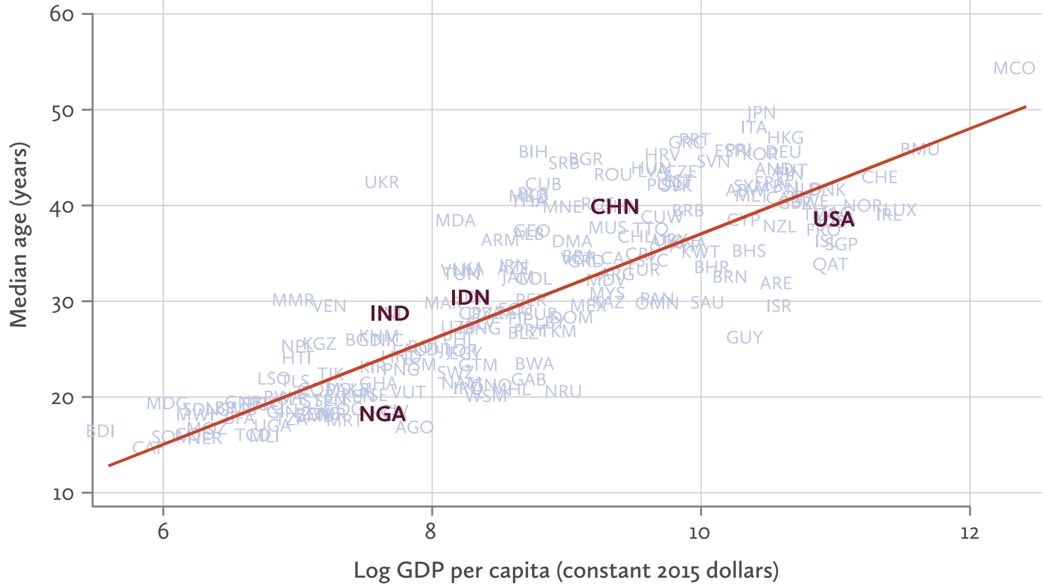
In this chapter we first take stock of the dynamics of India's demographic dividend at the national and state level. We then focus on youth aged 15 to 29 and examine the changes in education and employment rates over the past four decades. We also place India in an international context with regard to youth unemployment. Next we ask whether younger states are facing a more serious challenge of youth job creation. Finally we look at e-Shram data to understand how migration has emerged, partly, in response to the large inter-state variations in demographic profiles and economic performance.

2.2 India's demographic dividend at the national and state level

2.2.1 National demographic dividend

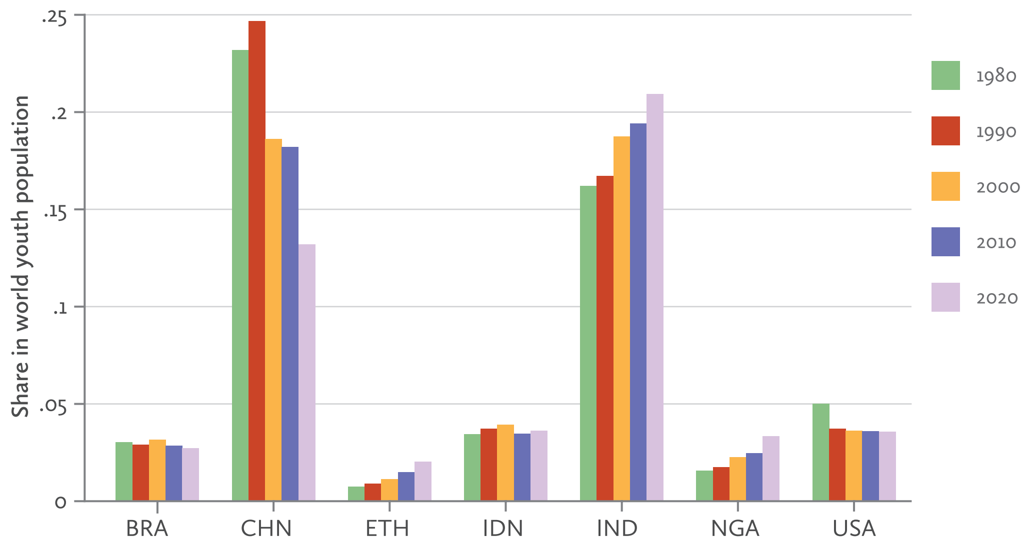
India is still a young country with a median age of 28 years. This is largely in keeping with its level of GDP per capita (Figure 2.1). India and China together account for nearly half of the world's youth population. While China's youth share has steadily declined since 1990, India's share in the world youth population has been increasing and as of 2020, one in five youth in the world was an Indian (Figure 2.2). But Indian demographics are also changing rapidly. In 2025,

Figure 2.1: India's median age in international perspective



Sources and notes: Our World in Data, 2023

Figure 2.2 : One in five youth in the world is an Indian



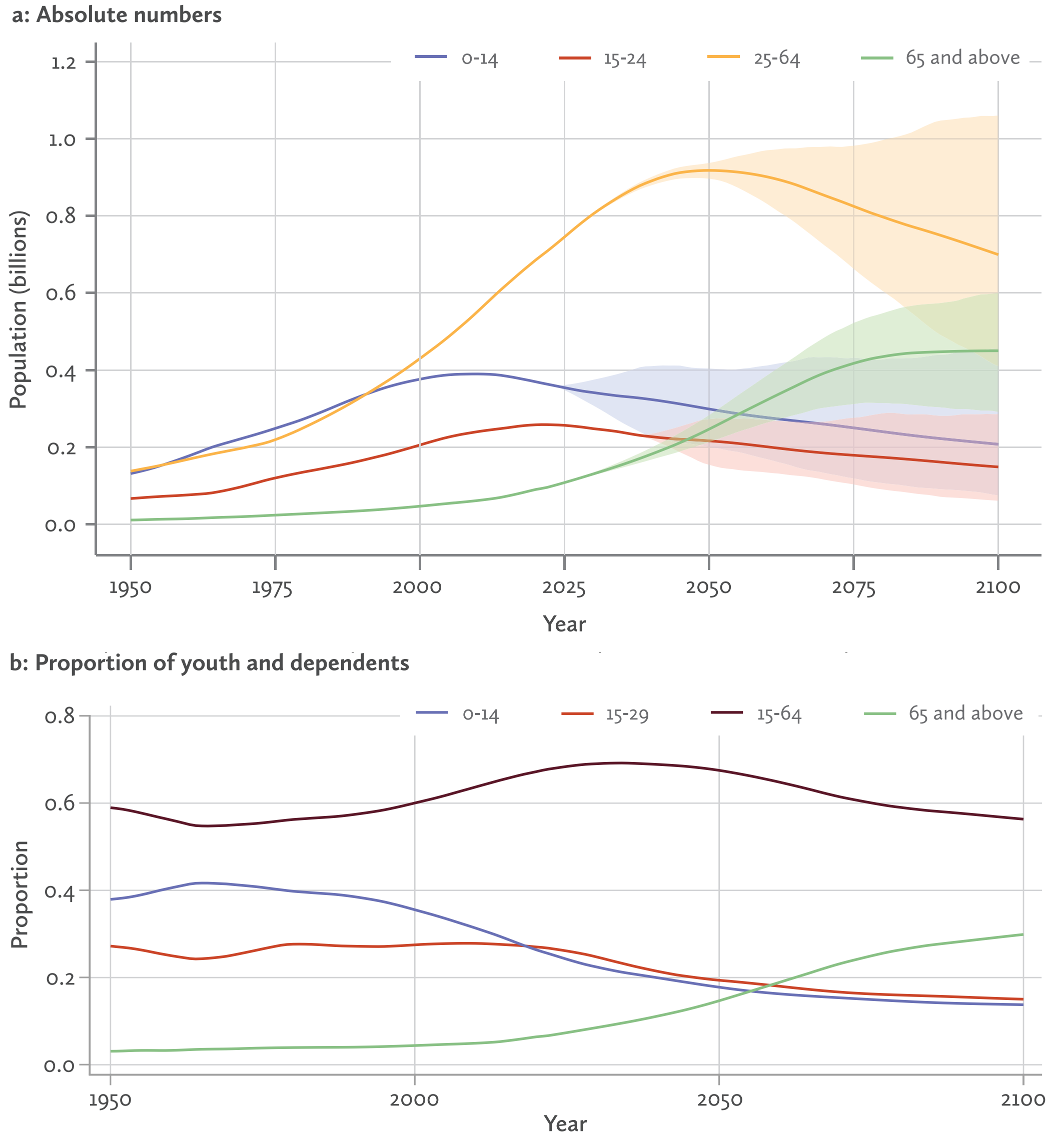
Sources and notes: World Development Indicators

the aggregate fertility rate is estimated to have fallen below the replacement level of 2.1. Several states had already reached this point a few years earlier. With declining fertility comes an ageing population. Ageing is a demographic inevitability but economic growth is a matter of domestic policy and international economic factors. Hence, if India is to not "grow old before it grows rich", a concerted policy effort is urgently required.

On the bright side, despite rapid declines in fertility rates, population growth has an in-built momentum as a result of the cumulative historical effect of previously high birth rates. The high share of the youth population at any given time has an effect well into the future in the form of continued population growth. The youth population, therefore, can be expected to continue growing with the country experiencing a 'youth bulge' - a high share of 15 to 29 year olds, as well as a rising ratio of working age (15 to 64 years) to dependent population.

Figure 2.3 shows India's historical and projected age structure, in absolute numbers (Panel a) and in terms of relative shares of different demographic groups (Panel b). A few points should be noted. The size of the youngest cohort (0-14 years) has been declining since the first decade of this century while the youth population (15 to 29 year olds) has started declining recently in absolute terms. But the working age population as a whole (15 to 64 year olds) will continue to rise because of the above-mentioned growth momentum, until 2050 or so. Finally, the oldest cohort (age 65 years and above) has already started rising and is expected to exceed the youth in absolute numbers by 2060. Note however, that the share of the working

Figure 2.3: India's historical and projected age structure



Sources and notes: World Population Prospects, 2024, UN Population Division. Shaded area corresponds to 95% prediction interval.

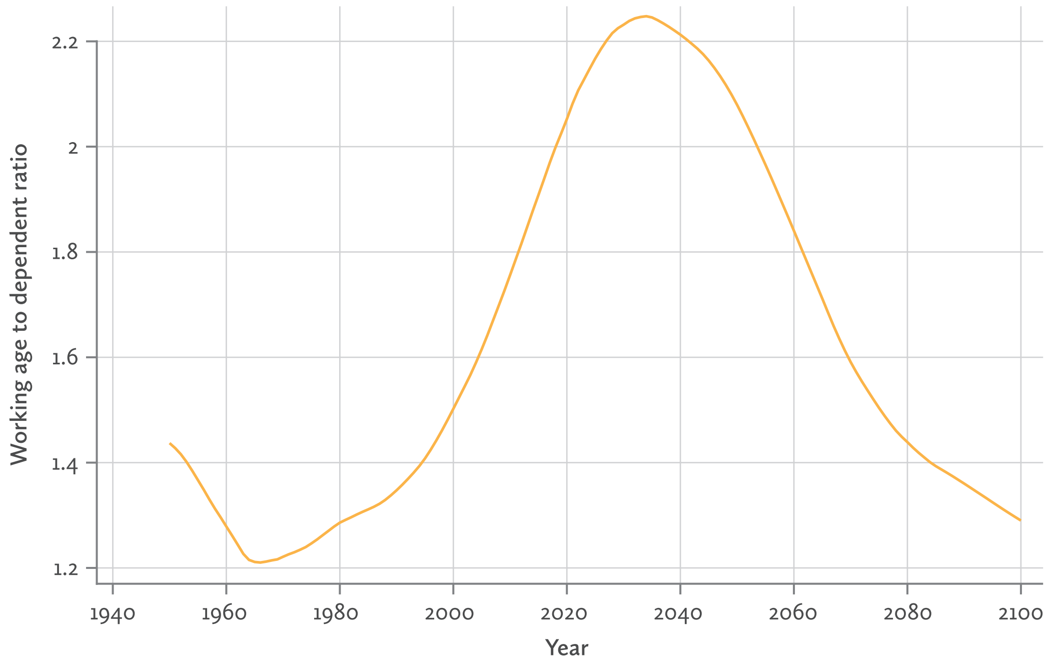
age - 15 to 64, remains considerably above that of the dependents, although, it will begin to decline soon

If we consider the ratio of the working age population to the dependent population (under 15 and over 64), which is an important indicator to track, India started experiencing a rise in this ratio sometime in the 1970s. It is expected to rise until 2030 or so (Figure 2.4). If the demographic dividend phase is defined as one where this ratio is rising, we are nearing the end of this phase. For comparison, in the case of China, this ratio was similar to India as of 2024, but is declining much more steeply due to an earlier fall in the TFR while for an older society like Japan the ratio is already much lower at 1.4.[1]

We now take a closer look at the age group of principal interest - the 15 to 29 year old cohort. In the time period of our analysis for this report - forty years between 1983-84 and 2023-24, India's population doubled from approximately 750 million to 1.5 billion. During the same period, the number of working age youth (15 to 29 year olds) grew from 185 million to 357 million, an addition of nearly 4 million youth every year over the last forty years.

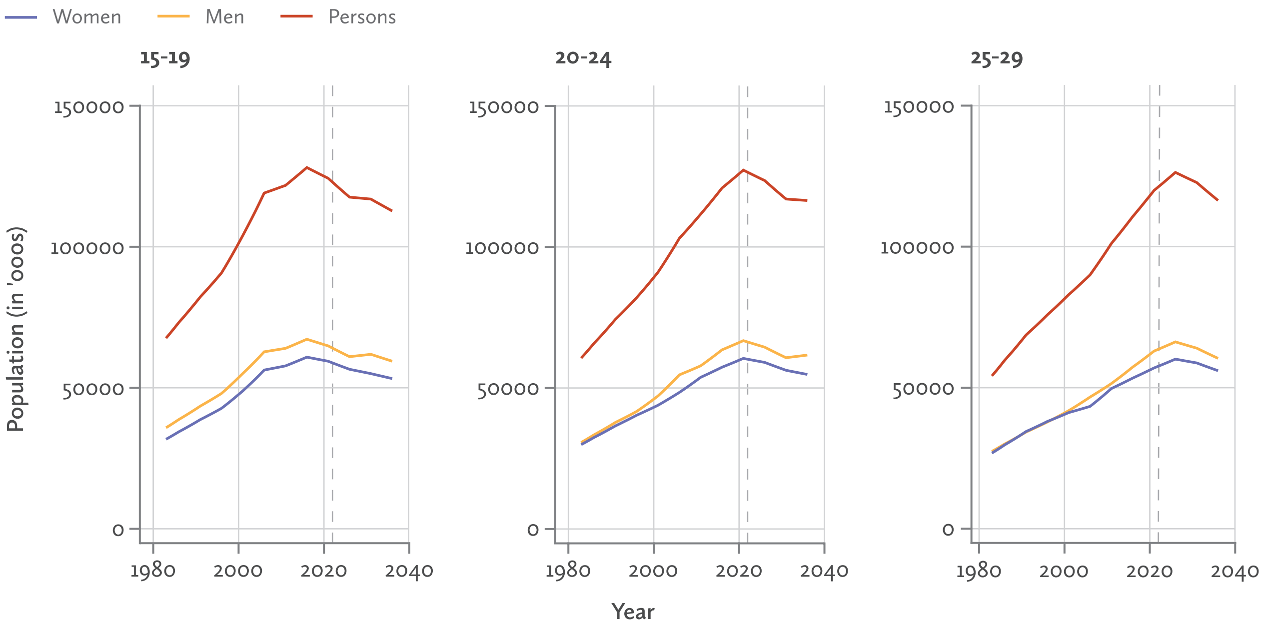
Drawing on census-based projections and the labour force survey data, we estimate the youth population in 2026 at approximately 367 million. Figure 2.5 shows that the total population in all the three youth age groups (15-19, 20-24, 25-29) is projected to decline through the 2020s and the early 2030s for both men and women, to approximately 345 million by 2036.[2] The 15–19 age cohort was already well past its peak in the early 2020s. The 20-24 age cohort reached its peak in 2021 and the 25-29 is expected to reach its peak by 2026.

Figure 2.4: India's demographic dividend



Sources and notes: World Population Prospects, 2024, UN Population Division

Figure 2.5: Youth population in India, 1981-2036



Sources and notes: Ministry of Family and Health Welfare, population projections

One can look at the demographic projection data discussed above in two ways. India is still a young country and its age profile is largely as expected given its level of per capita income. The working age population will comfortably exceed the dependent population for several decades even if it stops increasing in absolute terms. But the window of demographic opportunity is closing. The youth population is already declining in absolute terms and the demographic dividend (as defined above) will end in less than a decade.

> **Ageing is a demographic inevitability but economic growth is a matter of domestic policy and international economic factors. Hence, if India is to not "grow old before it grows rich", a concerted policy effort is urgently required.**

In order to avoid the double burden of ageing before reaching middle income status, a coordinated policy effort is needed to sustain a GDP growth momentum of 8 to 9 percent per annum over the next two decades

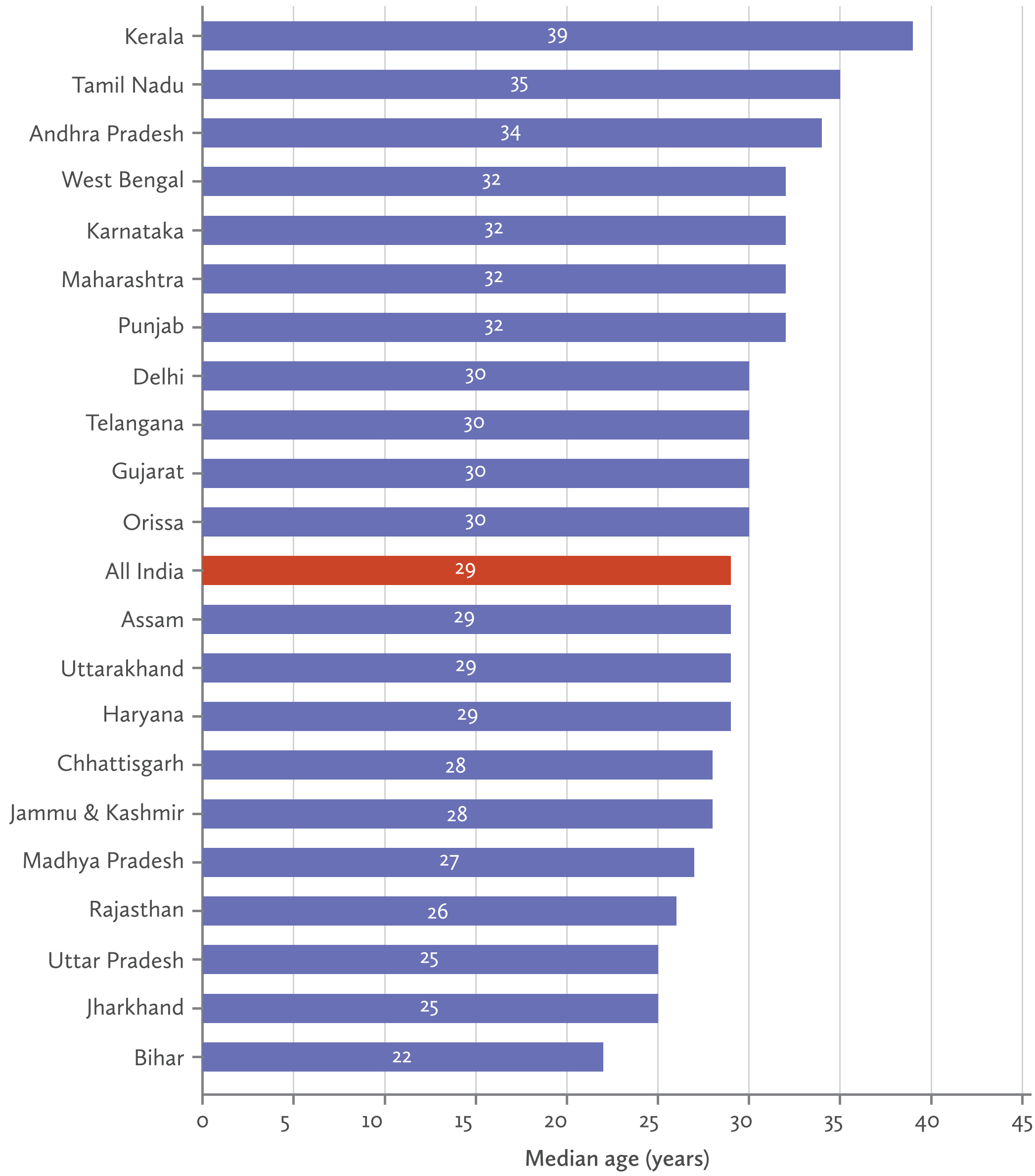
(Jain and Goli 2022; James et al. 2024; Aiyar and Mody 2011). This has been elusive thus far because sustained high rates of growth need a structural transformation that has not occurred in the Indian economy.

2.2.2 Indian states- varied demographics but with convergence

The all-India demographic trends discussed in the previous section are useful but they conceal significant regional variation. States in India vary greatly not only in population size but also in the stage of demographic transition. By a range of demographic indicators, India's older regions are very different from its younger regions. Youth account for 19% of the population in Kerala and 28% in UP. The median age of the population (by the 15+ definition) ranges from 39 years in Kerala to 22 years in Bihar (Figure 2.6). As of 2024-25, the birth rate ranged from 30 births per 1000 in Uttar Pradesh and Bihar to 15 in the case of Goa, Kerala and Tamil Nadu. Figure 2.7 shows the total fertility rate (TFR) as of 2010 and 2020 for 18 major states. By 2020 ten states were at TFR below replacement level (2.1) while several of the large states were well above it. But it should be noted that there has been a convergence of TFRs as well. Between 2010 and 2020, states with the highest rates have seen the fastest declines.

Finally, coming to our age cohort of interest, the 15 to 29 year group, ordered by their percentage change in the state's population between 1983 and 2023, we see a contraction in states like Kerala, Orissa, Tamil Nadu , and an increase of a similar range in states like Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh (Figure 2.8).

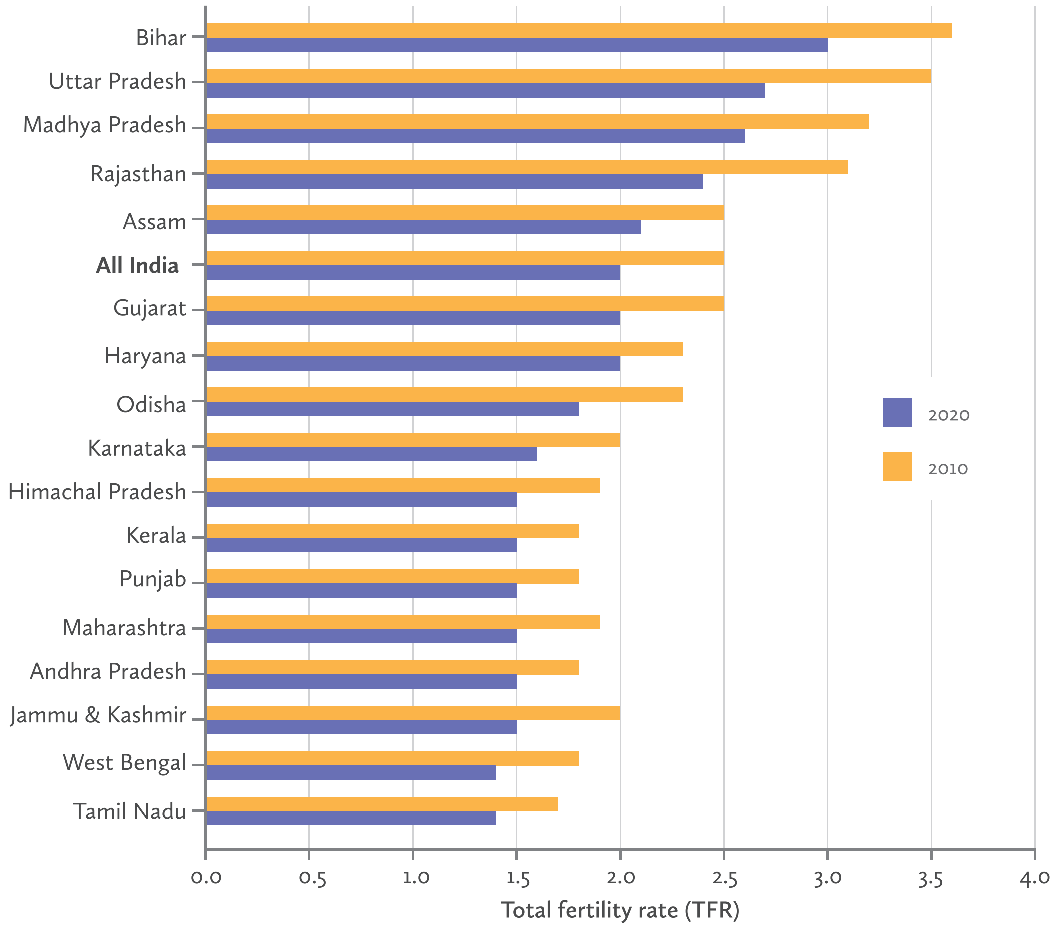
Figure 2.6: Median age across states



Sources and notes:PLFS 2023-24

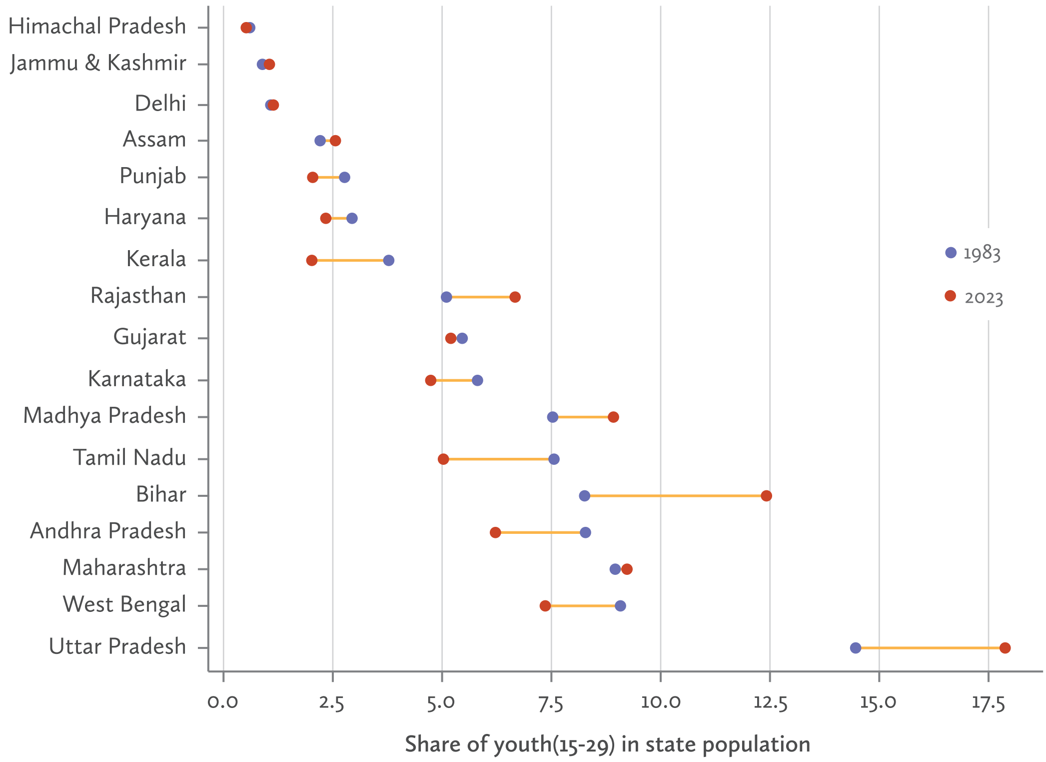
Thus the challenge of youth employment varies greatly across India, a point we will return to repeatedly in this and future chapters. In Section 3, we explore how successful states have been in exploiting their demographic dividends in the recent past and how they have fared in creating regular wage job opportunities for youth.

Figure 2.7: Total Fertility Rate across major states



Sources and notes: Economic Survey 2024-25, Statistical Appendix Table

Figure 2.8: Youth population shares over time across states



Sources and notes: NSS -EUS 1983-84 and PLFS 2023-24

2.3 From demographic dividend to growth dividend: employment, education and youth

Converting the demographic dividend into a growth dividend requires policy intervention on both the supply and demand side of the labour market. On the supply side, policy needs to enable young Indians to acquire education and skills, making them ready for productive employment opportunities. On the demand side, aspirational jobs need to be created. In the subsequent chapters of this report, we explore both long-run and short-run performance of India along these dimensions. In this section, we examine the long-run trends in youth education and employment at the all-India level. The analysis here is not intended to answer the question of what specific industries or occupations youth tend to be employed in, or what their school-to-work transition looks like. These are topics for later chapters. The limited goal here is to establish the stylised facts on how young men and women have fared in completing education and finding employment.

2.3.1 Youth in study, youth at work over the past four decades

We begin the analysis in this chapter by using several rounds of the NSSO Employment-Unemployment (EUS) and Periodic Labour Force Surveys (PLFS) to estimate levels of youth participation in education and employment over the past four decades.

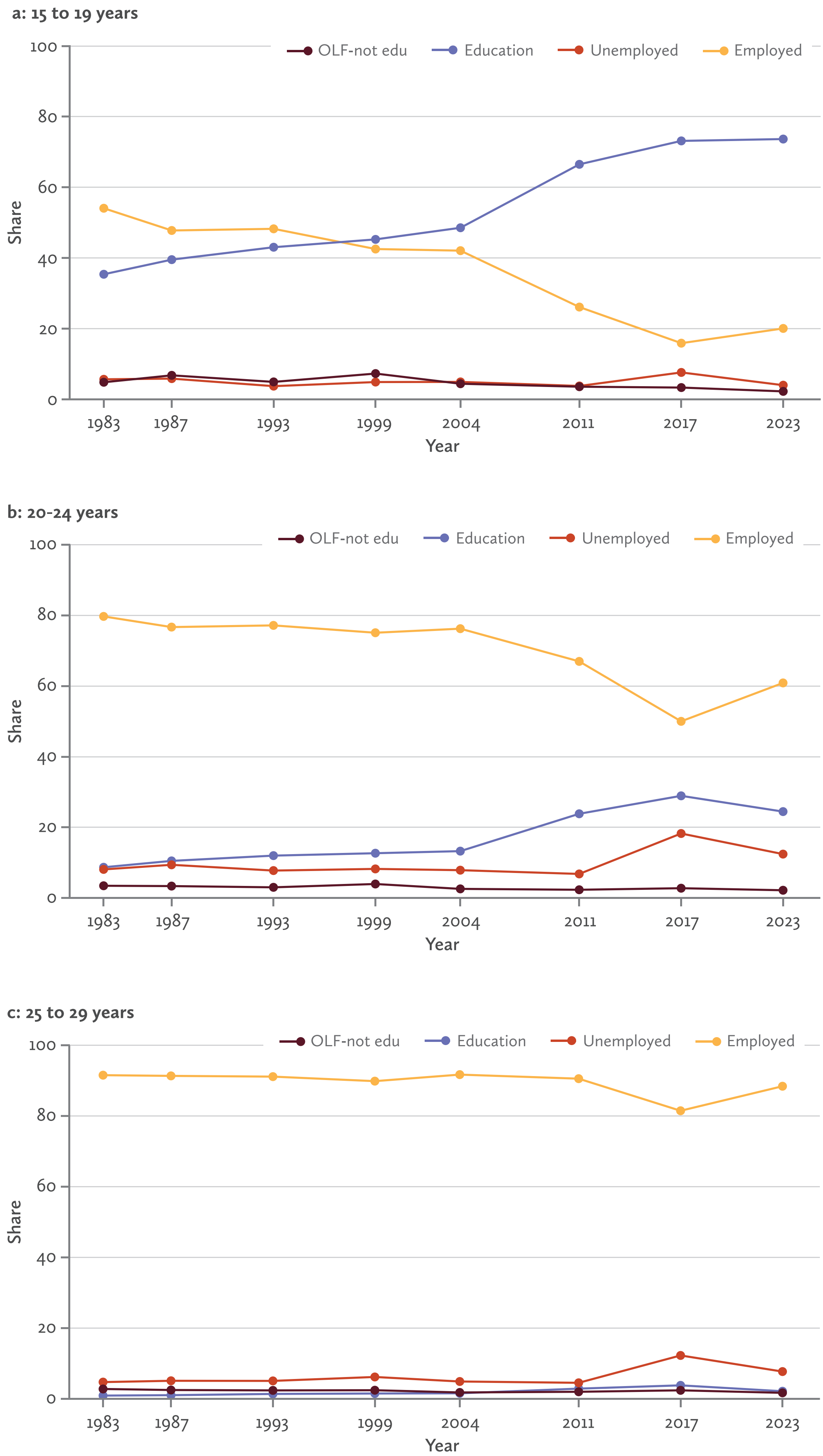
For young Indians, men and women, between 15 and 19 years, the last four decades have seen a steady increase in educational enrollment. In 1983-84, an estimated 49% of 15 to 19 year old men were enrolled in an educational institution. By 2023-24, this had increased to 73%. For women, the increase was even larger in percentage point terms, going from 38% to 68%. For men, this increase in educational enrollment came almost entirely at the cost of employment (Figures 2.9 and 2.10). This is to be expected as rising aspirations drive parents as well as children to invest more in education and rising incomes enable more households to keep children out of the workforce a little longer. For women, some of the rise in educational enrollment came at the cost of employment, as with men. But, importantly, there was also a decline in the proportion of young girls who were neither employed nor in education. The sharpest increase in education is seen from 2004-05 onwards. By 2023-24, the share of 15 to 19 year old women in education was almost similar to the share of men, reflecting the closing of gender gaps, at least in primary and secondary education.

For men and women in the age group 20-24 years, rates of employment remained more or less unchanged (75% for men and 25% for women) between 1983-84 to 2004-05. However, from 2004-05 to 2017-18, there was a steady fall in the proportion employed almost entirely matched by an increase in the share in education, reflecting increased tertiary enrolment rates of both sexes during this period. But there are notable differences between men and women as well. For men, this was also a period when the unemployment rate rose sharply, particularly from 2011-12 onwards. While for women, compared to the youngest age group (15 to 19), the proportion of 20 to 24 year olds who were neither in employment nor in education was much higher (nearly 70%). This reflects the fact that, even through years of rapid economic growth and rising education levels, the majority of women withdrew from both education and the labour market in their early 20s.

"For young Indians, men and women, between 15 and 19 years, the last four decades have seen a steady increase in educational enrollment. In 1983-84, an estimated 49% of 15 to 19 year old men were enrolled in an educational institution. By 2023-24, this had increased to 73%. For women, the increase was even larger in percentage point terms, going from 38% to 68%."

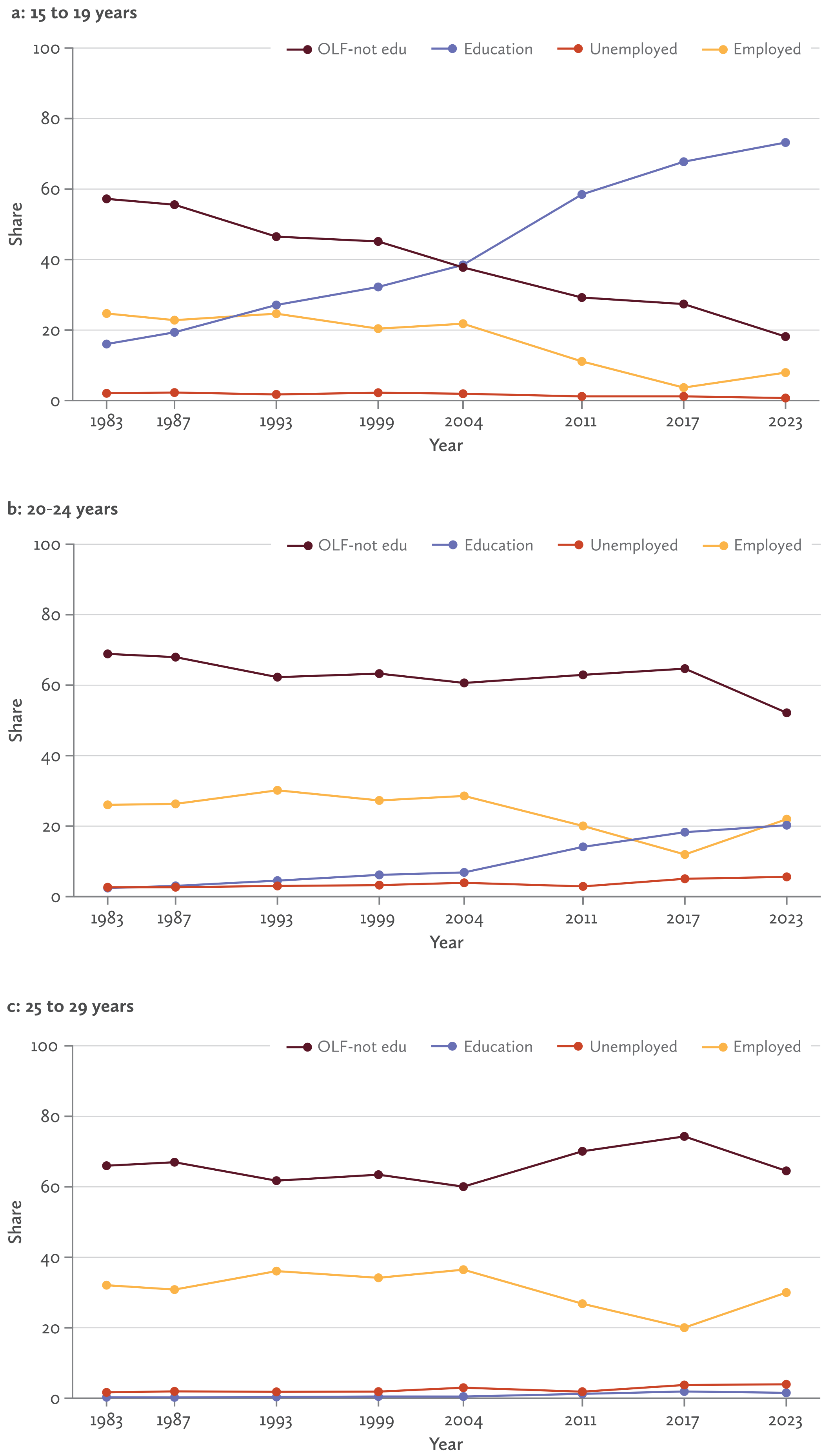
From 2017-18 onwards, we see a break from these long-run trends. For both sexes there is a steady rise in employment rates of about 10 percentage points - from 50 to 60% for men, and 11 to 22% for women. During this period, for men, the rise in employment rates was accompanied by a decline in the share in education as well as in unemployment. The fall in the share of men in education from 29% in 2017 to 24% by 2023 is unexpected and large enough to warrant closer attention in further work.

Figure 2.9: Share of young men in education and employment over time



Sources and notes: NSS-EUS and PLFS various rounds. OLF-not edu : Out of labour force and not in education

Figure 2.10: Share of young women in education and employment over time

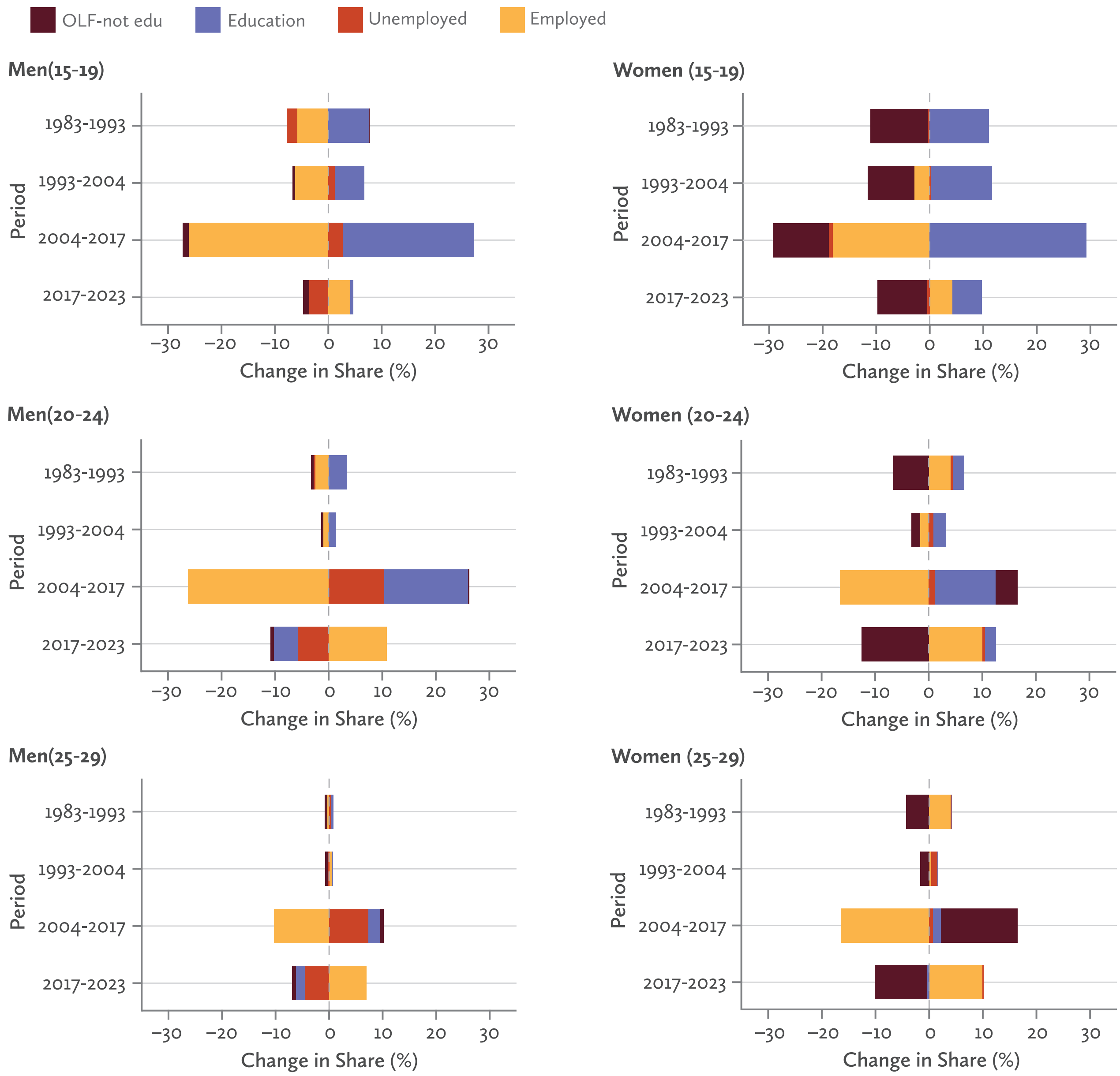


Sources and notes: NSS-EUS and PLFS various rounds, OLF-not edu : Out of labour force and not in education.

Finally, for the oldest cohort of youth, the 25 to 29 year olds, among men, the majority, nearly 90 percent, are employed in any year, as would be expected. However, we see a steady fall in employment, by about 10 percentage points between 2011-12 and 2017-18. Unlike the younger cohort, this fall in employment was not accompanied by a rise in educational enrolment. Rather, there was an increase in open unemployment rates, which subsequently reversed with a recovery in employment by 2023-24 when male employment rate was at 88 percent. For women, the distinct trend is the overall low levels of employment, and a sharp fall from 2004-05 to 2017-18. Unlike for men, there was no rise in unemployment, but rather what we see is an increase in the share of women remaining out of the labour force. However, for this older cohort of women too, post 2017-18, we see a steady increase in employment rates.

To sum up, for young men, we can distinguish two clear phases over the past two decades. Phase one from 2004-05 to 2017-18 was characterised by rapid rise in educational enrollment and decline in employment rates up to the age of 24 years. Phase two, since 2017-18, is the exact opposite, a fall in educational enrollment and a rise in employment rates. For young women, the first phase is similar to that seen in men. In the second phase, the important difference is that the recent rise in employment rates has come at the expense of OLF status, not a fall in education rates.

Figure 2.11: Changes in education and employment shares in each period



Sources and notes: NSS-EUS and PLFS various rounds, OLF-not edu : Out of labour force and not in education.

We now take a closer look at period-wise changes in status for all three age cohorts of men and women. Figure 2.11 presents the same data we saw in Figures 2.9 and 2.10 but in terms of percentage point changes in various activities across the four periods. Starting with the youngest group (15-19), we see a steady increase in the share in education accompanied by a decrease in their share in employment, consistently till the fourth period. Between 2017-18 and 2023-24, there was an increase in employment for the first time in decades for women in this age group. For men in the age group 15-19, the contrast between the most recent period and the previous period is even starker. The large decline in employment and equally large rise in education during 2004 to 2017 is contrasted with a rise in employment and a very small increase in educational enrollment in the recent period.

For the older youth cohort of men (20-24), again we see the same contrast wherein, there was a fall in the proportion enrolled in education accompanied by a rise in the proportion employed in the most recent period. For the oldest cohort (25-29) men show the same changes as the younger group (fall in proportion in education, rise in proportion employed) but for women, education plays a small part in the story. Rather, there is a large change in status from being out of the labour force to being employed.

Overall, across both sexes and all age groups, the 2017-18 to 2023-24 period stands out as having seen a rise in the proportion of individuals employed and either a fall or much slower rise in the proportion enrolled in education.

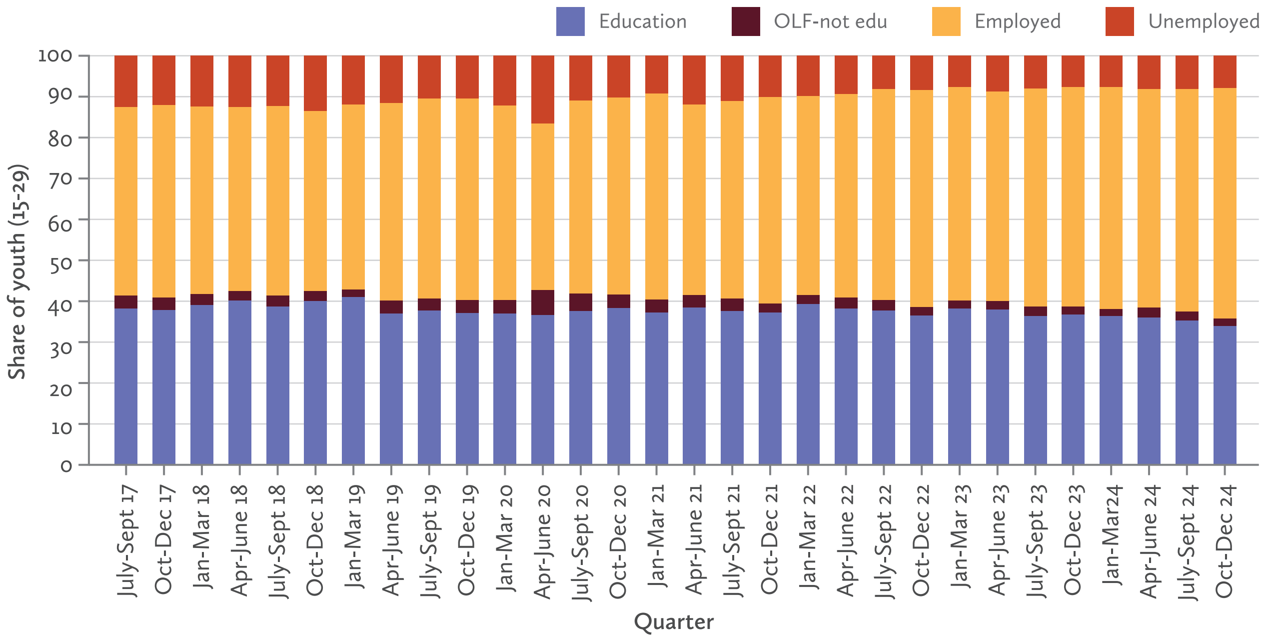
2.3.2 Recent withdrawal of young men from education

Quarterly data from PLFS indicate that the rise in employment among young men between 2017 and 2023 reflects a movement out of education, whereas among young women the increase in employment corresponds to a decline in workforce inactivity, with no significant change in educational participation.

The increase in employment and the slowdown in the share in education among the 15 to 19 year old men is particularly worrying since this indicates a declining share in secondary and higher secondary education, not just graduate education. Is this a pandemic-induced phenomenon? Figure 2.12 plots the activity status - employed, unemployed, in education and out of labourforce - of young men in each quarter. We can observe a dampening of the share in education during the pandemic months. Further, there is no subsequent recovery and the fall continues several quarters after the pandemic. As of the last quarter for which we have information (October to December 2024), the share of young men in education is the lowest it has been since 2017.

To those individuals below 29 years of age who are not enrolled in education, PLFS asks the reason for

Figure 2.12: Increase in young men's employment has come with a reduction in their share in education



Source and notes : Periodic Labour Force Survey (PLFS), all quarters, 2017–18 to 2023–24 and OLF-not edu : Out of labour force and not in education.

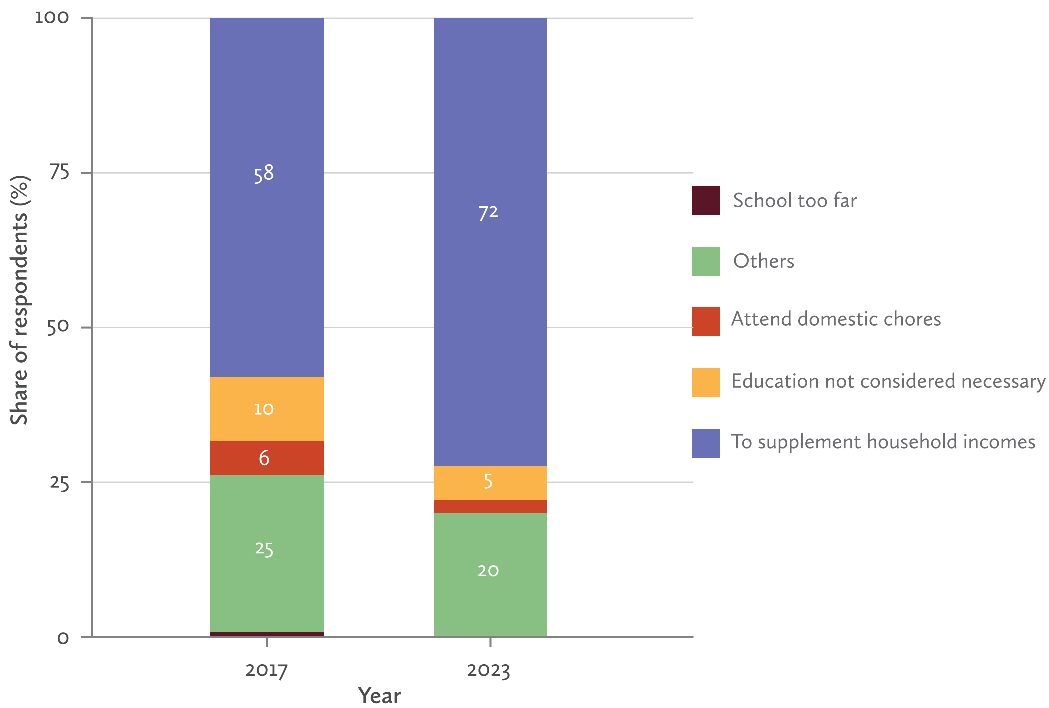
their non-enrolment. We look at the responses to this question for young men in the 15-24 age group among whom we saw the decline in the share in education (Figure 2.13) for PLFS 2017-18 and 2023-24. Note that the share indicating economic reasons, namely, the need to supplement household incomes, constitutes a large share. In 2017, about 60% of 15-24 year old men who were not in education indicated that the need to supplement household income was a reason for them withdrawing from education and entering into employment. However, this share had increased to 77% as of 2023. This is surprising given the overall evidence suggesting increase in household incomes (based on HCES data), while at the same time, there is an increased withdrawal from education to support family incomes. We also examined which household income quartiles were more likely to express this reason. While in general the shares are more or less equally distributed across household quartiles, the third quartile is where we see a marginal increase. Therefore, the withdrawal is not necessarily a lower-income household phenomenon but seen across all households and to a somewhat larger extent among the upper-middle income households.

While some of the recent labour market development particularly with respect to women's employment have been suggestive of distress (and therefore entry into the workforce), these recent trends in young men's labour market engagement also suggests potential distress among households. This recent decline in education threatens to erode the steady progress we have made in secondary and tertiary enrolment over the last few decades.

2.3.3 India's youth employment-unemployment in international perspective

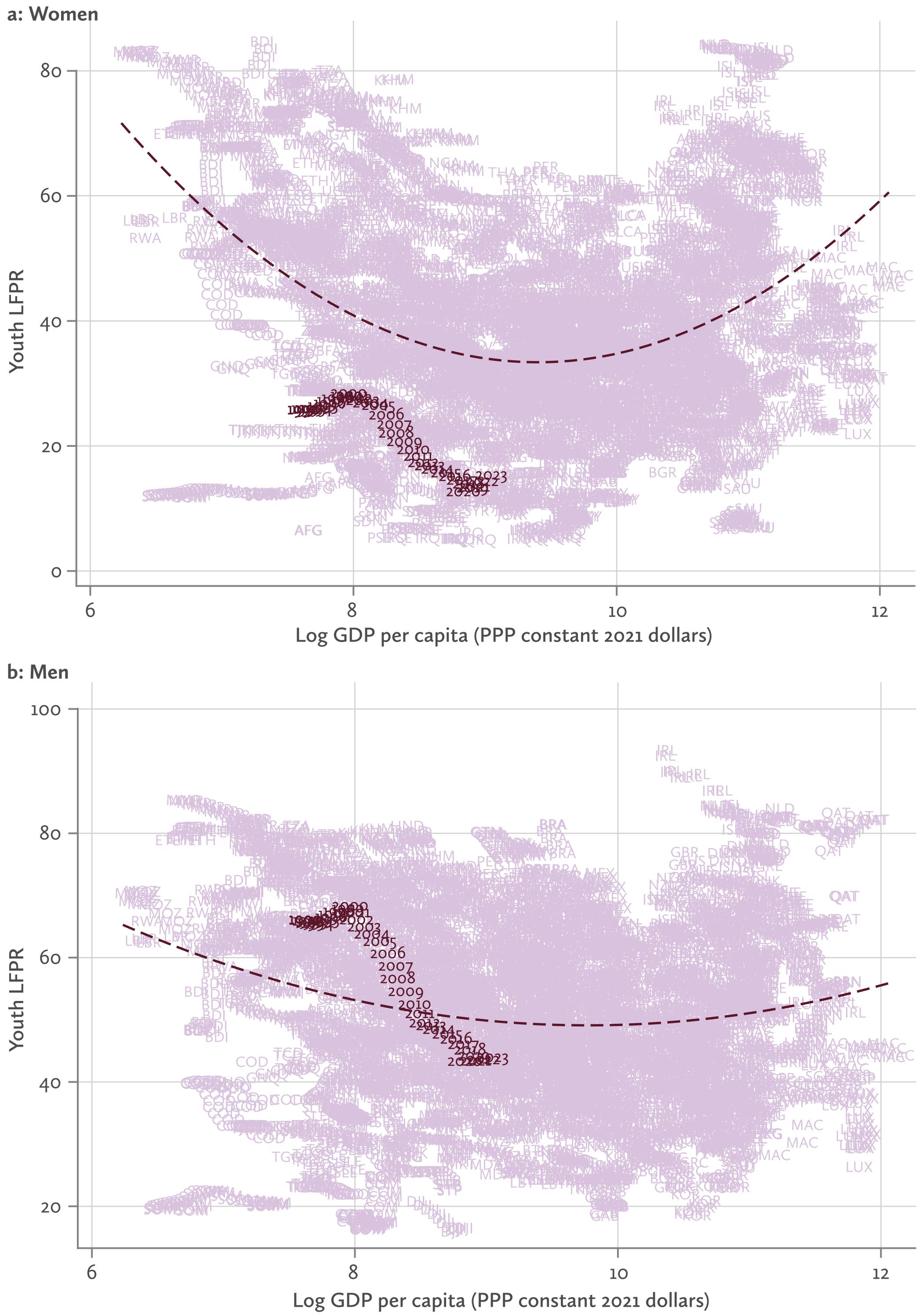
The debate on youth employment and unemployment in India can be enriched by looking at how India has fared in this respect compared to other countries. In Figure 2.14, we use cross-country data from the World Bank World Development Indicators (WDI) database to understand how youth labour force participation changes with economic growth.[3] The first panel shows that the familiar U-shaped relation between women's employment and economic growth holds for young women too (Goldin 1994). At initial levels of growth, women's participation is high and subsequently dips, owing to the contraction of the agricultural sector, increase in education and other factors, and then eventually picks up again as fertility rates decline freeing up women's time and as greater opportunities emerge in the non-farm sectors. Increase in educational attainment is likely to be an important reason for the initial decline. But specifically for India, what the cross-country comparison also tells us is that even young women's participation in the labour market has consistently been below the global average, and has declined in relative terms until recently.

Figure 2.13: Increasing share of young men cite supplementing household incomes as reason for withdrawing from education



Sources and notes: PLFS 2017-18, 2023-24

Figure 2.14: Youth labour force participation in India in international perspective since 1991

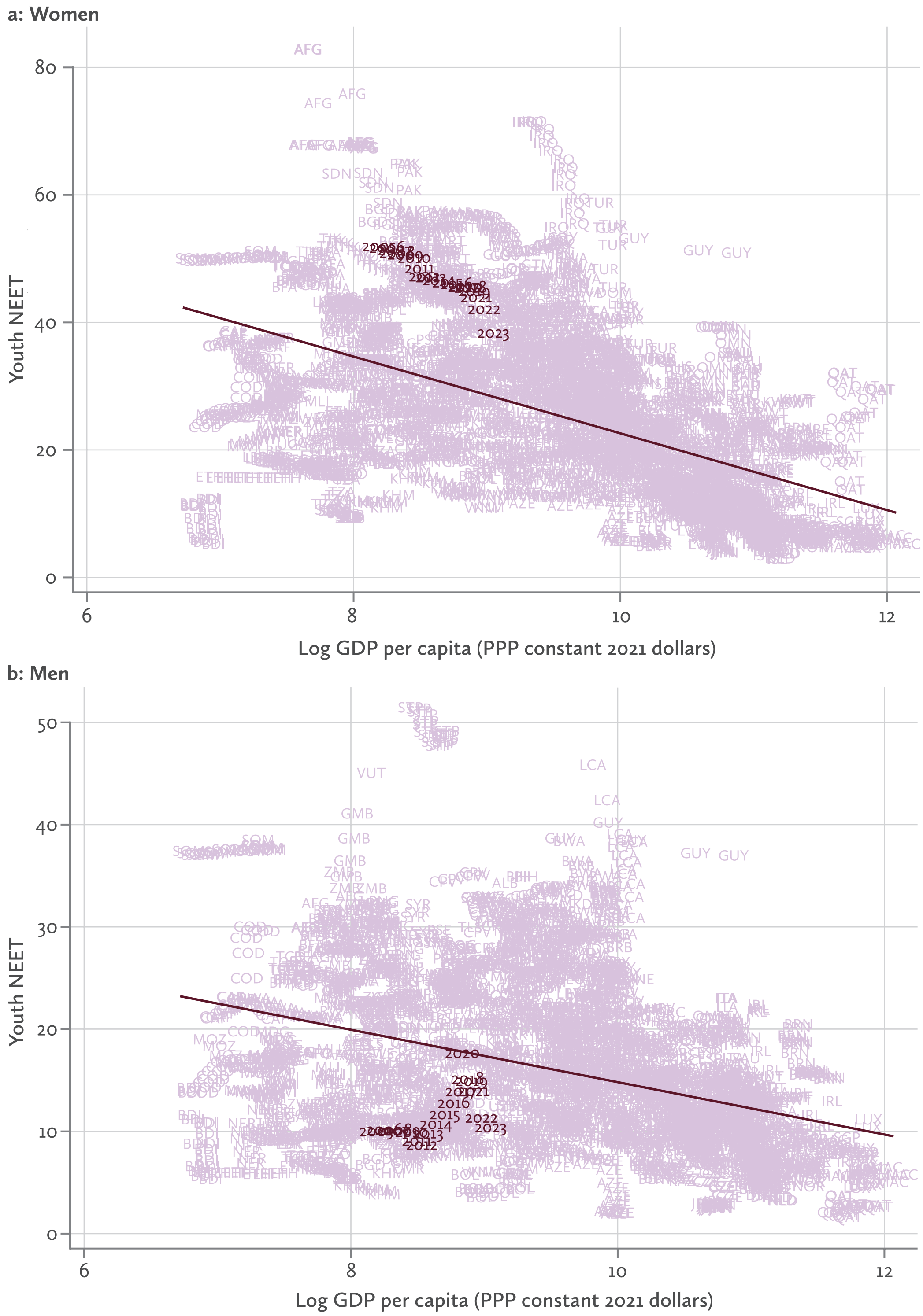


Sources and notes: World Development Indicators. Darker colours represent India across various years.

For young men, the labour force participation rate was above the global average but with economic growth, this has fallen. As we saw earlier, increased participation in education is an important explanation for the falling participation rate (for men and women). A switch from employment to education for youth seems to be a desirable phenomenon, but two caveats are important here. First, to the extent that individuals seek higher levels of education for better job opportunities, education should translate into more productive and aspirational jobs for youth. And second, it is still a matter of concern that compared to countries at similar levels of development, youth male and female labour force participation rates in India remain low.

Next we examine how India compares to other countries with respect to the proportion of young individuals who are not in employment, education or training (NEET, see Box 2.1). If we compare male

Figure 2.15: Youth NEET in international perspective



Sources and notes: World Development Indicators

and female NEET rates for India with other countries, two salient points emerge (Figure 2.15). The share of Indian youth women in NEET is well-above the line of best fit in 2023 as is expected given the low rates of labour force participation among women of all ages. There are some improvements in recent years (as we noted while discussing the WPR above). However, there is a long way to go before India's rate of youth female employment rate, particularly in productive employment opportunities reaches a desirable level.

The high rate of NEET is a persistent and stubborn feature of India's female labour market (SWI 2023). In contrast to young women, NEET does not seem to be a problem for young men in India. The NEET rate for male youth was well below that of other countries at similar levels of development. Although there has been some increase between 2011 and 2020, it has fallen post-pandemic, reflecting the increase in employment rates we saw earlier.

Box 2.1 What is NEET?

The unemployment rate is generally interpreted as a measure of 'labour underutilisation' and an indicator of the health of the labour market. However, this number is based on those who are identified as "unemployed" i.e. defined as those individuals who are willing to work and have been actively seeking employment, as per ILO official definitions.[1] This, as a share of the total labour force is the unemployment rate. Therefore, unemployment is measured with respect to the 'active labour force' (Baert 2021), and not the potential labour force. By potential labour force we mean discouraged workers and workers who may not explicitly identify themselves as seeking employment but would work if work was available. This group is excluded from the denominator when constructing unemployment rate as a measure.

In that case, why not directly use the employment rate to measure labour absorption or utilisation? Indeed, this may be a useful metric in the case of the adult population. However, for a young population, many in the working age group, particularly 15-24 year olds, may still be in education or training. Therefore, low employment rates in this group may in fact be a reflection of higher educational enrolment, rather than labour underutilisation.

NEET is a measure that has been developed to address this issue. It is a comprehensive measure of this labour under-utilisation while excluding those in education or training. NEET not only includes the unemployed, but also those who are of working age and are neither in education/training nor employment.

1 Note that in India, the official labour survey defines the unemployed as those who are not engaged in any economic activity and either making an effort to seek work, or would have worked if work was available. So, having sought work is not a necessary condition to qualify as being unemployed, unlike in the ILO definition.

Broadly, looking at how India's youth have fared in the last forty years, there are two main takeaways. We have made huge strides in educational attainment, ensuring universal primary and to some extent, secondary education. Tertiary education enrolment rates have steadily risen. However, on the employment front, there is cause for worry, with employment rates falling well below global averages for the given level of income and unemployment rates being much higher than predicted from the cross-country average. Of special concern are the low levels of employment among young women.

2.4. State-level analysis of economic growth, population growth and age structure

As we have seen above, Indian states are at different stages of demographic transition and the share of youth (both trends and levels) vary widely across states. Two important questions arise here. Were the currently older states able to take advantage of their demographic dividends in the recent past? And are states with larger youth populations having more difficulty creating regular wage work opportunities for their youth?

2.4.1 State-level demographic dividend - cautionary note

An illustration of the various ways in which demographic change can interact with economic factors comes from Jayadev and Tripathi (2025) who decompose the growth in per capita gross state domestic product (GSDP) for 15 Indian states between 1993-94 and 2023-24 into three components- growth in output per worker (productivity growth), growth in the number of people employed per working age population (the employment rate) and growth in the ratio of working age population to total population (demographic dividend). The key insight of the study is that growth in the last component is only realised when it translates into growth in employment. For several Indian states, the reverse was the case- a declining employment to working age ratio muted the potential advantage of the demographic dividend.

The study also notes that states like Kerala, Andhra Pradesh, Tamil Nadu, Himachal Pradesh, Maharashtra, and Karnataka have reached a point in their demographic transition where, barring in-migration from other states, economic growth will be driven by productivity improvements alone. Conversely, states like Uttar Pradesh, Bihar, Haryana and West Bengal are still in the initial stage of demographic transition. In such states, economic growth can be generated by the increasing share of the working age population and by productivity growth. But once again, only if adequate productive employment opportunities are created.

The key takeaway is that the relationship between demographic change and economic growth depends on the economic and institutional context at the state level. The demographic dividend is not an automatic growth driver. It must be actively harnessed through complementary policies in education, health, and job creation. The authors caution that without such measures, "states with the largest demographic potential risk experiencing a demographic nightmare rather than a dividend." They go on to note that:

> "For lagging Indian states, this risk is non-trivial: high fertility persists alongside slow structural transformation, low female labour force participation, and stagnant formal job creation. Without significant policy interventions to improve human capital and labour absorption, the demographic transition in these states could deepen income inequality, strain public finances, and trigger political instability—turning what could have been a growth opportunity into a macroeconomic liability."

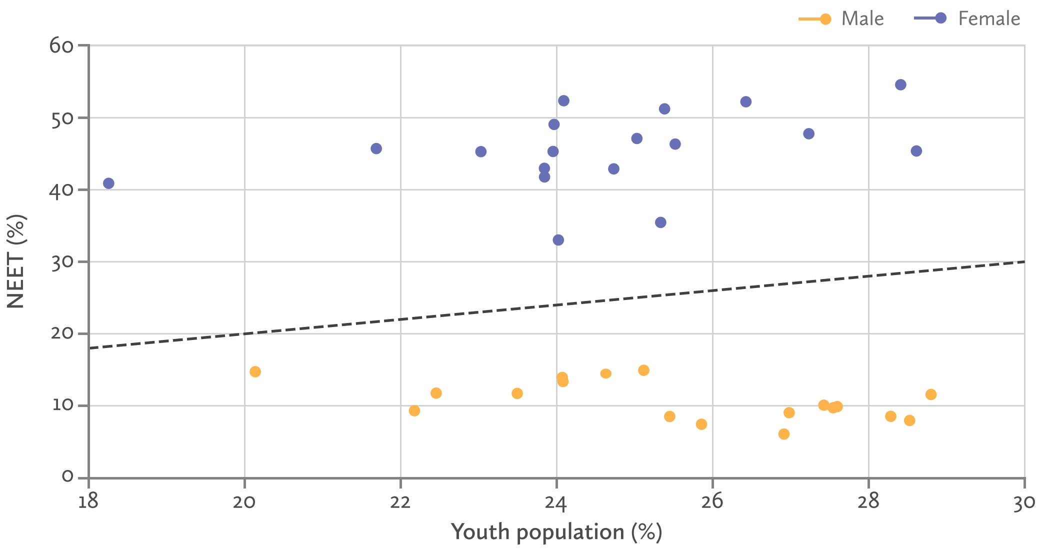
2.4.2 Are younger states struggling more with job creation for youth?

We address this question in two ways. First, we examine the proportion of youth who are NEET (men and women separately) as a function of the share of the youth population in the state, as of 2023. Figure 2.16 shows the data. The two sets of points, for men (yellow) and women (blue) show the expected level difference; across all states, women are much more likely to be in NEET status. But more significantly, there is no trend observed either for men or for women across the relatively younger and relatively older states. In other words, states with a larger youth share are no worse than those with a smaller youth share in creating employment for young workers.

One problem with the above exercise is that any form of employment, including self-employment is adequate to move a person out of NEET status. But from a growth perspective, we are more interested in productive employment opportunities that generally take the form of regular wage or salaried work. These are also considered to be the most desired type of employment, particularly among youth, and are also the best paid jobs on average.

So the second way we approach the question posed in this section's title is by focusing on regular wage employment for young workers. The following factors are relevant to this question. First, the relationship between growth and overall salaried or regular wage employment; second, the proportion of this employment that becomes available to youth; and third, the share of youth in the workforce.

Figure 2.16: The relative size of the youth cohort does not seem to matter in terms of their labour under-utilisation



Sources and notes: PLFS 2023-24. Yellow dots represent male NEET (not in education ,employment or training) shares, and blue dots correspond to female NEET shares. Line represents the 45 line of equality

We estimate the relationship between economic growth as measured by NSDP per capita and the proportion of young workers who have salaried jobs. We expect this relationship to be positive since growth is expected to create such jobs. However, there may still be heterogeneity across states since the nature of economic growth matters too. If growth is led largely by newer industries which demand new skills, then one can expect job creation in favour of younger workers . On the other hand, if younger workers are perceived as having less skills (due to less experience or on the job training), or because of employability issues as a result of a poor or inadequate formal education system, then labour demand may favour older (more experienced) workers. Further, in the absence of adequate demand for workers (weak job creation), older workers may crowd out younger workers from the labour market. Therefore, economic growth may or may not lead to concomitant increases in regular wage employment for youth.

Figure 2.17 shows the relationship between log NSDP per capita and proportion of youth in salaried employment across the major states. Note the difference between states such as Gujarat or Tamil Nadu on the one hand and Bihar or UP on the other. In the former two, higher levels of NSDP are strongly correlated with higher rates of regular wage employment among youth. While in the latter two, not only is the change in NSDP smaller (i.e. they

Figure 2.17: Relationship between log NSDP per capita, proportion of youth in salaried employment and share of youth.

a: Proportion of youth in salaried work versus log NSDP

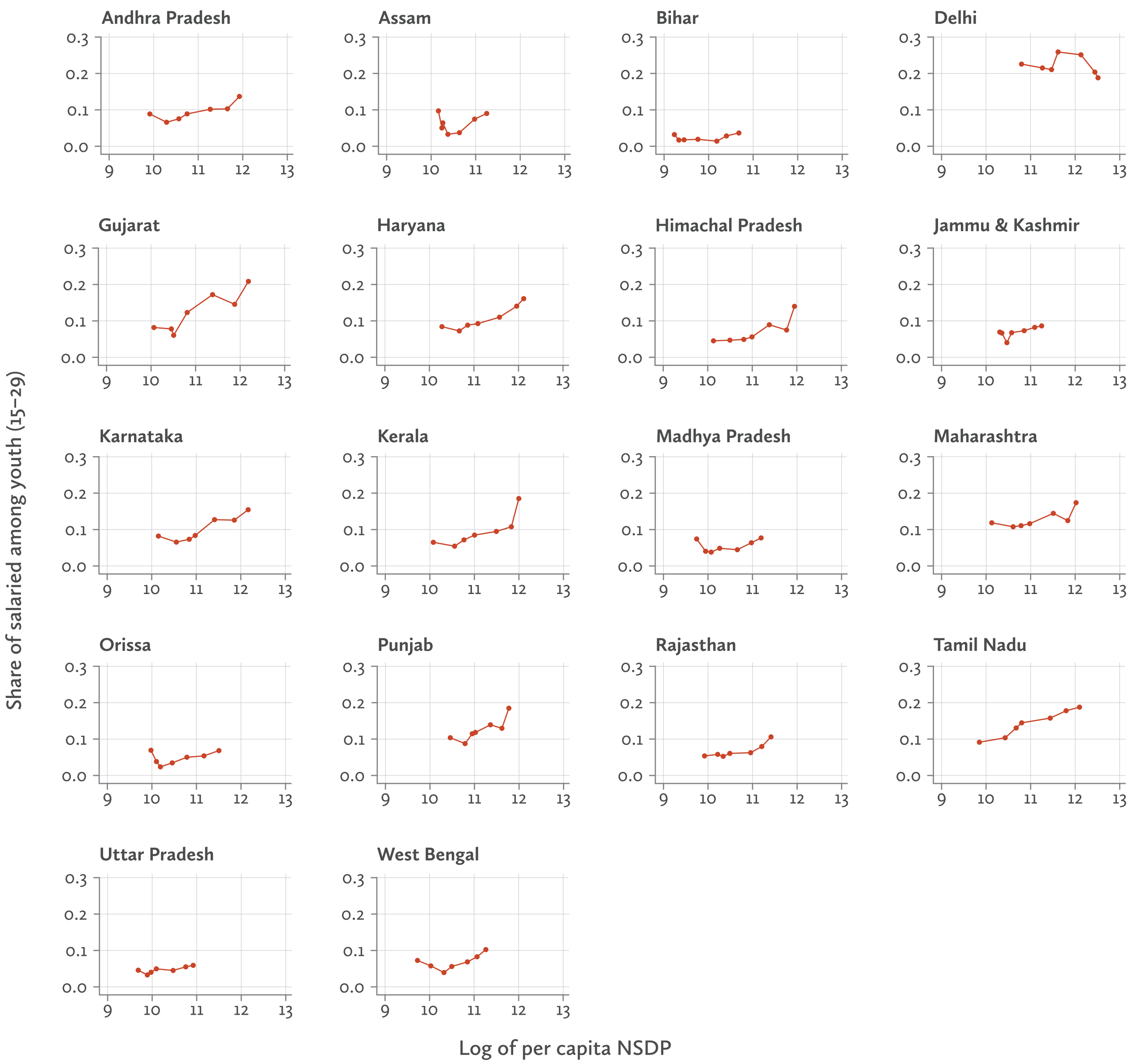
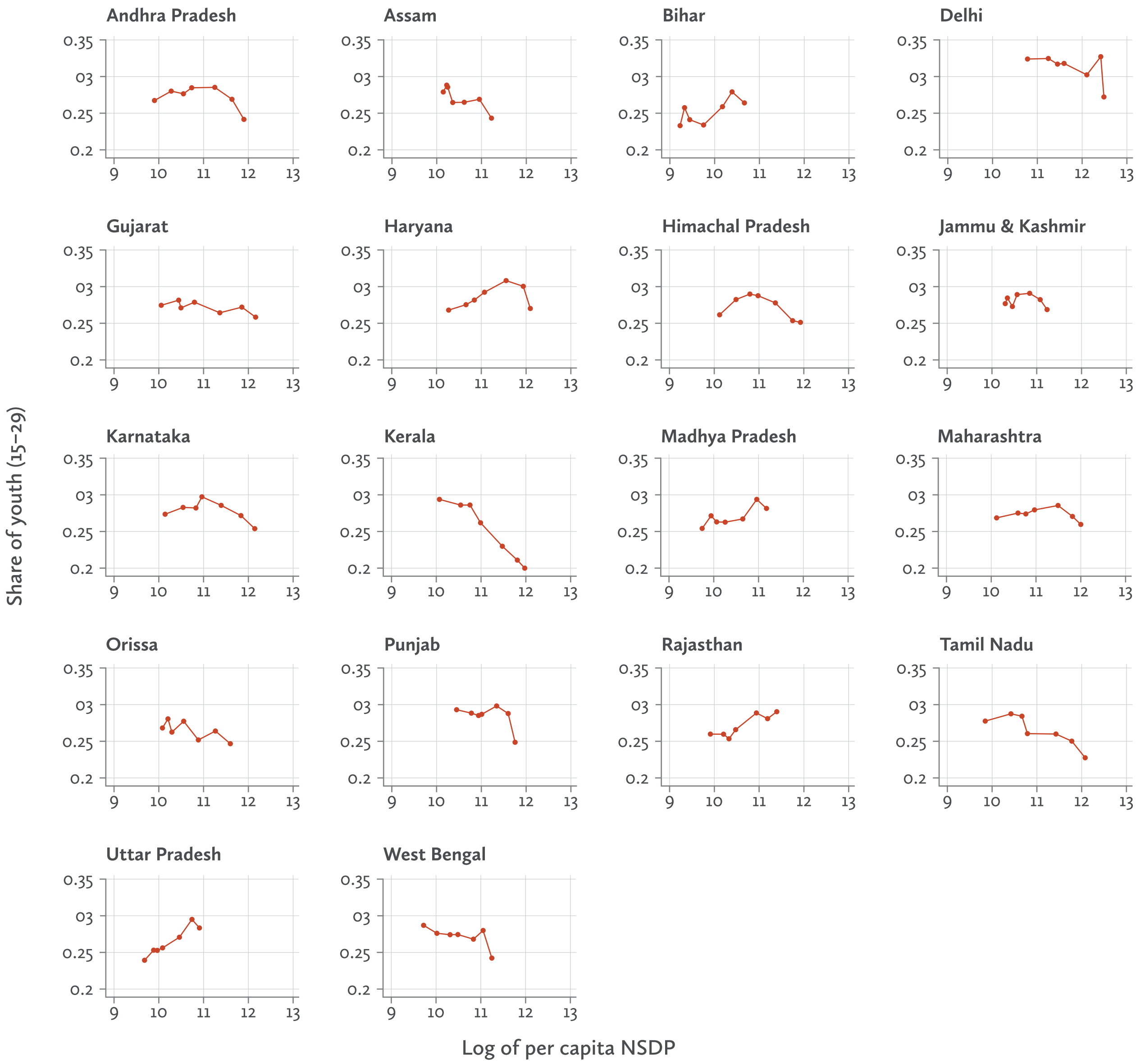


Figure 2.17 [Contd]: Relationship between log NSDP per capita, proportion of youth in salaried employment and share of youth.

b: Proportion of youth by NSDP



Sources and notes: NSS EUS-PLFS various years and RBI Database of Indian Economy

experienced smaller rates of growth), but also the relationship to regular wage employment is much weaker.

However, there is one more factor to be considered. Remember that states also differ in terms of the demographic stage they are in over this period. Thus the share of youth in the overall population has also changed over time, as shown in Figure 2.16; going up for states like Bihar and UP and falling for states like Kerala and Tamil Nadu. Given a certain relationship between economic growth and creation of regular wage employment for youth, those states which also see an increase in youth share, will need to create jobs faster in order to perform similar to those that see a steady or decreasing youth share.

We test this hypothesis by running a panel regression model which estimates the relationship between regular wage job creation and NSDP. This model gives us a set of coefficients (semi-elasticities) that measure the change in proportion of salaried youth with a proportionate change in per capita NSDP (see online Appendix). We find, as expected from the plots shown in Figure 2.17, that the semi-elasticity is higher for states like Tamil Nadu and Gujarat and low for Bihar and UP. That is, a given amount of economic growth was associated with a greater increase in regular wage jobs for youth in these states. But, interestingly, we also find that controlling for the changing youth share, which has decreased in Tamil Nadu and Gujarat and increased in Bihar and Uttar Pradesh, improves the performance of the young states. That is, the gap in job creation is smaller between the older and younger states once we account for the fact that the latter have a higher youth share to deal with. That said, for Bihar to perform as well as Tamil Nadu in terms of increasing the proportion of youth in salaried work, it would need to have a much higher semi-elasticity than it in fact does. So while taking into account the youth share narrows the gap, it does not eliminate it.

Finally, we check whether the increase in salaried work among youth increased at the same rate as it did for the overall working age population or whether some states were successful in creating such jobs for youth at a higher rate. When we include a control for the proportion of salaried workers as a whole (in the entire workforce), we see that the semi-elasticities for youth are no longer statistically significant. This means that the increase in salaried work for youth occurred at approximately the same rate as it did for the entire workforce, for every state (See online Appendix for regression results).

Another way to illustrate how states have fared in salaried employment relative to their economic growth is to compare indexed per capita SDP with the indexed share of youth in salaried employment over time. This allows us to examine how far economic growth has translated into salaried employment for young people, and how this relationship has varied across states. Figure 2.18 presents this comparison for selected states, separately for men and women.

Among young men, states such as Tamil Nadu, Karnataka, and Gujarat, which have experienced relatively rapid economic growth, also show a steep rise in the share of youth in salaried employment. For example, when Tamil Nadu's per capita NSDP increased to nearly eight times its 1983 level, the share of salaried youth roughly doubled. Uttar Pradesh, despite being poorer, exhibits a broadly similar employment–growth trajectory. In contrast, in Bihar and Madhya Pradesh, the increase in salaried employment has been much slower relative to economic growth.

For young women, the scales on the Y-axis are larger than for men because women's salaried employment rates have historically been very low; consequently, even modest absolute increases appear large when indexed. Nevertheless, Gujarat, Karnataka, and Tamil Nadu again perform relatively well in expanding salaried employment for young women, while poorer states show weaker gains even at comparable indexed levels of economic growth.

From the foregoing analysis we can conclude that, as far as overall employment is concerned, younger and older states are not too distinct from each other. However, when it comes to regular wage work, older states have generally performed better. And, when we take into account the changing youth shares, younger states improve in their performance. At the same time, states such as UP, Bihar, MP and a few others, will greatly benefit from a policy environment that enables much faster creation of regular wage jobs before aging becomes a challenge.

> "As far as overall employment is concerned, younger and older states are not too distinct from each other. However, when it comes to regular wage work, older states have generally performed better."

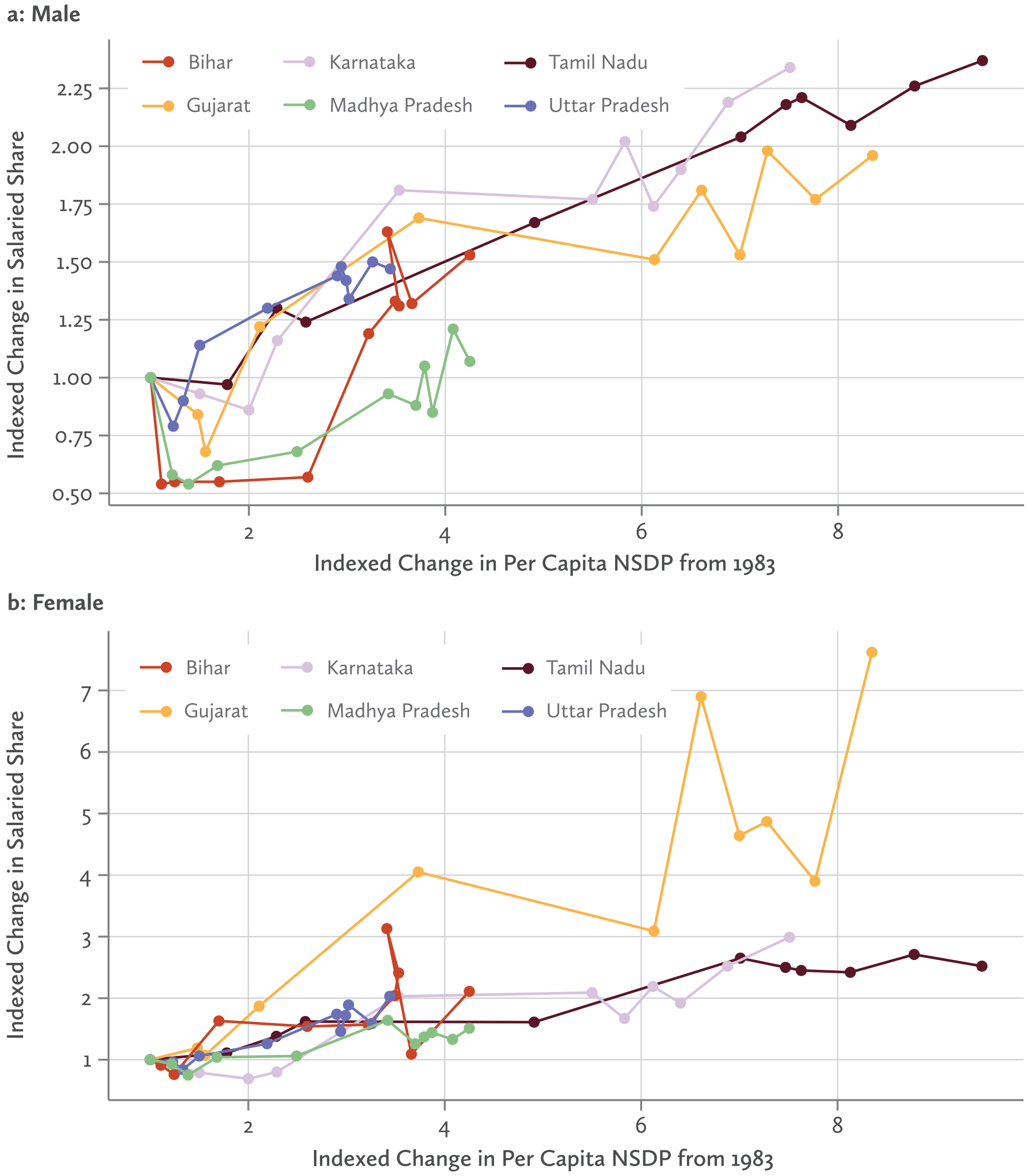
2.5 Youth and migration

While the challenge of regular salaried job creation requires a medium or long term outlook, what is more immediate, from a policy perspective, is addressing the spatial disparity in the distribution of workers and the distribution of jobs. States that are ageing can benefit from a boost in their labour supply and so 'migration might cushion the decline in working-age population due to ageing, and, if fully integrated into the labour market, help by generating fiscal income' (RBI 2026). In this context, migration emerges as an important adjustment mechanism - addressing two kinds of spatial disparities, one, in the distribution of the jobs and the other in the distribution of the working age population. Thus, to understand how youth, education, informality, and migration intersect under conditions of constrained job creation, we now turn to the eShram registry.

2.5.1 The eShram registry

By definition, any worker who is home-based, self-employed or a wage worker in the unorganised sector, including those in the organised sector who do not

Figure 2.18: States' salaried employment share growth vis-a-vis economic growth



Source and notes : NSS EUS-PLFS various years and RBI Database on Indian Economy

receive any social protection benefits via ESIC or EPFO or is not a Government employee, can register in the e-Shram portal, either by themselves or by visiting the nearby Community Service Centre (CSC). As of December, 2024, more than 29 crore of workers were registered in the portal.

Besides collecting information on age, educational attainment, primary occupation and gender, e-Shram also records the district of origin and the state of employment (destination) offering a unique opportunity to study India's migrant workforce. Note that while its value lies in the granular picture of informality that it offers, the portal is not designed to be a representative labour force survey. However, a comparison of state-wise share of informal workers between the PLFS and eShram shows consistent rank ordering, with the exception of Bihar and Uttar Pradesh which emerge as outliers having a very large share of eShram workers.

Despite this over-representation, remember that states such as UP and Bihar are also the states where youth population shares are highest and where pressures on labour markets from demographic inflows are most acute, as we saw in Section 2.2.2. From this perspective, the fact that eShram captures a disproportionately large share of workers from these states is analytically informative as it can capture the labour market experiences of cohorts and regions that will largely determine whether India's demographic dividend is realised or dissipated. Of course, we acknowledge that findings may not be nationally representative in the statistical sense, yet, the large sample size and the availability of migration information makes this a useful source of information

Table 2.1: Characterising the eShram worker

	Share of population (%)		
Age Groups	PLFS	eShram	eShram (Migrants)
Less than 25	11.64	19.2	20.26
25–29	11.35	15.56	20.95
30–34	13.44	15.49	19.24
35–39	15.46	14.25	15.2
40+	48.12	35.5	24.35
Education			
Illiterate	23.37	23.68	20.21
Literate but below primary	6.2	6.57	5.62
Primary or middle	39.74	34.2	30.73
Secondary	12.37	14	15
Higher secondary	9.59	12.97	15.6
Graduate & above	8.73	8.58	12.84

Sources and notes: PLFS 2023-24, e-Shram database (accessed via Datagov) . The PLFS sample includes only the pool who would be eligible for e-Shram registration.

in understanding labour market dynamics, particularly among the youth.

Within the eShram database, we define the subset of migrant workers as those whose origin state is different from their current state or district. Since the eShram portal does not share the name of the origin district of an individual worker, we can only comment about inter-state migrants and not intra-state. We acknowledge that this overlooks a significant component of India's migration experience.

Comparisons of age distributions across PLFS, eShram, and the migrant subset of eShram immediately reveal the youth-heavy nature of the registry. Workers below the age of 30 constitute roughly one-tenth of the workforce in PLFS, but close to one-fifth of all eShram registrants, and an even larger share among eShram migrants. Conversely, workers aged 40 and above account for nearly half of the PLFS workforce but only about a quarter of eShram migrants.

This pattern has two implications. First, eShram disproportionately captures individuals at early and mid stages of their working lives. Second, migration within the informal labour market as captured in eShram, is overwhelmingly a youth phenomenon.

Education profiles reinforce this interpretation (Figure 2.19). The most striking differences emerge at the upper end of the education distribution especially in the migrant subset. Workers with higher secondary or graduate qualifications form a noticeably larger share of eShram migrants than either PLFS workers or the general universe of eShram registrants.

Taken together, these two dimensions overturn a common presumption about informality. The informal labour market, as observed through eShram, is not dominated solely by older, poorly educated workers. It is populated to a significant extent by young and educated individuals whose first substantive attachment to the labour market occurs outside formal employment. Further, the educational composition of migrants across age cohorts. reveals that younger migrants are systematically more educated than older migrants.

The fact that younger migrants are more educated is not surprising given the expansion of schooling over the past two decades. But its appearance within informal migration is particularly noteworthy. It suggests that increased educational attainment has altered who migrates, but not necessarily how they are absorbed into the labour market, i.e. as informal or formal workers.

> The informal labour market, as observed through eShram, is not dominated solely by older, poorly educated workers. It is populated to a significant extent by young and educated individuals whose first substantive attachment to the labour market occurs outside formal employment.

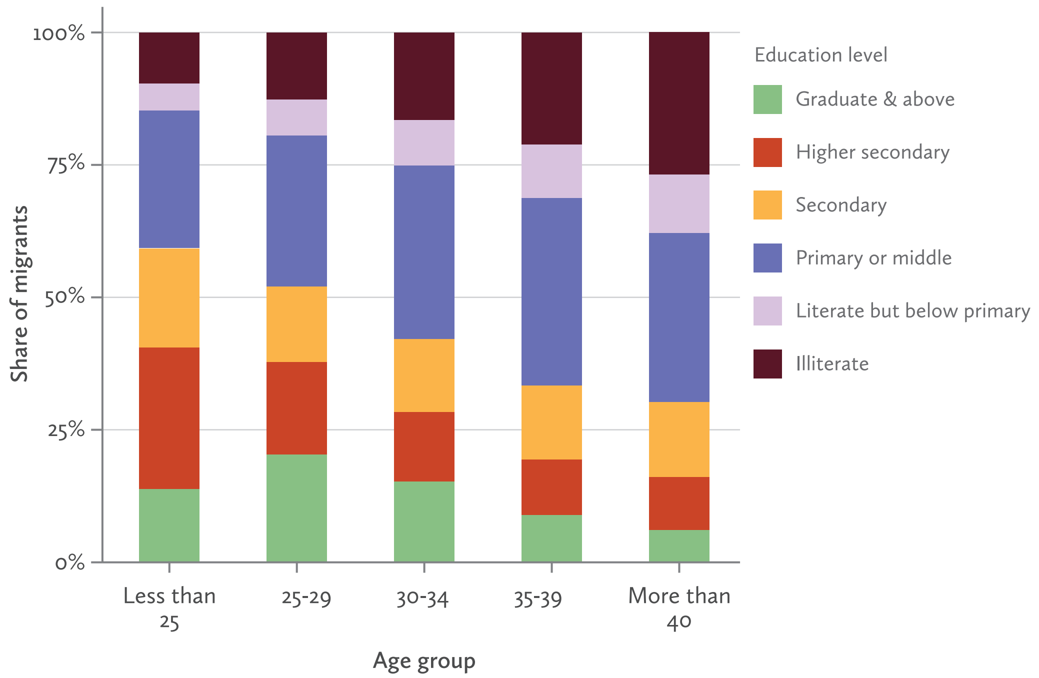
From the perspective of the demographic dividend, this finding is consequential. The labour market is not only absorbing larger cohorts of young workers, but increasingly educated ones, through informal and often precarious forms of employment that involve geographic mobility. In other words, the supply-side pressure associated with the demographic dividend is being transmitted not just into informality, but into informal migration of the educated youth. This raises a critical question for the next stage of analysis: where, within the informal labour market, do these more educated young migrants end up? We turn to this question by examining patterns of occupational sorting across age and education groups.

2.5.2 Occupational sorting by age within informal migrant work

Based on the finding that younger migrants are systematically more educated than older migrants, one would expect to observe differences in occupational allocation between younger and older migrants, even when both groups remain within informal employment. Examining differences in occupational shares between youth and non-youth migrants reveals such a pattern (Figure 2.20). Younger migrants are disproportionately concentrated in occupations that are relatively more service-oriented and less physically intensive, including education-related services, office administration and facility management, electronics and hardware-related work etc., while in contrast, older migrants are significantly more represented in construction, automobile and transportation services, agriculture, domestic and household work, and private security.

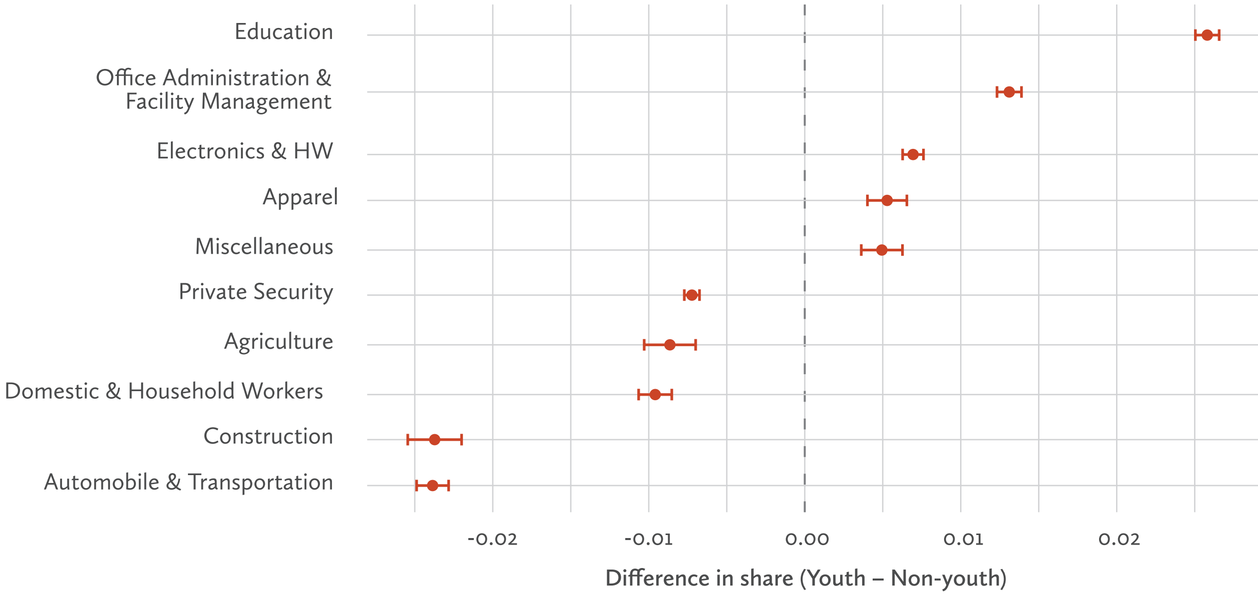
These differences are statistically significant and emerge despite the fact that all workers in the comparison are informal migrants. This indicates that informality itself is internally stratified, with age acting as an important axis of sorting with younger workers sorting themselves into a subset of occupations distinct from those of older workers.

Figure 2.19: Educational Distribution of Migrants (by Age)



Sources and notes: e-Shram database (accessed via Datagov)

Figure 2.20: Young migrants more likely to be in education and office administration

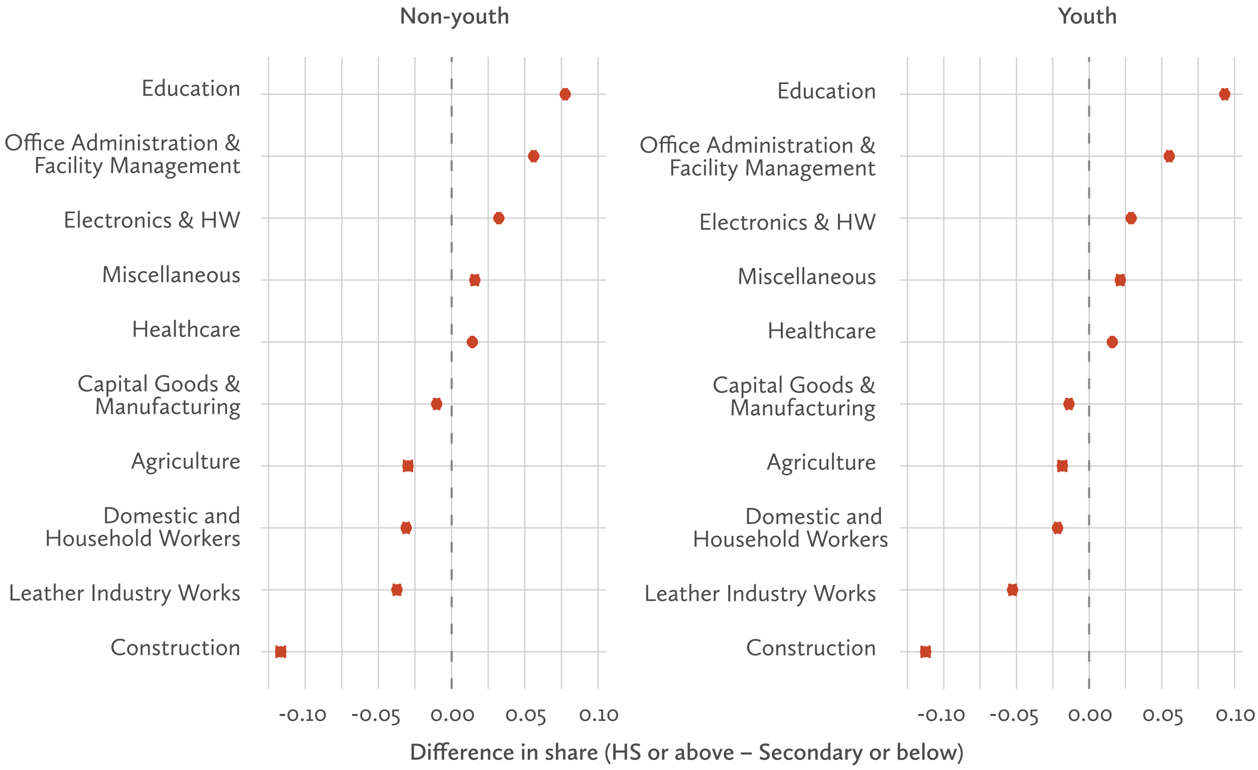


Sources and notes:e-Shram database (accessed via Datagov)

2.5.3 Education and occupation: where schooling takes informal migrant workers

We further examine whether education reshapes occupational allocation differently for younger and older workers. Comparisons of occupational shares between workers with higher secondary education or above and those with secondary education or below, conducted separately for youth and non-youth migrants, show a consistent pattern (Figure 2.21). More educated workers are disproportionately concentrated in education, office administration, electronics and hardware, healthcare etc., while less educated workers are more prevalent in construction, agriculture, leather industry work, and domestic services. These patterns are visible for both youth and non-youth, although at a higher level for youth, with broadly similar occupational rankings.

Figure 2.21: Top occupations of migrants, by level of education



Sources and notes: e-Shram database (accessed via Datagov). Top 5 occupations per age group (95% CI) that favours HS+ or Below 10th Workers.

From a demographic-dividend perspective, the growing presence of educated youth within informal migration highlights the urgency of policy approaches that address job creation and labour market transitions, rather than relying on education expansion alone to deliver improved employment outcomes.

2.5.4 Gendered persistence and the limits of lifecycle explanations

Comparisons of male–female occupational shares among youth and non-youth migrants show strong and persistent gender segmentation among migrants (Figure 2.22). Men dominate construction, transport, capital goods manufacturing, electronics, and hardware-related occupations in both age groups, while women are heavily concentrated in apparel, domestic and household work, education, and in the case of youth, beauty and wellness services. Interestingly, for the larger universe of workers, we see a distinction in the major employers of young women and of older women (something we will highlight in Chapter 3), for migrant women (and men), we do not see such differences - major employers are the same for young and old migrant women and men alike.

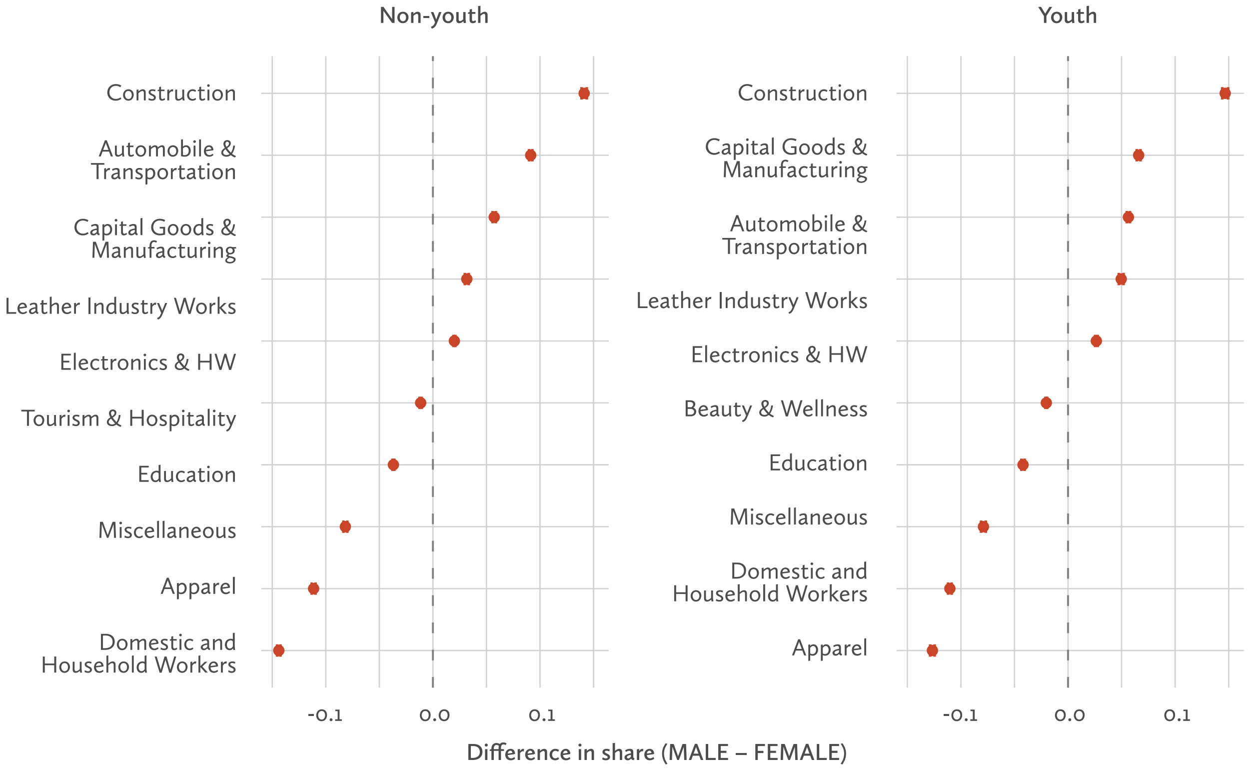
This stability suggests that, for women, informality is not merely a transitional phase but a structural condition shaped by persistent constraints on occupational mobility. As India moves through the remaining years of its demographic-dividend phase, policies should recognise that age-based sorting within informality cannot be assumed to resolve through experience alone, and that gendered segmentation constrains mobility even as cohorts mature. In the absence of structural shifts in the composition and quality of jobs being created, early patterns of occupational entry risk becoming persistent features of the labour market. For a labour force that is both young and increasingly educated, this underscores the need to view structural transformation not merely as sectoral reallocation, but as the creation of employment pathways that allow initial entry into work, particularly for women, to translate into durable and upwardly mobile employment over time.

2.5.5 Migration flows

The analysis so far has focused on characteristics of informal migrant workers at the all-India level. In this section, we turn to the spatial dynamics of migration, beginning with state-level migration flows.

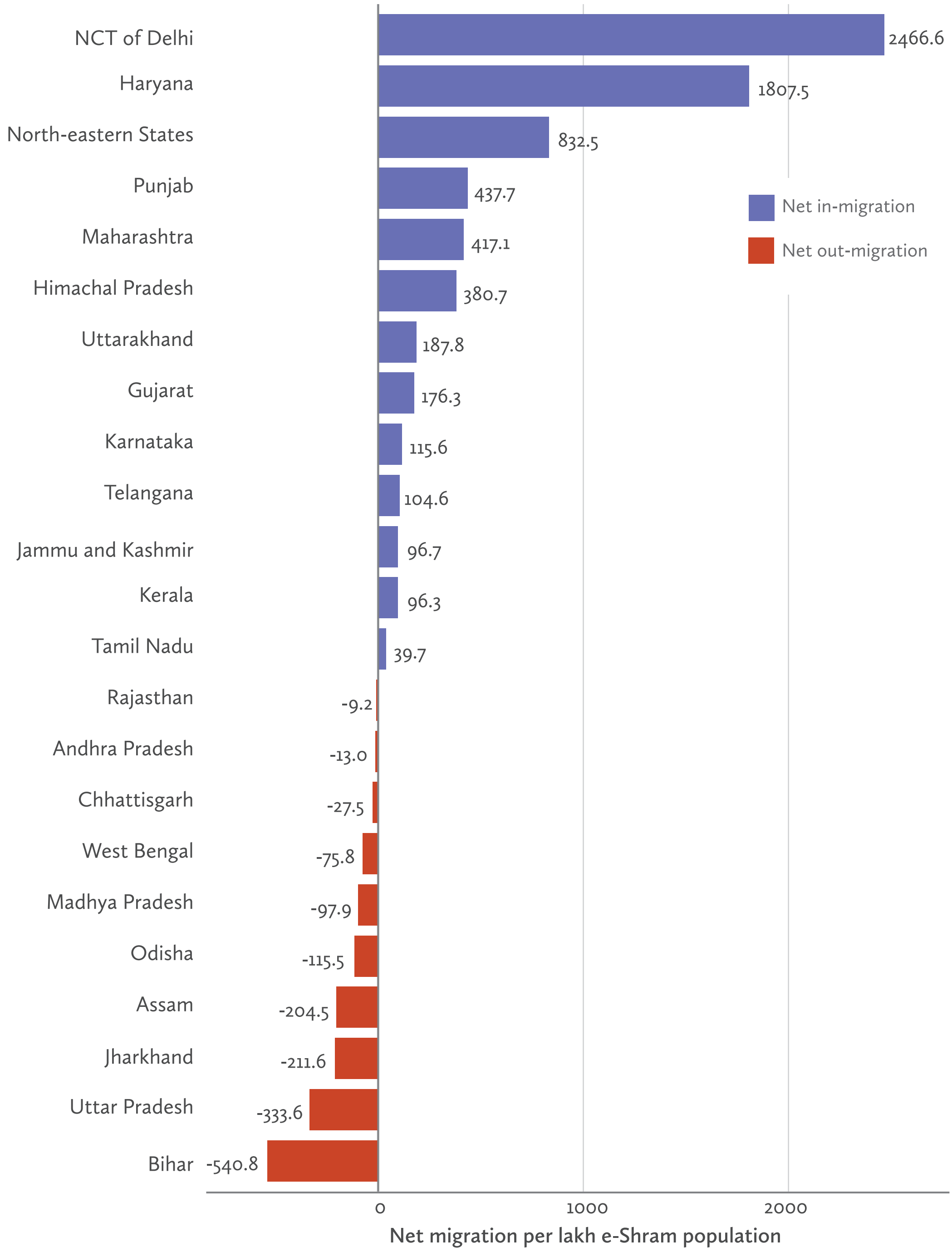
Figure 2.23 shows the net migration patterns across states. To account for both population size and selection bias of e-Shram registry, we normalise the net migration flows with the total number of e-Shram

Figure 2.22: Within male and female migrants, major occupations are the same for young and old



Sources and notes: e-Shram database (accessed via Datagov)

Figure 2.23: Net migration flows by state



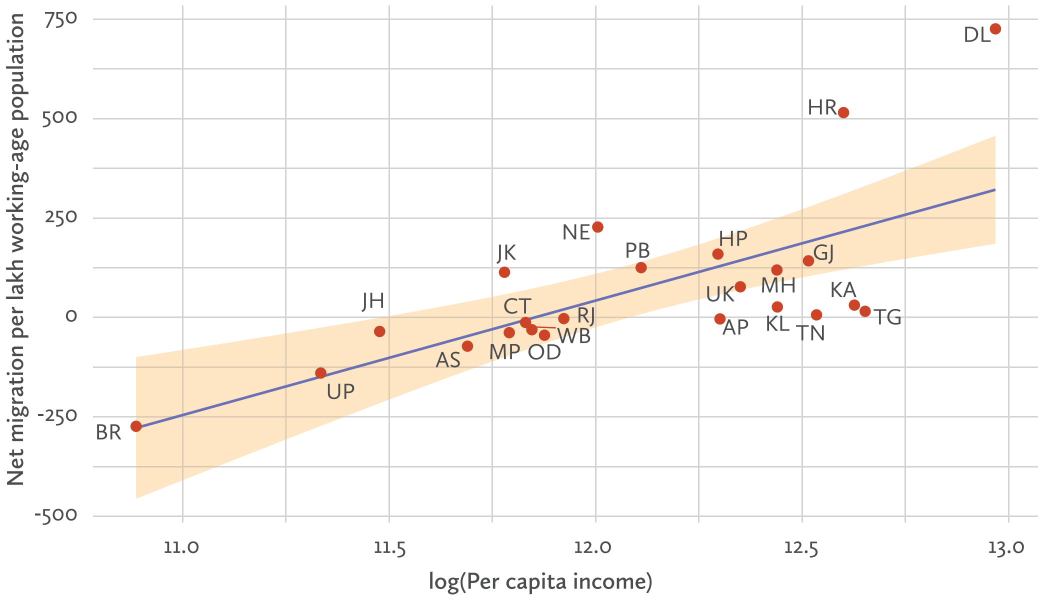
Sources and notes: e-Shram database (accessed via Datagov)

workers registered in a state. These migration flows reveal a familiar but analytically important pattern. UP, Bihar, Jharkhand, Assam and Odisha emerge as the largest net-sender states, while NCT of Delhi, Haryana, Maharashtra, Punjab and North-Eastern states (excluding Assam) dominate as net-receiving states. One may note that UP and Bihar send more migrants not only because they are poorer, but in addition because they are younger, as we saw in Section 2.2.2.

State-level migration patterns become more revealing when examined alongside indicators of state-level economic development such as per capita Net State Domestic Product (NSDP) (Figure 2.24). States with lower per capita income tend to send out substantially larger numbers of informal migrant workers, while richer states exhibit much higher levels of net in-migration.[4] In other words, the direction of migration depends on a state's economic position to a great extent.

The migration flow also aligns with broader demographic patterns. Read alongside Figure 2.8, the state level migrant inflows and outflows reveal that India's informal migration flows operate across a demographic gradient as much as an economic one. States that are net receivers of informal migrants tend

Figure 2.24: Workers move from economically poorer to relatively richer states



Sources and notes: e-Shram database (accessed via Datagov) and NSDP from RBI Database on Indian Economy

to be ageing states reflected in higher median ages. Conversely, the largest net senders, most notably UP and Bihar but also states such as Jharkhand and MP are at the younger end of the age distribution. Therefore, the scale of out-migration from large northern states is not only a function of lower income or weaker job creation, but also of the sheer size of their youth population. In this sense, informal migration becomes one channel through which the demographic dividend is spatially rebalanced as younger states export surplus labour to older, more economically dynamic states.

> **"Informal migration becomes one channel through which the demographic dividend is spatially rebalanced as younger states export surplus labour to older, more economically dynamic states."**

From the perspective of India's demographic-dividend window, these findings carry important implications. As large, youthful states continue to generate new labour market entrants , migration is likely to remain a central mechanism through which the youth navigate the lack of job creation in the formal sector, or escape the lower wages in the local informal labour markets.

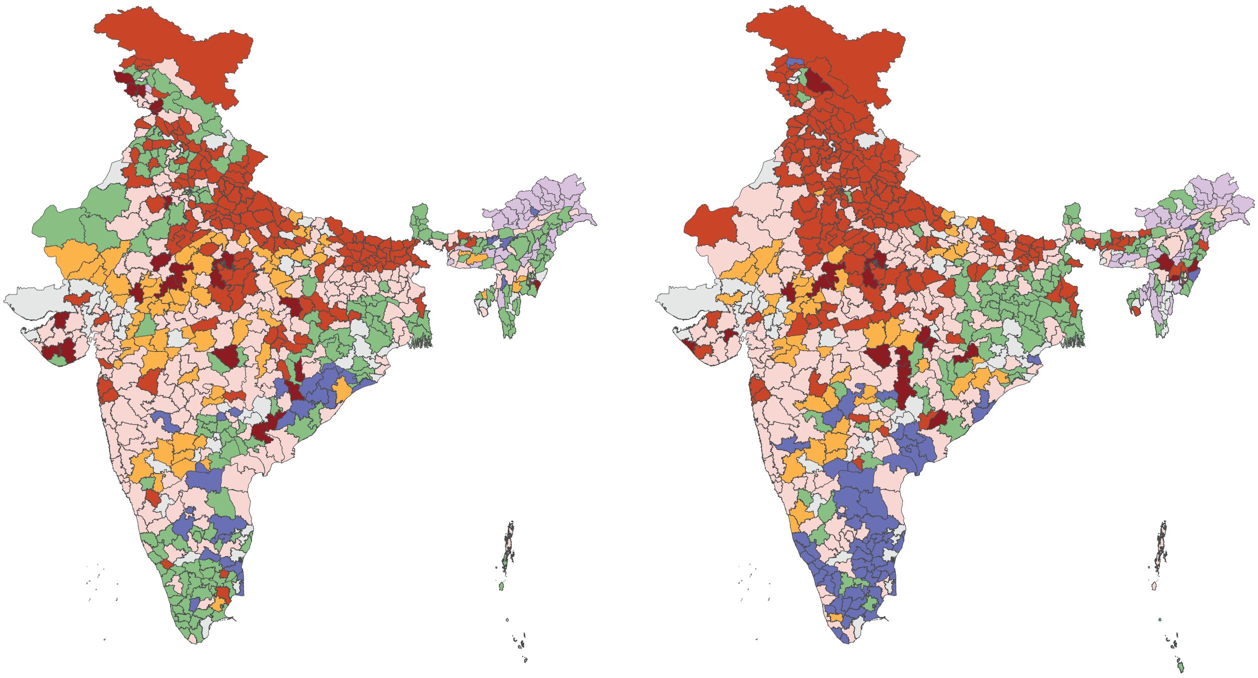
2.5.6 Sorting in Migration: Interplay of Education, Distress, and Networks

What does the spatial flow of migrants reveal? For every district that migrants are located in (destination districts), we identify the state from which the majority (more than 50%) of migrants in that district originate. We refer to this as the dominant origin zone of migrants. Figure 2.25 maps the dominant origin zone of migrants across destination districts separately for less educated workers (illiterate and below primary) and for workers with graduate education and above. A district is assigned a dominant origin zone only if more than 50% of migrants in that district originate from a single zone; districts that do not meet this threshold are classified as mixed (hence, unassigned to a specific zone). The maps therefore identify locations where a clear majority origin emerges, rather than depicting the full universe of migration flows. For example, a district would take the colour green if more than 50 percent of in-migrants in that district come from the Eastern Zone (defined as Bihar, Jharkhand, Odisha and West Bengal).

Among low-educated migrants, the spatial pattern is strikingly expansive. Specifically, migrants originating from the eastern zone dominate destination districts well beyond the eastern region itself, extending across large parts of central, western, and southern India. This suggests that low-educated migration from the East is not confined to proximate labour markets, but instead cuts across zonal boundaries at scale. In contrast, northern-origin migrants are more tightly concentrated within the northern belt, while southern-origin migrants largely dominate southern destinations. The overall picture is one in which low-educated migrants, particularly from the East, are more geographically dispersed and more likely to migrate long distances.

Figure: 2.25: More educated migrants travel less distances

Illiterate plus literate but below primary | **Graduate and above**



Dominant Zone

Central | East | Mixed | North | North-East | South | West | NA

Sources and notes: e-Shram portal

The pattern shifts sharply for migrants with graduate education and above. In this group, dominant origin zones are far more spatially contained. Eastern-origin dominance becomes substantially more restricted, and migration streams display strong zonal clustering: northern-origin migrants primarily dominate northern destinations, southern-origin migrants dominate southern ones, and same for all other zones. This implies that higher educated informal migrants, irrespective of their state (or zone) of origin, travel much less as opposed to their less-educated counterparts.

Several mechanisms could plausibly account for this pattern. Educated informal migrants may be more likely to treat current informal employment as transitional, preferring to remain closer to home while searching for better opportunities in and around the home state. Regional language, cultural factors, and social networks may also bind educated workers more tightly to familiar labour markets. In contrast, low-educated migrants, facing fewer such constraints and greater economic pressure, may be compelled to follow work opportunities wherever they arise, even across long distances.

Read together, these patterns suggest that informal migration is not governed by a single logic. For example, education differentiates how and how far workers move, hinting at the existence of distinct migration channels even within informality. While this figure highlights how educational attainment shapes the spatial reach of migration, the next figure examines how even the top six migrant sending states differ in terms of where they send their migrants in larger numbers. Doing so allows us to distinguish between migration driven by general economic distress, migration mediated by long-standing networks, and migration constrained by proximity.

Figure 2.26 sharpens the spatial patterns observed earlier by identifying, for each destination district, the share of migrants from a specific origin state, irrespective of education categories or age. For example, the top-left graph shows the destinations of migrants from UP. In this graph, certain districts in Maharashtra or Delhi NCR assume the darkest shade of red (40% and above). This implies, more than 40% of all the unorganized sector migrants in these districts come from UP. We present six such origin states, Uttar Pradesh, Bihar, Jharkhand, Madhya Pradesh, West Bengal and Assam – all of which are net-senders of migrants.

Taken together, these graphs indicate that while economic distress underlies migration from all these states – each of which is a relatively low-performing state in terms of per capita NSDP – the spatial distribution of migrants from these states is not uniform. Instead, migrants from different origin states move through distinct migration channels, shaped by the interaction of demographic pressure, historical migration networks, and geographic proximity.

The first channel is best characterised as distress-driven, long-distance migration, most clearly associated with UP and Bihar. Migrants from these states dominate destination districts across large parts of the country, cutting across zones and regions. Specifically, many districts in the north, west and eastern regions receive more than 40 percent of its migrants from UP and Bihar. This pattern indicates that migration from these states is driven less by destination-specific opportunities and more by the sheer pressure of labour supply. Large populations combined with limited local job creation generate migration streams that are geographically expansive and persistent. In this channel, migration functions as a systemic outlet for demographic pressure and economic distress rather than a targeted response to specific labour market opportunities that appear in destination states.

The second channel combines distress with regionally differentiated migration networks, most clearly visible for eastern states such as Jharkhand and West Bengal. Both states belong to the East zone, which in the earlier figure exhibited some of the widest cross-zonal movement among low-educated migrants and greater spatial containment among the more educated. When we look at these states irrespective of education, a similar distinct networked pattern emerges. Migrants from Jharkhand tend to either remain within nearby districts or move long distances toward northern destinations, while migrants from West Bengal are more likely to either stay within proximate eastern corridors or travel southward all the way to Kerala. These contrasting patterns suggest that, even under similar economic distress, migration routes are shaped by state-specific idiosyncrasies and social networks that channel workers toward different parts of the country.

A third pattern is characterised by strong spatial containment, most clearly visible for states such as Assam and MP. Destination districts across the North-

Figure 2.26: Destination of a migrant depends on a variety of factors including distance and networks

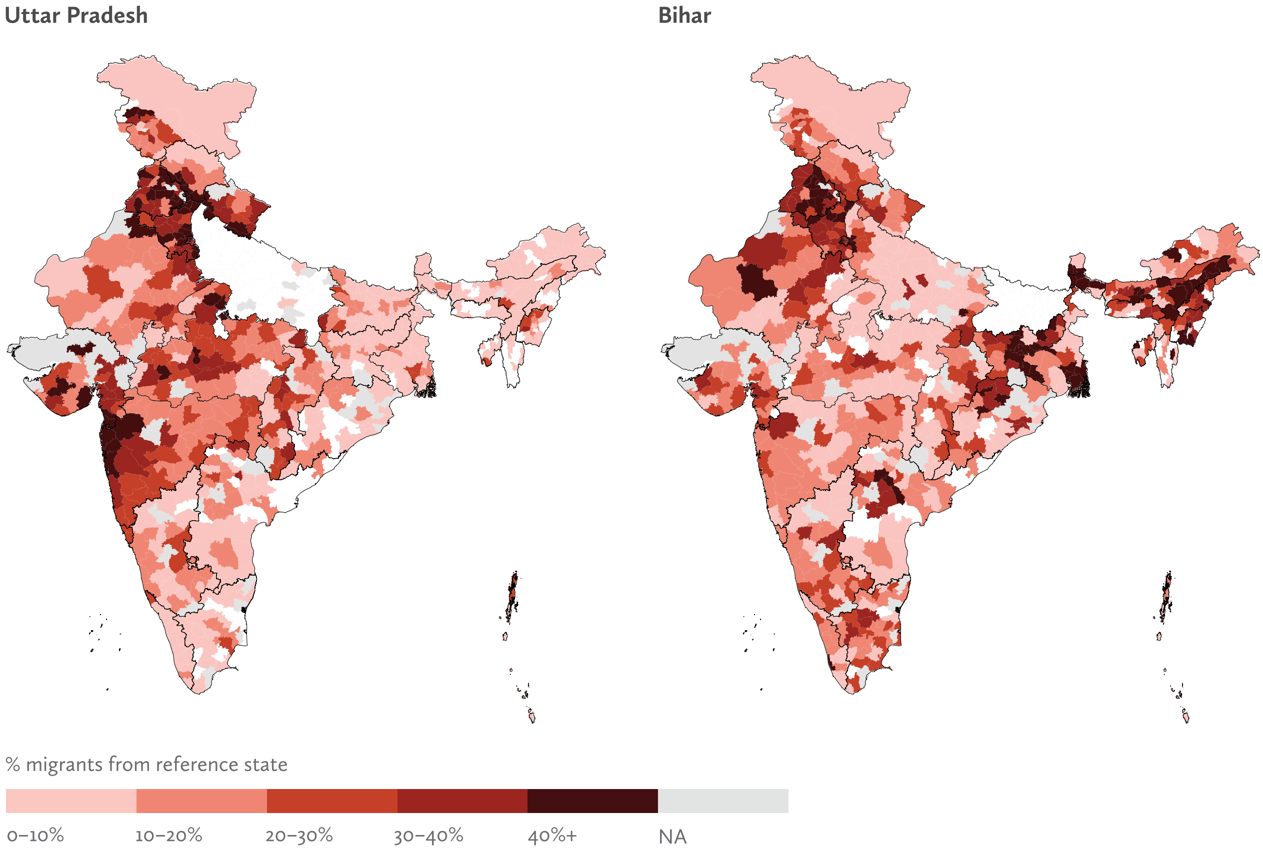
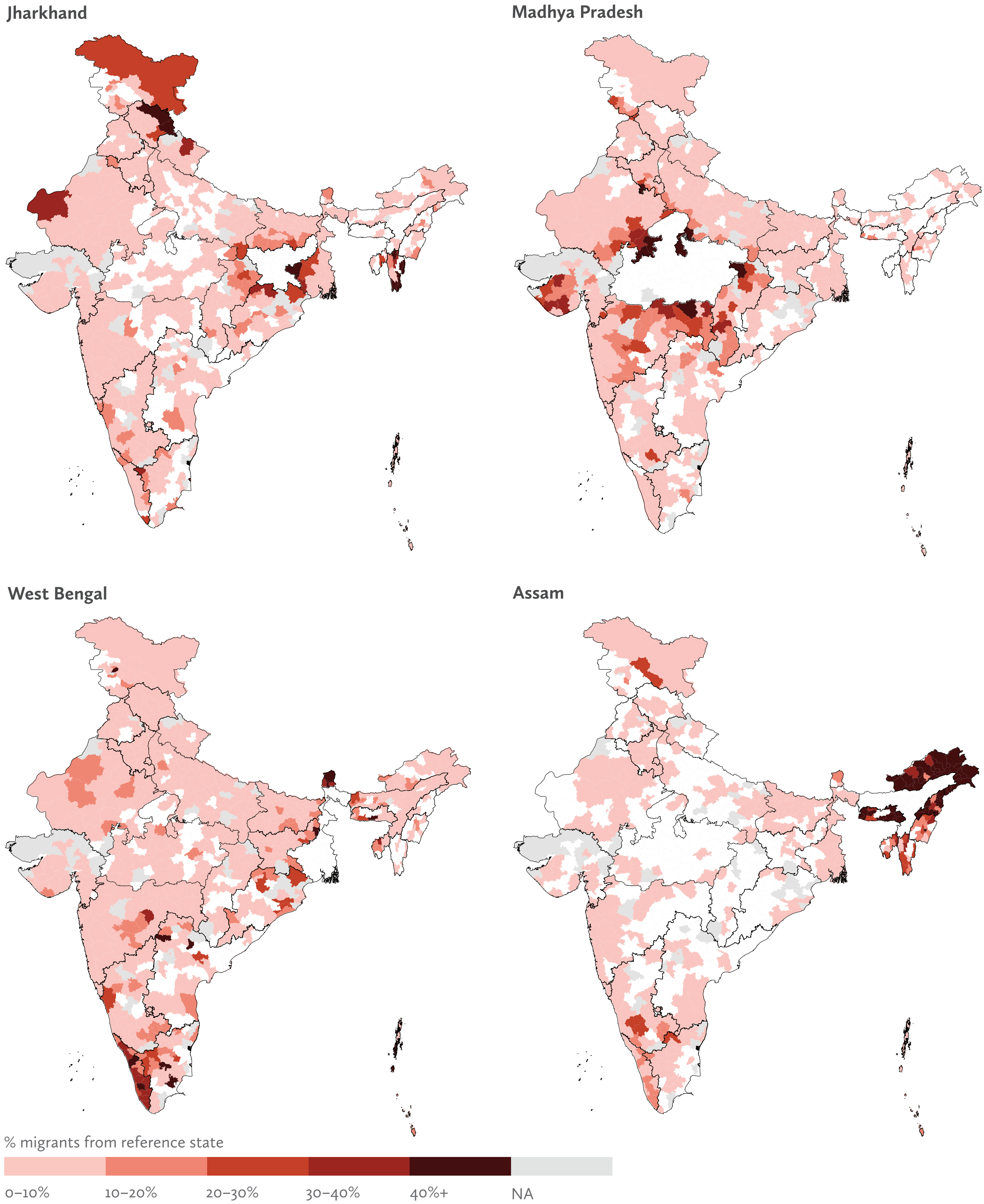


Figure 2.26 (contd.): Destination of a migrant depends on a variety of factors including distance and networks



Sources and notes: e-Shram database (accessed via Datagov)

East are largely dominated by migrants from Assam, indicating a largely self-contained regional migration system. Outside the North-East, migrants from Assam appear only in a small number of scattered districts, with slightly higher numbers in southern India. Such a pattern mirrors what we observed in the earlier zonal analysis, where North-Eastern zone migrants appeared highly self-contained irrespective of education level. Taken together, the two figures suggest that migration from the North-East operates within tightly bounded spatial circuits, potentially reflecting stronger ties to home regions, linguistic specificity, or regionally segmented labour markets that limit wider geographic dispersion.

A similar form of containment is evident for MP. Migrants from MP dominate destination districts that are largely within the central zone, closely tracing the state's borders and immediate neighbouring districts. Despite being in the same economic league as UP or Bihar, there is little evidence that MP-origin dominance extends far beyond contiguous regions. Migration from MP thus appears to function primarily as a short-distance, rather than a nationwide migration of informal labour.

In both cases, distress-driven migration is present, but its spatial manifestation remains bounded. Rather than dispersing across the country, migrants from Assam and MP appear to rely on regional labour market integration, reinforcing the idea that proximity and regional embeddedness play a central role in shaping migration pathways for certain states.

> "The spatial distribution of migrants from these states is not uniform. Instead, migrants from different origin states move through distinct migration channels, shaped by the interaction of demographic pressure, historical migration networks, and geographic proximity."

Taken together, these two graphs make clear that migration cannot be treated as a homogeneous phenomenon. From a policy perspective (whether at the state or national level) interventions related to social protection, skilling, and urban employment must be calibrated to the specific migration channel workers are exercising, and the constraints that shape it. States that export labour at scale, particularly those with young and rapidly growing workforces, require policies that expand local job creation and provide viable early-career employment options for educated youth, so that migration does not become the default response to limited opportunity.

Receiving regions, in turn, must plan for the long-term incorporation of informal migrants into their labour markets, rather than assuming seasonality or transience. This includes strengthening current provisions of eShram by enhancing the portability and effective delivery of social protection, but also in addition, creating pathways for skill upgrading that are accessible to informal workers already in employment, and designing mechanisms such as apprenticeships, certification of prior learning, or sector-specific formalisation drives to allow migrants to transition from informal jobs into more stable employment arrangements over time. As migration increasingly mediates the interaction between demographic pressure and uneven job creation, the capacity of receiving states to convert migrant labour into productive and protected employment will be central to whether economic transformation accompanies India's demographic-dividend phase.

2.6 Conclusion

India remains a young country, but this demographic window is narrowing. The working-age population will continue to grow for some time, but the youth population has already begun to decline. Therefore, the demographic dividend is finite and its realisation crucially depends on the capacity of the economy to generate productive employment.

So far, India's performance in youth employment has been unimpressive compared to countries at similar levels of income. Across states, there is considerable variation in how states have fared. Faster-growing states have generally been more successful in expanding regular wage employment, including for youth, although controlling for changes in youth population shares narrows some of these differences. Even so, several younger states continue to face a substantial gap in the creation of salaried employment relative to their demographic pressures.

States in India are at very different stages of demographic transition and at different levels of economic growth. In this context, migration has emerged as an important response mechanism among workers moving towards economic opportunities. Evidence from the e-Shram database shows that informal migration is disproportionately a youth phenomenon and increasingly involves workers with higher levels of education. These findings suggest that migration is not only a response to regional disparities in employment opportunities but also an important channel through which the demographic dividend is spatially redistributed. Either way, as we will discuss in Chapter 7, policymakers in the next decade need to consider migration as a structural feature of the labour market with consequences for employment quality, social protection, and regional demographic balance

Taken together, the evidence in this chapter suggests that India's demographic dividend is being shaped by three interrelated processes: changing educational trajectories, uneven job creation and the growing role of migration in mediating regional imbalances. How these processes evolve will determine whether the remaining years of the demographic-dividend phase translate into sustained improvements in productivity and employment quality.

Endnotes

1 Note that population projections this far into the future should be treated with caution since policy changes in the intervening years can alter the trends significantly. For example, if China were to adopt strong pro-natalist policies in the next few years, the age structure would change accordingly.

2 See online Appendix for how the projections have been calculated

3 The WDI database defines youth as 15-24 year olds.

4 We use a log-log scale (where both NSDP and out-migrants values are log-transformed to control for outliers). This negative association remains visible even on a log–log scale, indicating that the relationship is not driven solely by a small number of extreme observations but rather a systematic pattern.

03

Youth employment outcomes

03 Youth employment outcomes

3.1 Introduction

The overarching story of India's labour market over the past four decades is one of stalled structural transformation (SWI 2023; Basole 2022). As workers have gradually withdrawn from agriculture, they have largely moved into informal employment in construction and low-productivity services, rather than transitioning into high-productivity manufacturing or modern services (Thomas 2014). Although the share of salaried employment has increased over time, earnings have stagnated and salaried work itself has become increasingly casualised. Social identities of gender, religion and caste continue to mediate access to employment and shape the kinds of jobs that individuals can secure.

More recently, in the context of structural change, the last six years have witnessed two significant shifts in the labour market as we saw in Chapter 1. First, an increase in the share of workers engaged in agriculture. Second, and not unrelated to the first, women's labour force participation, historically low in India, has increased and is now at its highest level in the last four decades.

Against this backdrop, and central to the theme of this report, is the question of whether structural transformation has unfolded differently for young workers compared to the older population. To address this question, it is useful to analytically distinguish between the supply side of the labour market (workers) and the demand side (employers).

On the supply side, younger cohorts in developing countries are typically better educated and have better health outcomes as a result of their relatively improved access to social infrastructure. This cohort is expected to have higher productivity, at least in comparison to older cohorts when they were the same age. At the same time, higher levels of education are also accompanied by a distinct set of expectations and aspirations relative to those of earlier generations. Consequently, workers may prefer traditional sectors such as agriculture, construction, and other low-productivity services less.

A second important change in labour supply pertains to the ability to bear the cost of unemployment. Despite stalled structural transformation, India's economic expansion has reduced household poverty from the 1980s, aided by the Green Revolution, the post-liberalisation growth spurt and the IT boom, among other factors. Improvements in economic conditions over time have meant that households are not only better able to finance higher education for younger generations, but are also more willing to subsidise periods of job search as these cohorts wait for employment that aligns with their aspirations. Of course, such waiting cannot be sustained indefinitely. As young workers approach their late 20s, the imperatives of marriage and other household obligations imply that waiting for suitable jobs or withdrawing from unsuitable jobs stop being feasible options. As a result, employment rates tend to increase and open unemployment correspondingly decreases through the twenties.

A third supply-side consideration is the loosening of social norms over time. To the extent that norms have loosened, we may expect asymmetric responsibilities for household work as well as occupational segregation based on gender, religion and caste to weaken for younger cohorts relative to older ones.

On the demand side, structural transformation is associated with a shift in the composition of employers away from agriculture towards manufacturing and services. Depending on the type of industries that emerge, employers may prefer older or younger workers. Where production processes require new or evolving skills, labour demand may prefer young fresh graduates. Conversely, in settings where on-the-job training and accumulated experience are valued, labour demand may tilt in favour of older workers.

Studies suggest that, until recently, technological progress tended to be skill-biased, favouring more educated workers and occupations associated with higher wages. However, emerging evidence on artificial intelligence points to more complex effects. Using measures of occupational exposure to AI, Brynjolfsson et al. (2025) find that young workers aged 22–25 in AI-exposed occupations experience a 13 percent relative decline in employment. Further, if college curricula do not adequately equip young workers with the skills required for new forms of entry-level work, employers may increasingly prefer older, more experienced workers over younger entrants. In the Indian context, currently, we know very little about the extent of exposure to technology and AI and the related employment impacts.

In this chapter, we examine the pace of structural transformation among young workers relative to older cohorts, using two key dimensions: industry of employment and type of employment. We analyse how caste and gender have mediated these shifts over time. We then examine changes in entry-level earnings, with a particular focus on the returns to graduate education. Finally, adopting a life-cycle perspective, we undertake a cohort analysis to assess how earnings trajectories over the working life have evolved across successive cohorts. Through this, we examine how some of the supply-side factors discussed above have played out. We currently know less about the demand side factors.

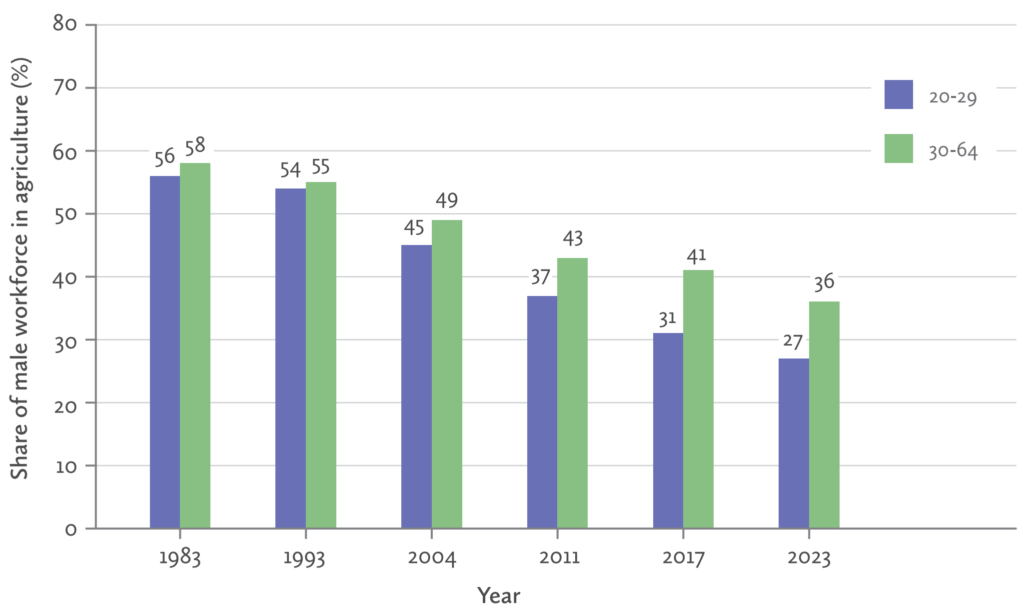
3.2 A faster exit from agriculture especially for young women

The changing nature of aspirations alongside increasing levels of education can also mean a lower preference, perhaps even an aversion, for traditional activities, namely, agriculture, among youth. Consequently, one might expect a faster exit from agriculture for younger workers relative to older cohorts.

Indeed, Figure 3.1 confirms this. The share of young men employed in agriculture declined at a much faster pace than that of older men, particularly over the first two decades of the 2000s (Thomas 2014). By 2023, only about a quarter (27 percent) of young men were employed in agriculture, compared to 56 percent in 1983. For older men, the fall was smaller- from 58 percent to 36 percent. As discussed in Chapter 2, the fall in youth employment post 2011 was largely a result of an increase in educational enrolment. Alongside increased educational enrolment, we also see a reduced reliance on agriculture as a sector of employment among the youth.

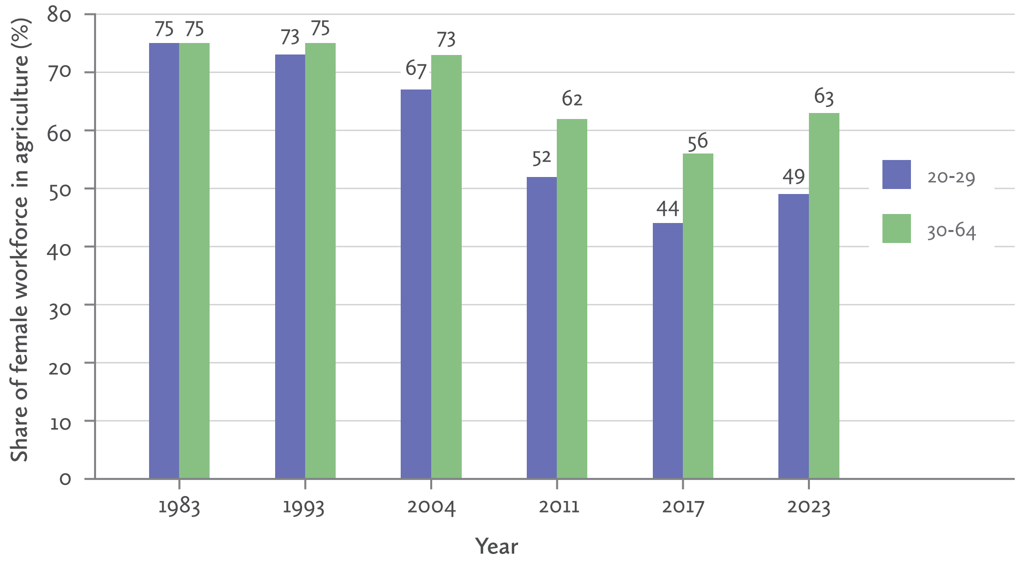
For young women, between 1993 and 2017, as we saw in Figure 2.10 in Chapter 2 , the employment rate declined sharply, nearly 17 percentage points from 33 percent to 16 percent. During the same period, their share within the workforce and in agriculture fell

Figure 3.1: Younger men have exited agriculture faster than older men



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

Figure 3.2: Recent structural regression seen for both young and older women



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

from 75 percent to 44 percent (Figure 3.2). As with men, the pace of exit from agriculture was faster among younger women than among older women. The drastic fall in employment rates is almost entirely accounted for by the exit from agriculture, similar to what has been observed for women more broadly (Abraham 2013; Afridi et al. 2023).

There are two potential explanations. On the labour demand side, while young women withdrew from agriculture, other industries capable of absorbing them did not emerge (Lahoti and Swaminathan 2015). On the supply-side, an improvement in household living standards combined with the male breadwinner norm meant a reduction in female labour force participation.

Between 2017 and 2023, however, this trend reversed. Both employment rates and the share of young women in agriculture increased. The workforce participation of young women rose by nearly 10 percentage points, from 16 percent to 26 percent (data not shown), accompanied by a nearly equivalent rise in the share of young women employed in agriculture. Although the increase in agricultural employment among young women is smaller than that observed for older women, it nonetheless represents the first reversal in the trajectory of structural transformation since 1993.

Table 3.1 presents the annual growth rate of employment in the agricultural sector, separately for young and old men and women, confirming what we observed earlier. Between 1993 and 2017, agricultural employment contracted steadily, with the decline being sharper among younger workers and particularly pronounced for women. From 2017 onwards, however, there is a clear break in this trend. For men, agricultural employment largely stagnates, with no further contraction. In contrast, agricultural employment among women expands sharply , 13 percent annual growth for young women and nearly 20 percent for older women, over the last five years.

Table 3.1: Annual average growth rate in agricultural employment

	Men		Women	
	20-29	30-64	20-29	30-64
1983-1993	1.6	2.8	4.2	5.3
1993-2004	0.5	1.7	0.8	3.7
2004-2011	-1.8	1.0	-5.2	-2.9
2011-2017	-4.0	0.4	-6.0	-3.1
2017-2023	0.1	0.0	13.2	19.8

Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

The exit from agriculture is not always an option for youth from all backgrounds. Rather, this exit as well as the corresponding industry that they move into is mediated by caste identity, access to social capital, and other household attributes. Box 3.1, based on fieldwork in Andhra Pradesh, describes how youth exit from agriculture is shaped by their household's endowments including the ownership of land and social identity.

Box 3.1 Endowments and employment : A case of land, caste and employment | By Dontha Prashanth

In an economy where agriculture remains a dominant source of livelihood, the principal occupation of agriculture operates not only for subsistence but also for accumulation. Access to and control over land are central to this process, as land ownership enables households to accumulate assets, access fixed capital, and benefit from various state-provided incentives and support mechanisms.

Observations in present work are drawn from fieldwork using the census method, conducted in 2024 in Karumanchi village, part of Tangutur Mandal, Prakasam District of Andhra Pradesh. Around 510 households were interviewed. The village was identified on the basis of two characteristics - having the highest proportion of SC population and a population largely engaged in agriculture.

Land and endowments are crucial for determining schooling and employment outcomes - perpetuating historical inequities

In the event of mobility from agriculture to non-agricultural occupations, the nature of access to land could determine whether individuals move or stay in labour-intensive occupations or move into occupations which do not involve heavy manual labour and are associated with higher social status. Figure 1 shows considerable variation in the ownership of land, across castes.

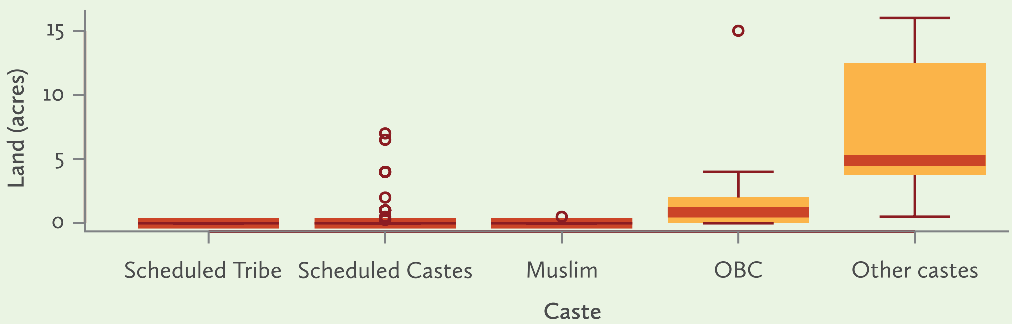
The educational profile of youth in Karumanchi reveals a continuity of the enabling effect of land on education in terms of the enrolment into technical and professional courses, which require substantial investment and have better employability in well-paying jobs. Access to land acts as collateral to obtain loans, and as a source of income in an agrarian economy. Having a land title enables access to all state schemes such as interest free loans, and loan waivers, even in the absence of cultivating. A dominant caste landed parent aged 53, who finished higher secondary education highlighted the importance of land in facilitating higher education.

"A sapling would not grow into a bigger tree, without constant nurturing and care. Similarly, children may not score greatest, but there is a need to constantly supervise and nurture them till they become independent. I sent my children for tuition and supervised their performance. I had to sell 4 acres of land for the purpose of their higher education. Further, the fees reimbursement scheme also helped in graduation. The elder son went to the US and pursued M.Tech. Later, he took his brother along to the US. Both of my children are working in the US as software engineers".

In terms of the profile of higher education for youth in Karumanchi, there exists varying trends between social groups, with Other castes and OBCs over represented in technical and professional courses which become an avenue for entry into private sector well-paid jobs, whereas SCs are over-represented in graduation leading to traditional degrees such as B.A/B.Com/B.Sc. A similar pattern appears in the case of vocational courses such as ITI and diploma courses (Table 1).

There is an aversion by the parental generation against work that involves heavy manual labour, be it agricultural labour or construction labour, and

Figure 1: Land ownership by caste



Sources and notes: Author's fieldwork.

Table 1: Representation index of employed youth in various levels of Higher Education

Education	ST	SC	Muslim	OBC	Other Castes
Vocational/Technical	0	1.7	0	0	0
Graduation +	0.2	1.4	0.4	0.6	0.4
Technical/Professional Graduation +	0	0.7	0.4	1.8	4.8

Sources and notes: Author's fieldwork. Representation index is calculated as the ratio between the share of a particular group in that education level divided by the share of that group in the overall sample. A value over one indicates over-representation and below one indicates under-representation.

they aspire for their children to move out of the same hardships. As narrated by a SC mother who engages in both tailoring and construction labour and studied up to 10th standard, the education of her children is carried out through the savings from earnings of construction labour. Except for one daughter who was married after her SSC, all were educated till graduation. She wants her married daughter as well to get educated and pursue a B.Sc in nursing. Three of her children are working in IT, earning between ₹20,000 to ₹30,000 per month.

Similar aspirations but thwarted outcomes

A general overview of employment patterns in the village reveals a stark contrast between SC/STs and other castes in terms of representation in various occupational categories (Table 2). There is no engagement of workers from Other castes in labour intensive-occupations such as construction and agricultural labour, while they are over-represented in high-status occupations, including cultivation as owner-cultivators or rentiers and formal salaried jobs.

Employment patterns amongst youth in the village point to the disappearance of cultivator as a category of occupation amongst dominant castes, who continue to retain control over land as non-resident absentees, with a visible over-representation in the formal private sector employment, by five times to their size of youth population (Table 2).

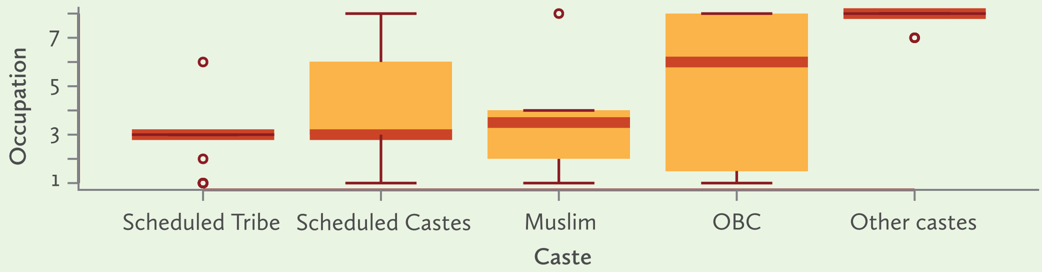
We order occupations in terms of desirability (particularly as viewed by the older generation. Though aspirations of landed and landless appear similar, yet the chance of the children of landed and dominant castes entering the stream of formal sector employment are higher owing to their initial endowment position (Figure 2). An ST respondent attributes migration for livelihood as one of the reasons for the absence of representation in higher

Table 2: Representation Index of youth workforce across occupations

Caste	Agricultural Labour	Allied Agri	Non-farm Labour	Self-Employed	Private (Informal)	Private (Formal)	Unemployed	N
ST	1.4	1	2.5	0	0	0	0	33
SC	0.8	0.6	1	0.7	1.4	0.6	0.6	158
Muslim	1.3	5.3	0.4	7.8	0	0.4	0.4	18
OBC	2.1	1.1	0.1	0	1.1	2.2	2.2	28
Other Caste	0	0	0	0	0	5	5	19
N	22	8	75	11	33	38	38	256
Percent	8.6	3.1	29.3	4.3	12.9	14.8	14.8	100

Sources and notes: Author's fieldwork. Figures for cultivators and government employment have been removed given the small size of the sample (2 and 4 individuals).

Figure 2: Youth by caste and category of employment



Sources and notes: Author's fieldwork. Occupation codes: Agri labour - 1, Allied agri - 2,Non-farm Labour - 3, Self-Employed - 4, Cultivator-5, Private (Informal)-6, Government - 7, Private (Formal) -8. The scale measures increasing desirability with the exception of cultivator, as it held a much higher status in the older generation as compared with younger generation.

education and the over-representation in the construction sector.

"We went to far away places in search of work, hence could not make our children study. Earlier, we went to Ramagundam to work. Ramagundam was a coal mining cum thermal power plant area. Later, our children also migrated. Our daughter and son-in-law had migrated to Hyderabad to work as Beldaar, leaving their younger son at Karumanchi."

We compare the occupations of children with that of their parents (Table 3). The median outcome of children of cultivators is in the formal private sector employment. It is similar for the children of government employees who also have a stable source of income and have greater access to information. Typically, children of construction workers (non-farm labour) also end up as construction workers, although there is a high variation in outcomes.

In terms of employment choices, waiting becomes difficult for those who have inadequate resources or support from family. Those who have resources such as land can wait for better job prospects, while those who do not have such endowments will join the jobs that are available, despite the nature of precarity associated with them. A Dalit-educated youth narrates on how the absence of land as a resource leads to the state of taking up informal employment as an immediate source of subsistence.

Table 3 : Matching of employment of parents and their children

Category of Occupation	Agri Labour	Allied Agri	Non-farm Labour	Self-Employed	Cultivator	Private (Informal)	Government	Private (Formal)
Agri Labour	8.8	0	41.2	5.9	2.9	26.5	0	14.7
Allied Agri	7.1	21.4	35.7	21.4	0	0	0	14.3
Non-farm Labour	8.5	5.1	59.3	1.7	0	20.3	1.7	3.4
Self-employed	21.4	0	14.3	28.6	0	7.1	0	28.6
Cultivator	0	0	0	0	7.1	14.3	0	78.6
Private (Informal)	0	0	9.1	9.1	0	63.6	0	18.2
Government	0	0	0	0	0	0	11.1	88.9
Private (Formal)	NA	NA	NA	NA	NA	NA	NA	NA

Sources and notes: Author's fieldwork. Figures for cultivators and government employment have been removed given the small size of the sample (2 and 4 individuals).

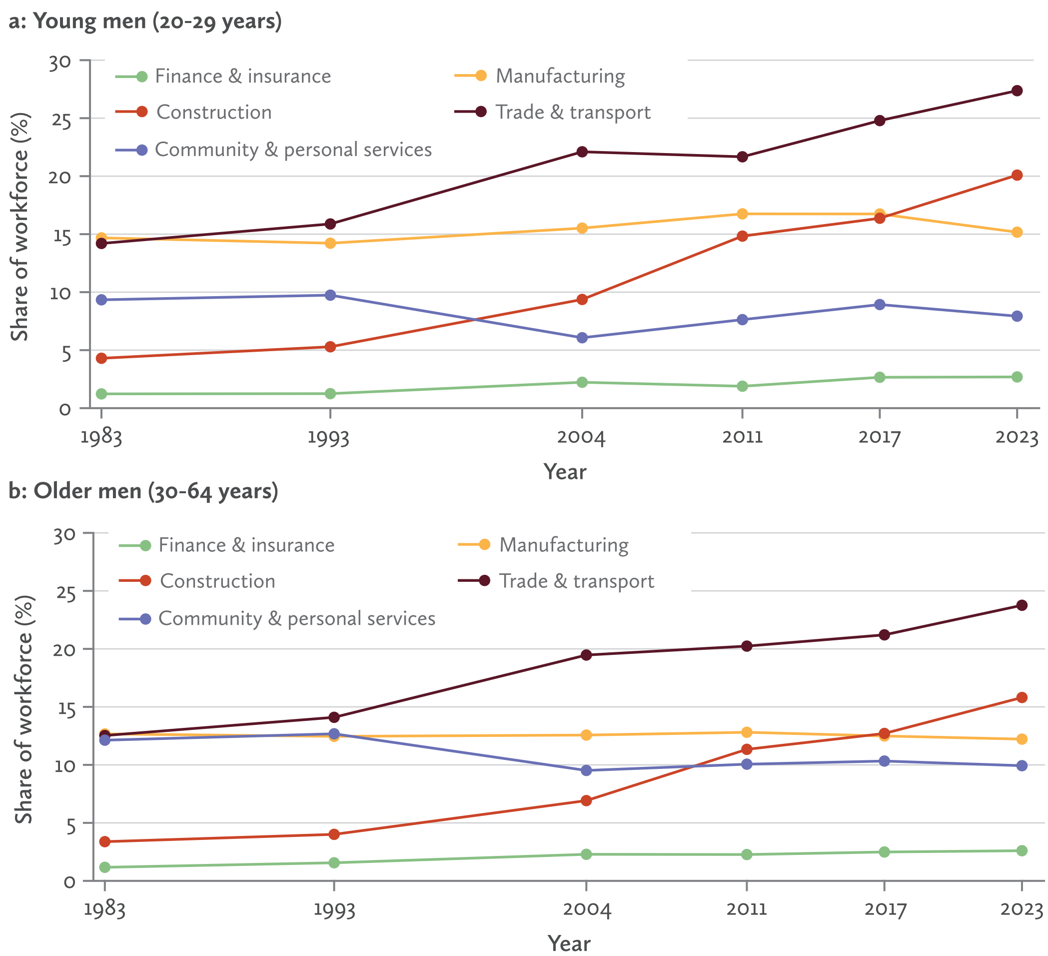
"Land plays an important role. It gives prestige/gouravam. Land gives economic independence, hence the parental/younger generation need not perform labour. For the landless households, work becomes the only mode of subsistence. Absence of state level notifications leads the children of landless households to go for work in the informal sector. There is education on certificates, but employment takes time. Painting thus offers immediate employment in the absence of regular employment, as one should take care of one's self and family."

Opting for voluntary unemployment in search of better employment opportunities needs to be seen from the resource position of the person. Waiting in the absence of opportunities needs a different interpretation, in contrast to waiting in the presence of opportunities. The former offers no choice, whereas the latter is an exercise of choice. Who can exercise such a choice depends on the resource endowment position of the person. An OBC person whose parents have 5 acres of land, got placed after B.Tech with a job offering a salary of ₹35,000/- per month. However, he refused to join the job on account of the aspiration of working in the US and chose to wait. While others, who were unemployed, haven't gotten employment and thus are preparing for competitive exams in the public sector.

3.3 Major non-agricultural employers for young entrants

Given the sustained exit from agriculture, at least until 2017, what were the sectors that workers entered into and how different are they between the older and newer cohorts? We classify non-agricultural employment into employment in manufacturing (including mining), construction, retail trade, transport and communication (relatively low earning), financial services, insurance and real estate (high earning), and community and social personal services including health, education and public administration.

Figure 3.3: Major non-agricultural employers are not very different between young and old men



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

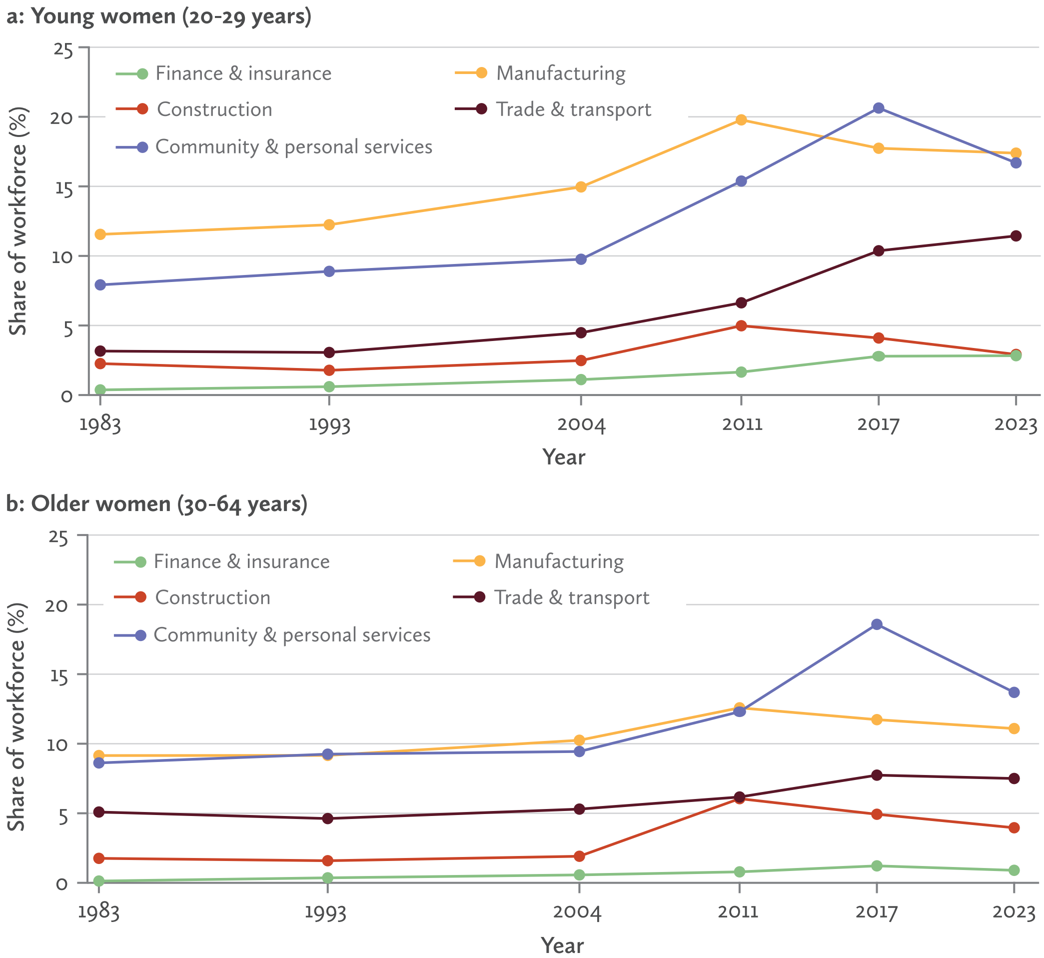
For men, sectoral patterns do not vary significantly between the younger and older cohorts with no major divergences over time (Figure 3.3). After agriculture, trade, transport and communications, along with manufacturing, have consistently accounted for the largest shares of employment. From 2004 onwards, construction has emerged as a major employer, especially for the younger cohort, with its share increasing from 3 percent in 1983 to 20 percent in 2023, compared to an increase from 4 percent to 15 percent among the older men during the same period.

Notably, manufacturing has had a stagnant share in employment for both youth and non-youth men, and since 2017, there is a marginal decline in the share of youth in manufacturing from 17 percent to 15 percent. This is in contrast to what has happened for women, as we see next.

What about young women? Unlike men, for women, we see a clear generational difference in non-agricultural employment. Among older women, employment has remained concentrated in the traditionally female-dominated services sectors, particularly community and social services which includes health and education. In contrast, for younger women, manufacturing has emerged as a major employer, with its share rising steadily over time, up until 2017, followed by a slowdown more recently (Figure 3.4). The growing presence of women in manufacturing points in some ways towards breaking of traditional gendered norms around 'appropriate' employment for women among the younger generation and the availability of suitable jobs within manufacturing may have also contributed to this increase (Chakraborty and Mahajan 2025).

The foregoing analysis gives us an idea of the broad sectoral distribution of employment and how this has changed over time.We now move beyond these broad categories to identify the specific industries that have emerged as key employers of young workers. Since the industries are closely linked to educational attainment, we further disaggregate the analysis by graduate and non-graduate workers to examine whether, and how, the modal industries of employment for young workers have shifted between 1983 and 2023, separately for men and women.

Figure 3.4: Manufacturing has emerged as a major employer for young women in recent years



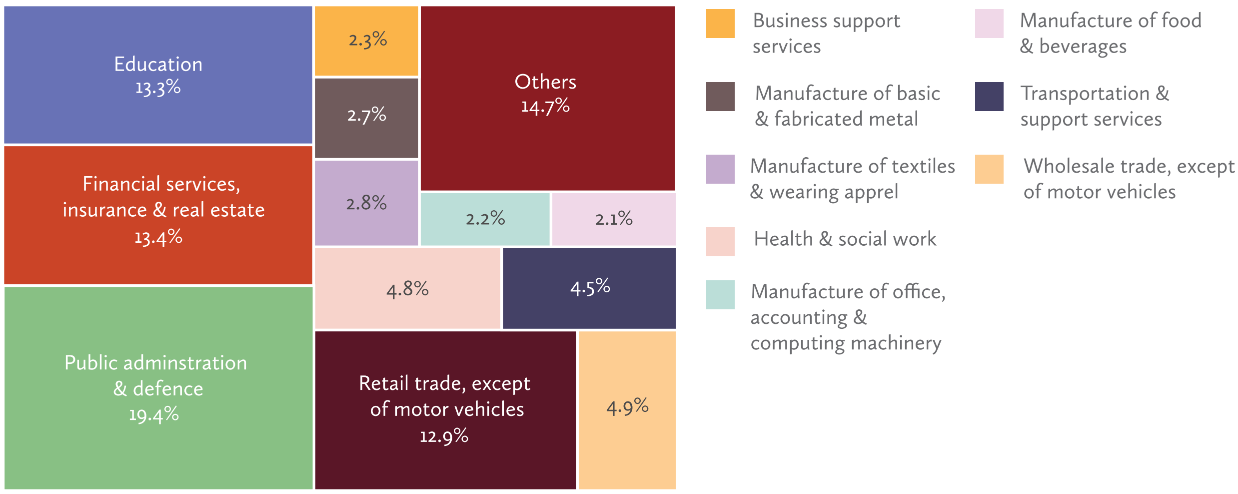
Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

Between 1983 and 2023, the composition of major employers for young graduate men has undergone significant change (Figure 3.5). In 1983, education, public administration, financial services and retail together accounted for over half of non-agricultural employment among young graduates. By 2023, while retail and financial services continue to remain important sources of employment, education and public administration are no longer dominant employers. Instead, computer and information services and construction have emerged as major absorbing sectors. The public sector has contracted as a key employer of graduate men, alongside the growing prominence of the IT sector.

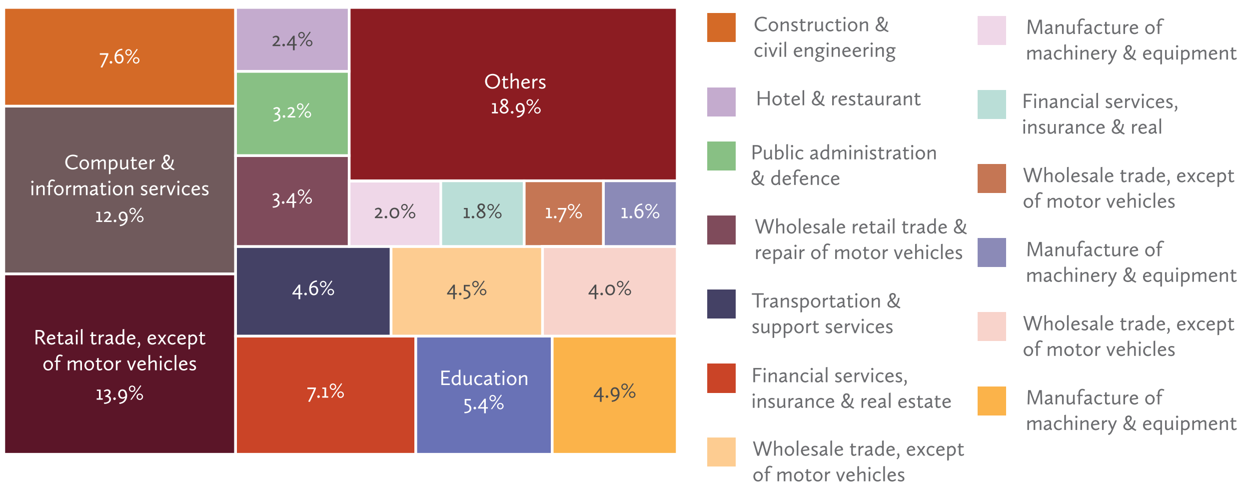
The emergence of construction as a major employer of young graduate men reflects, in part, the large construction boom witnessed since the 2000s. However, the fact that this sector accounts for a large share of graduate employment is noteworthy. Nearly 40 percent of young graduate men employed in construction are casual workers, with their occupational classification placing them largely in elementary occupations. Around 30 percent are salaried workers, comprising engineers and computer professionals. The significant presence of graduates in construction, particularly in casual and low-skilled roles, indicates a mismatch between educational attainment and the nature of employment. The

Figure 3.5: Computer & information services and construction emerge as major sectors of graduate male employment in 2023

a: 1983



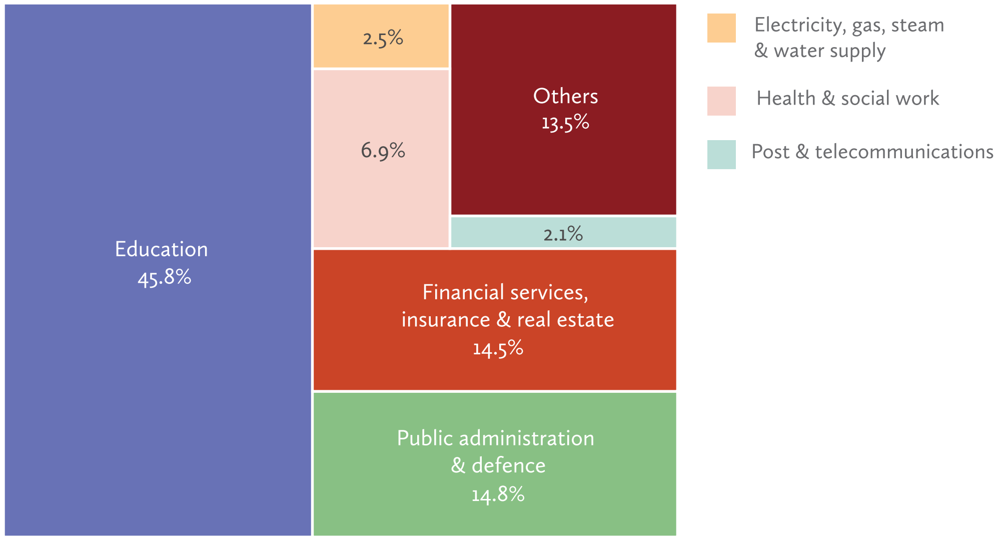
b: 2023



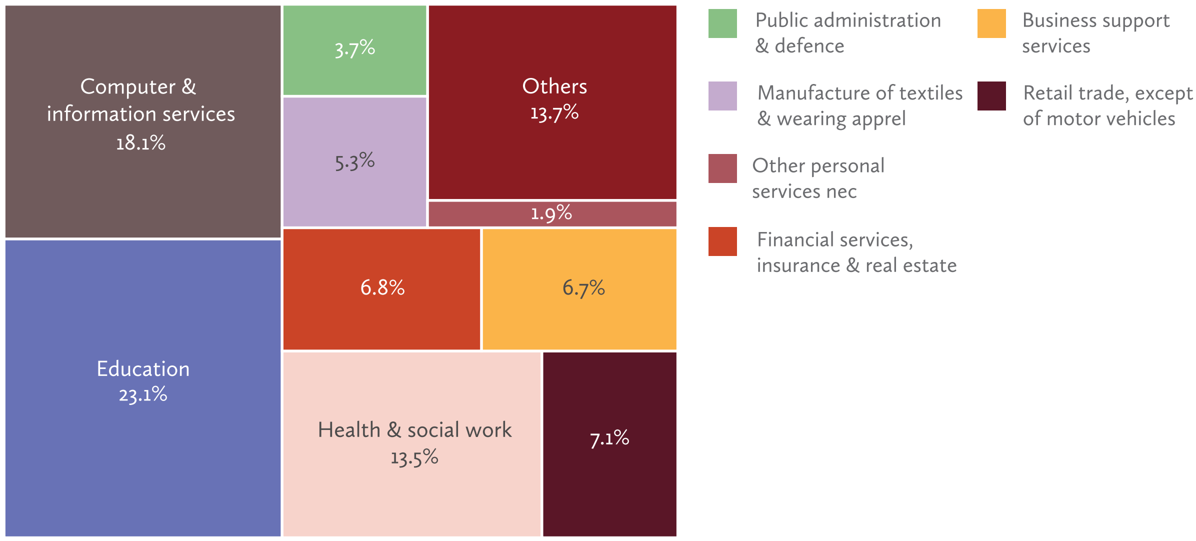
Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. Includes only young (20-29) men. Shares correspond to non-agricultural workforce.

Figure 3.6: Education, and more recently, computer and information services major employers of graduate women

a: 1983



b: 2023



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. Includes only young (20-29) women. Shares correspond to non-agricultural workforce.

composition of manufacturing employment among young graduate men has also shifted considerably. While earlier cohorts were concentrated in textiles, food and beverages, office machinery and metals, recent employment has moved towards machinery, radio and television equipment, chemicals and motor vehicles.

In contrast to men, young graduate women are concentrated in a smaller set of industries (Figure 3.6). The most notable change between 1983 and 2023 is the sharp decline in the share of employment in education and public administration, which together accounted for nearly 60 percent of non-agricultural employment among young graduate women in 1983. By 2023, computer and information services and business services emerge as major employers. We had noted the increasing role of manufacturing in young graduate women's employment in Figure 3.4. This is driven largely by the textile and apparel industry. Custom tailoring, for instance, has emerged as a major employer of women with the number of women increasing from 3 million to nearly 9 million between 2018 and 2023 alone (Suresh 2025).

> **“Unlike men, for women, we see a clear generational difference in non-agricultural employment. Among older women, employment has remained concentrated in the traditionally female-dominated services sectors, particularly community and social services which includes health and education. In contrast, for younger women, manufacturing has emerged as a major employer, with its share rising steadily over time, up until 2017, followed by a slowdown more recently.”**

3.3.1 Graduate education and industrial sorting

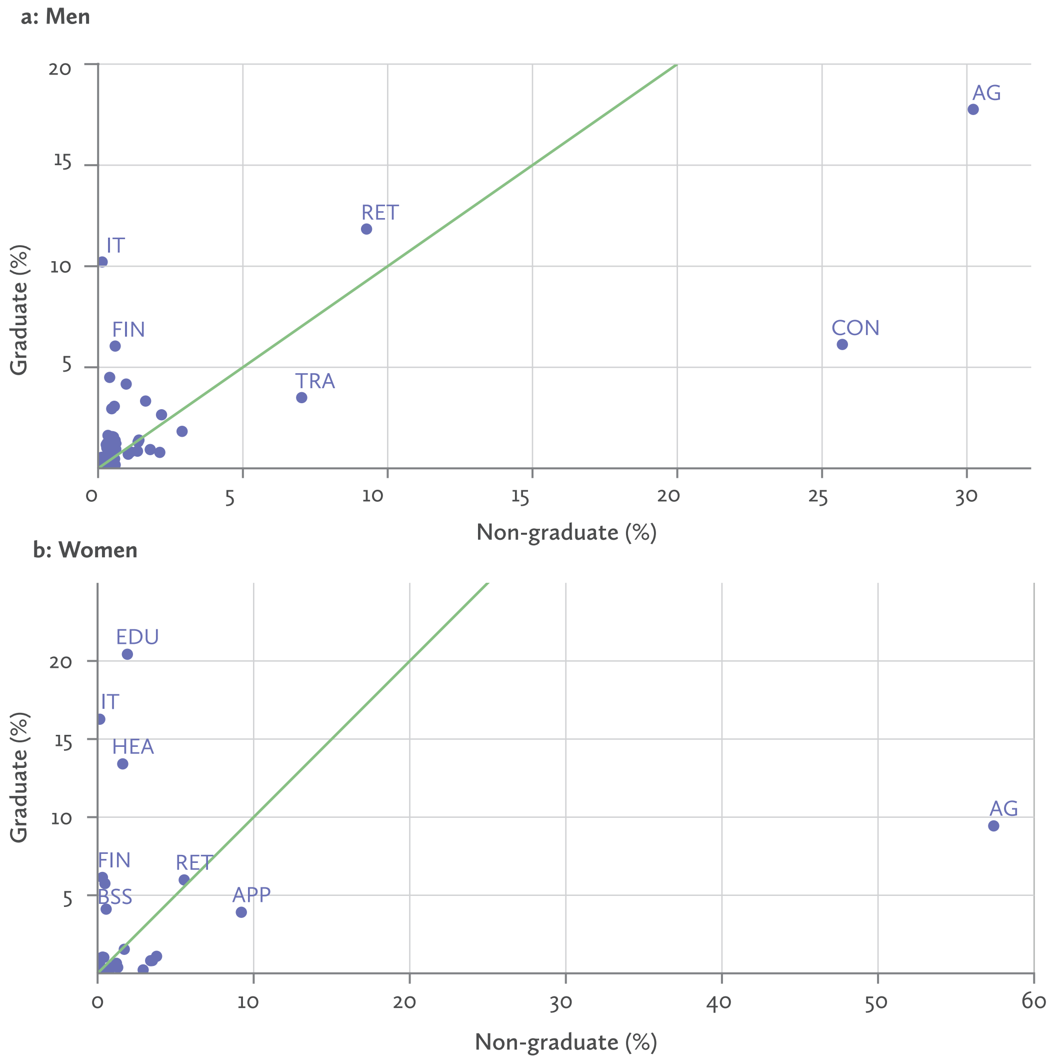
Clearly, major hirers have changed for both graduate men and women over the years - from public administration and education to IT and financial services. However, among men, we see construction emerge as a major employer. If education enables access to higher productivity industries, then one would expect the composition of industries to be very different between the graduates and non graduates. Is this really the case?

In Figure 3.7, we plot the share of each industry within the non-graduation population (on the X-axis) against the share of each industry within the graduate population. Ideally, if education does the role of ‘sorting’, we should see the main employers among the graduate population to be very different from the major employers of the non-graduate population. However, for men, this is hardly the case. Whether graduate or not, the modal employers for young men are agriculture (AG), retail (RET) and construction (CON), three industries which are also among the lowest in productivity and earnings. Agriculture accounts for 18 percent of young graduate employment, and construction for 6 percent, retail for 12 percent. If we exclude these major employers, there is some distinction between the graduate and non graduate industries. IT and Financial Services employ 10 percent and nearly 5 percent of young graduates, while they account for a negligible share of non graduates.However, this aside, the fact remains, that with graduate education, low productivity sectors like agriculture, construction and retail still account for nearly 40 percent of employment of young male graduates. About 40 percent of young graduates in construction are working as casual labourers with their primary occupation being elementary labour or building trade workers. Similarly, in retail, nearly 70 percent of young graduates are employed as salespersons either as own account workers, unpaid family workers or salaried workers.

For women, the story is in stark contrast to that of men. The modal employers are very different between young graduates and non graduates. Agriculture accounts for employment of about 60 percent of non-graduate women and only about 10 percent of graduate women. Other than agriculture, there is hardly any overlap in the major employers for the two groups. For graduate women, the modal employers include Education, IT and Health and Social Work, together accounting for about half of graduate women employment. Therefore, for women, getting a graduate degree allows them access to a very distinct set of industries compared to women without one. This lack of sorting among men has implications for their average earnings and returns to their graduate degree. We look at this further in Section 3.6.2 later.

In recent years, we hear a lot about how the gig economy has emerged as a major sector of employment, particularly for young workers. Our current labour statistics architecture does not allow us to fully distinguish between gig and non gig workers. Gig employment is also characterised by a lot of flux with workers moving across multiple platforms at any given time, as well as between gig and non gig work. As a result, we do not really have a clear picture of the size of the workforce employed in the gig economy. As we will see later (in Box 6.2 in Chapter 6), the online digital space is an important mediator not just in the access to information on jobs but also in directly providing employment. In Box 3.2, based on fieldwork in select cities, we hear about how young women have used the digital platform economy to find employment. The digital economy is often held up as a means of flexible and easily accessible employment which is particularly conducive for young women. The fieldwork reveals the multiple challenges that young women face in using this medium as a source of employment.

Figure 3.7: Major employers are very similar between graduate and non-graduate men



Sources and notes: Pooled PLFS 2021-22, PLFS 2022-23 PLFS 2023-24. The line corresponds to the 45 degree line of equality. AG - Agriculture, CON - Construction, RET - Retail Trade, IT - Information Technology, APP - Manufacture of Apparel, BSS - Business and Support services, MOT - Manufacture of motor vehicle, HEA - Health, LEA - Leather and footwear, FIN - Financial services, EQP - Manufacture of telecommunications equipment, TEL - Post and Telecommunications.

Among non-graduate men, retail trade is a major industry. However the significant change between 1983 and 2023 is the sharp increase in construction and a consequent decline in the share of manufacturing, particularly textiles and food and beverages. For non-graduate women too, retail trade remains a major employer. However, within manufacturing, modal employers have shifted from tobacco to textiles and apparel. Figures are available in the online Appendix.

Box 3.2 Young women and the platform economy | By Anousha Peters

It's 4 AM in Khopoli, Maharashtra, and Haniya is already working on her laptop. So are Leena in Hyderabad, Faloni in Kolkata, Oorvashi in Vellore, and thousands of young women across India, logging in from their bedrooms and kitchens to do tasks ranging from translation to coding to AI training, waiting for work to appear on their screens.

Platform work can be divided into two categories: location-based platform work, and online platform work, which is done remotely. Both categories use digital platforms, such as apps or websites, to connect buyers to sellers. Location-based work is visible to urban consumers, with almost every service in metro cities now bookable on an app: beauty, ayurveda, plumbing, electrical work, domestic work, and more.

Online platform work, by contrast, happens out of sight, though most of us rely on it daily. It underpins the supply chains of Google search, e-retailers like Amazon and Flipkart, ChatGPT, facial recognition tools, translation, and content recommendations. This work includes freelancing and crowdwork: freelancers interact directly with clients and typically do more 'skilled' tasks, while crowdworkers interact only with platforms, receiving algorithm-assigned, more repetitive tasks. India accounts for the world's largest share of online platform workers, around 34% of all online platform labour globally1. Yet despite repeated claims that platform work is flexible and therefore empowering for women, only one-fifth of India's online platform workers are female, the lowest share worldwide2.

Between November 2024 and May 2025, I interviewed women aged 21–36 doing online platform work. The majority lived in tier 1 cities of Kolkata, Bengaluru, Delhi, and Hyderabad. I recruited participants through online surveys circulated on subreddits, Facebook groups, and platforms like Clickworker and Amazon MTurk. Eighteen young women, soon to graduate or recently graduated, and largely unmarried, took part in in-depth interviews in English, Hindi, and Tamil. Their accounts reveal a complex picture of why they choose online platform work, their future and career aspirations, societal pressures, and the gendered social norms that shape their experiences of online labour.

A Highly Educated Workforce and Learning More
Bhavya from Kolkata works as a translator and transcriber, creating English subtitles for popular Bengali soaps. She has a bachelor's and master's degree in economics from a prestigious public university - "it comes in the top 10 universities in India." After a few months at a finance job in Mumbai which triggered "regular panic attacks" she returned home and now balances part-time online translation work with applications for foreign master's programs. She earns about 15,000 a month by working around 30 hours a week, which is enough for her for now, but not in the long term since "projects come once in a while" and the pay depends on "a competition whoever gets [to finish it first]."

Sanjana, speaking from her shared apartment in Bengaluru describes her research assignments: "I do research, mostly social science research... I have been a part of 2 RCTs, Randomized Control Trials... I have supported a lot of researchers based in the US or UK or Europe with fieldwork and analysis.". With degrees in development studies and social work and aiming to get into a PhD program, she uses platforms like Fiverr to build varied research experience. With every new project she learns something new, which she loves. But she is often not compensated for that. She sometimes works "like 12 hours a day" and earns 35,000–45,000 a month but "I get no credit for what I do," she laments.

Working while Waiting, Waiting while Working
Many of these young women do this work as a stopgap while studying further or searching for better jobs. Joy from Tinsukia, Assam, awaiting certificates to go abroad for a master's degree, earns small amounts of 500 to 1,000 rupees every two weeks through surveys on platforms like Panel Stations and Swagbucks for her own "pocket money". Much of her time is spent waiting for surveys to become available, only to be screened out.

Eesha, with a bachelor's in history, also describes long stretches of waiting. She often goes days without any tasks when demand is low. When a task does appear, her pay depends entirely on the timer: finishing on time earns the full rate, a slight delay reduces it, and missing the deadline means no payment at all. In addition, to start a task she must "go through PDFs [often around 10-15 pages], watch videos, qualification tests.... And all of these go unpaid." As a result, though she would ideally like to be working full-time, she often only gets paid for 10-20 hours a week, making 10,000 - 20,000 Rs a month.

Comfort and Safety with Precarity
Freelance workers repeatedly emphasised the appeal of autonomy. Leena from Hyderabad who does graphic and design and content writing explains: "what I like about freelance work is I can work anywhere at any time. It is upon me to choose my work..." This control over their labour and resulting comfort was more common

among freelancers than crowdworkers who rely on algorithms of task assignment. For workers who have to wake up at 4AM or keep their computer active all day to get extremely repetitive tasks, the appeal of flexible and comfortable work was less present.

Safety, however, emerged as a major reason for choosing all kinds of online work. Divya, a freelance website developer, lives in Thane, Maharashtra with her parents, and cites many reasons why she does this work: it allows her to learn, build a portfolio, and save money. But most importantly, it removes the constraint of safety. She was offered a job in Delhi, but "my family definitely would have not sent me...because Delhi is not known for safety," she explained. In addition, her friends who moved to tech hubs to work are paid "very less and worked so hard," while she gets to save everything she makes with her current arrangement. She has been accepted into two master's programs in the USA, which her parents support her attending.

Sanjana, the social science researcher, says she loves that she gets to do something new every few months, and has flexibility over her hours, but notes the trade-off: "nowhere to go for help… no medical insurance… no stability or a safety net." Similarly, Kritika, a content writer in Delhi earning 50,000–80,000 Rs a month for roughly 30 hours a week, appreciates the autonomy: "freelancing is what makes it happen" and allows her to support herself at 23, but the instability stresses her out reinforcing her long-term preference for "a stable job."

Educational Certificates for Marriage and The Public Woman

For many of these young women, marriage is looming on the horizon: parents and family are beginning to ask questions and friends are starting families. Haniya, soon to graduate with a bachelor's in IT engineering, chose the field because it allows work from home, something she sees as essential for maintaining her independence. She says that while women in India are expected to stay home and she "knows [she] cannot shake off this responsibility in the future…", but she still wants financial independence and sees work-from-home jobs as a way to achieve it. She also challenges the expectation itself: "nowadays, most of them [men] want us to look after the house and also earn… Why should women be burdened with household work?"

Geeta describes being evaluated by potential partners: "I'm constantly sitting before men who are so unsure about my career and ask me so many questions… what my prospects are in the future and how much money I will make… why am I not trying for a government job?" She perceives a generational shift from her mother's time, but one that merely piles responsibilities onto women. "Indian women are told nowadays that they can do it all" she says. Women are expected to be homemakers, full-time workers, childcare providers, "not complain… just smile and be happy."

Several participants noted how degrees are treated as symbolic capital in marriage markets. "The degree is a certificate for marriage" as Divya put it. Eesha echoes this, observing her friends being discouraged from pursuing jobs: "most of them are not encouraged to just get down to job hunting. It's just 'padai kar is ke baad shaadi dekh lo' (study and then get married)."

To resist the pressure of being both full-time workers and full-time homemakers, some advocate entrepreneurship. Geeta, a virtual assistant in Kolkata, advises women to "be more entrepreneurs than job workers. This would allow us to decide how much we get paid." Kritika frames it as "khud ka business : as a woman, if you have your own income then you will have your own reputation." Niharika from Jharkhand runs a cloud kitchen in Bengaluru, and explains that "in a job, women will have to leave. Because we have other responsibilities…. But in a business, we can do things on our own."

Conclusion

Young, highly educated women are taking up online platform work as a solution to the constraints imposed upon them. For many, online work is a temporary strategy: a way to finance further studies, develop skills, or prepare for competitive exams. For others, it is a means of earning independently while avoiding unsafe and exploitative workplaces and commutes. Some, mainly freelancers, see the possibility of converting this experience into independent businesses, reducing dependence on platforms. Yet across these paths, platform work remains marked by sporadic tasks, strict metrics, unpaid waiting, and the absence of benefits or security. These challenges are compounded by the stigma and lack of recognition from family and others, particularly in the context of marriage, where the precarity of this work is often scrutinized.

1 https://www.ilo.org/sites/default/files/wcmsp5/groups/public/@dgreports/@dcomm/@publ/documents/publication/wcms_771749.pdf

2 https://thedocs.worldbank.org/en/doc/dbac4cf69f83710414ce9848b0373525-0460012023/original/2-Short-Note-Series-Exploring-Gender-Aspects-Final-Version.pdf

3.4 Inter-generational changes in industrial segregation

Entry into the labour market is shaped by not just education and opportunities, but is also mediated by social identity. Women, marginalised castes and Muslims continue to be disadvantaged due to long-standing patterns of occupational segregation. Since the 1980s, encouragingly, there has been a loosening of caste-based occupational segregation, but SCs and STs continue to be over-represented in low-earning industries such as waste management, leather & leather products, construction, and domestic services (SWI 2023).

At the same time, there are some positive exceptions. Public administration & defence is also another industry where the representation of SCs and STs is in proportion to or higher than their share in the population respectively, underscoring the importance of affirmative action and reservations in shaping access to formal employment for marginalized groups (SWI 2023).

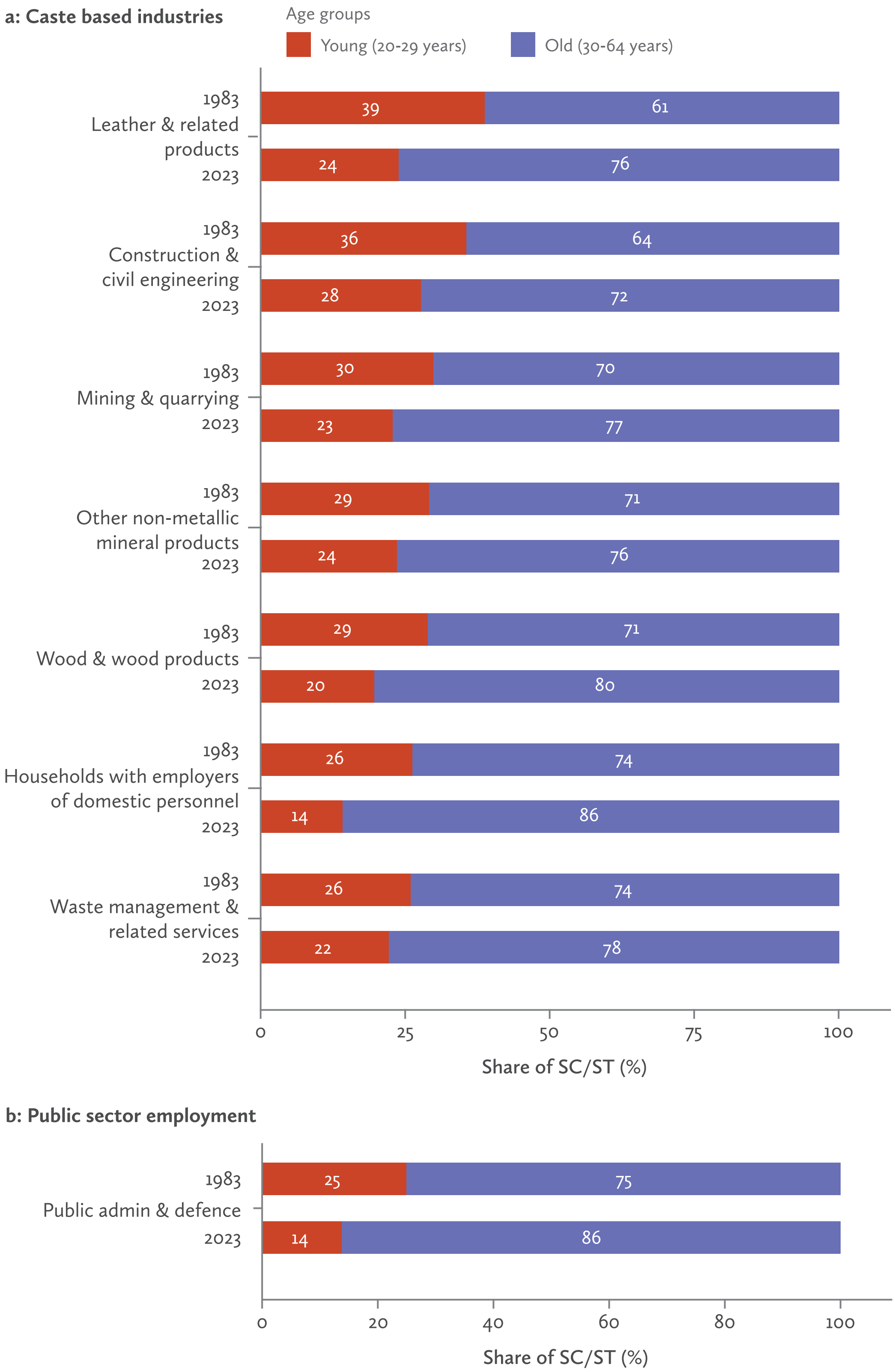
To examine whether these patterns of industrial segregation persist for entry-level employment among the youth, we focus on industries in which SC/ST workers are over-represented—defined as those where their share exceeds their overall workforce share of 32 percent in 2023. These include leather (38 percent), construction (45 percent), mining (36 percent), other non-metallic minerals (38 percent), wood products (40 percent), domestic services (32 percent), waste management (54 percent), and public administration (36 percent). Within these industries, we compare the relative shares of young and older workers at two points in time, 1983 and 2023.

Across all industries traditionally dominated by SC/STs, we see a sharp decline in segregation over time among the younger workers (Figure 3.8). These industries are less and less likely to serve as entry points into the labour market for young workers from these communities. Rising educational attainment and the expansion of alternative employment opportunities have enabled greater inter-generational mobility away from traditional caste-based industries, a pattern that has also been documented in earlier studies (Reddy 2015). However, there is evidence to suggest that their access to modern, higher paying industries still remains confounded by traditional caste-based hierarchies (Prakash and Yadav 2025; Upadhya 2007; Attewell and Thorat 2007; Jodhka 2008).

While decline in youth representation in traditionally caste-based industries is a welcome development, for public administration, the decline in the share of young SC/ST workers is cause for concern, reflecting the shrinking role of the state and hence of affirmative action as a pathway to decent work.

Given that young SC/STs are less likely to be in the traditional industries associated with them, where have they moved into? We look at those industries that have seen the largest increase in the share of young SC/STs in the workforce in Figure 3.9. Between 1983 and 2023, the top ten sectors that saw the largest increase in the share of SC/STs are not those sectors that are typically associated

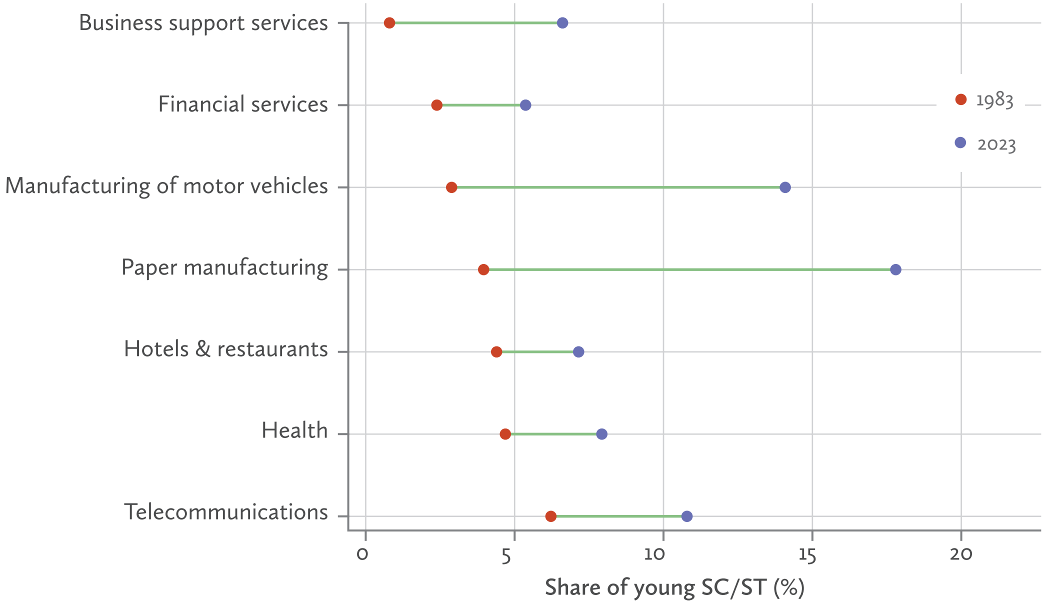
Figure 3.8: Declining share of young SC/ST workers in traditionally caste-based industries and in public administration



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24

with caste-based industries, indicating a strong weakening of caste-based segregation into industries. In manufacturing, the major industries were paper, motor vehicle and telecommunications and transport equipment. Financial services, a major (and relatively high paying) employer has seen the largest increase among the service sector, a positive trend indicating the increasing accessibility of such industries to marginalised communities. However, as mentioned earlier, segregation in occupations and earnings disparities still remain in other forms.

Figure 3.9: Top ten emerging employers of young SC/STs are not in typically caste-based industries



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24.

Industrial segregation by gender has remained persistently high in India (SWI 2023; Agrawal and Agrawal 2015; Rammohan et al. 2017). As we saw earlier, there are clear generational differences in women's exit from agriculture, with younger girls withdrawing faster, accompanied by their relatively higher participation in manufacturing. This raises an important question: are young women entering traditionally female-dominated industries, or are gender-based patterns of segregation changing across cohorts?

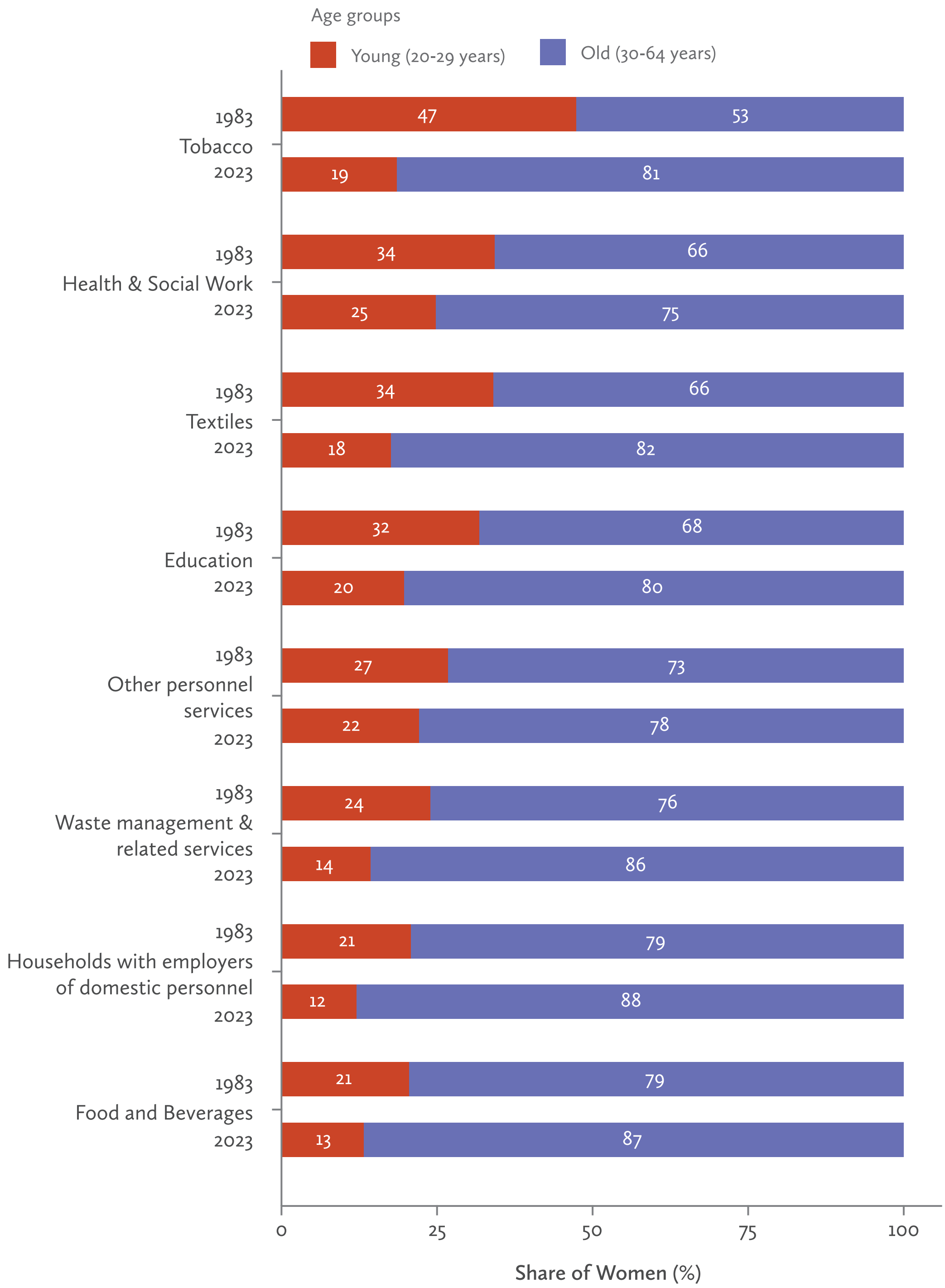
> **"Across all industries, traditionally dominated by SC/STs, we see a sharp decline in segregation over time among the younger workers. This indicates that these industries are less and less likely to be entry points into the labour market for young workers from these communities."**

There are two possibilities. On the one hand, the younger cohorts, having access to more education and greater exposure, might be better positioned to enter 'non-traditional' industries and challenge entrenched gender norms. On the other hand, younger women tend to have less agency. Pre-marriage, particularly, norms around what are suitable jobs may operate for young women. Evidence from the marriage market suggests that young women may be penalised for employment in 'non-feminine' occupations, reflected in lower interest in their matrimonial profiles (Afridi et al. 2025). This points towards the persistence, and possibly even intensification, of gender-based occupational segregation among younger women compared to older women.

Similar to the earlier analysis for caste, we look at industries that traditionally have had a higher share of women workers, relative to their share in overall employment. These are tobacco, domestic services, waste management, education, other personal services, health and social work, textiles, and food and beverages. Figure 3.10 presents the distribution of young and older women workers across these industries in 1983 and 2023, allowing us to examine how patterns of gendered entry into the labour market have evolved over time.

Between 1983 and 2023, the share of young women workers fell for all these industries. This is particularly the case in tobacco, where young women accounted for nearly half the female workforce in 1983 whereas by 2023 their share had fallen to 18 percent. Textiles, which has traditionally been another major employer of women in the manufacturing sector, has also seen a drop in the share of young women. Other services sector employers including health, education and domestic work have also seen a fall in the share of young female workers. Therefore, major employers of young women have changed substantially over the last few years, and traditionally female-dominated industries are seeing less and less entry of young women from the newer generation.

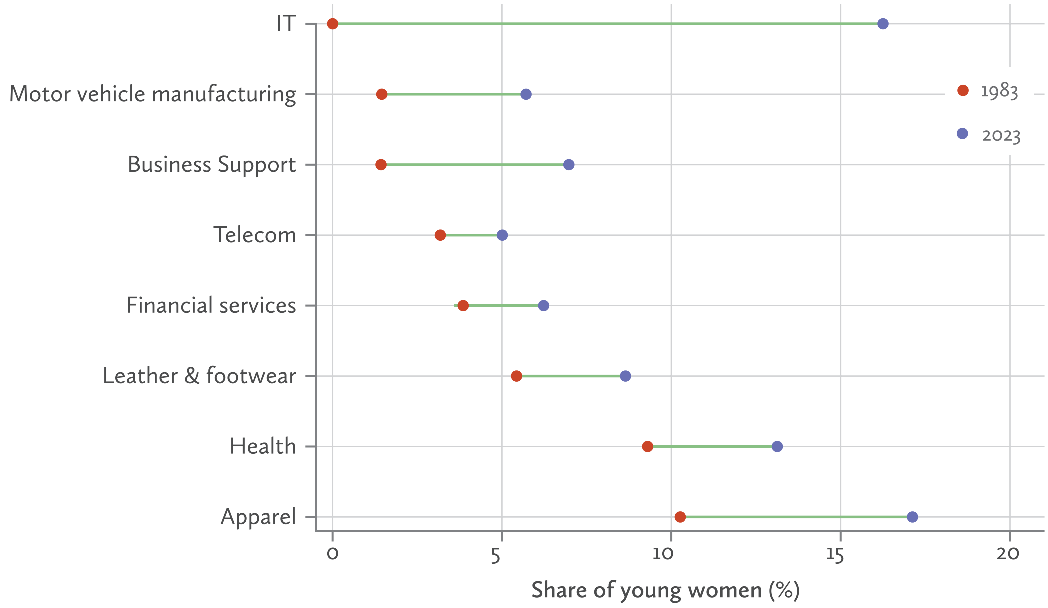
Figure 3.10: Female dominated industries have seen a declining share of young women



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24

Which industries have seen an increase in the share of young women? We compare the shares of young women (15 to 29 year olds) in the total workforce (including older women and all men) in major industries, between 1983 and 2023. We identify the top 10 industries that have seen a significant increase in these shares. Figure 3.11 shows the share of young women in 1983 in that industry and their corresponding share in 2023. For instance, in 1983, in Research and Development, only about 10 percent of the workforce were young women. By 2023, their share had increased to become a third of the workforce. Similarly, the IT sector, which in 1983 hired no young women, now has about 20 percent of its workforce being young women. In the manufacturing sector, apparel and motor vehicles have also seen a large increase in the share of young women. It is interesting to note that Leather and footwear, an industry that sees an exit of young SC/ST also, on the other hand, has seen an increase in the share of young women.

Figure 3.11: Significant increase in the share of young women in IT and Business support services



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24.

3.5 The shift to salaried employment and persistence of self-employment

While the earlier section looked at the kind of industries that young workers are increasingly employed in, another important aspect of employment is the arrangement, i.e., whether salaried, casual or self-employment. Since education levels are a major determinant of employment arrangement, we distinguish between the graduate and non-graduate youth. How do these two groups fare in terms of the type of employment they are in, over the years?

Men

In 1993, a little less than half of young graduate men were in salaried employment having fallen from nearly 60 percent in 1983. By 2023 there is a substantial increase with about 55 percent of graduate men in salaried employment. This is in line with the gradual transformation of the Indian labour market - from a declining share in casual wage work to an increase in salaried employment (SWI 2023).

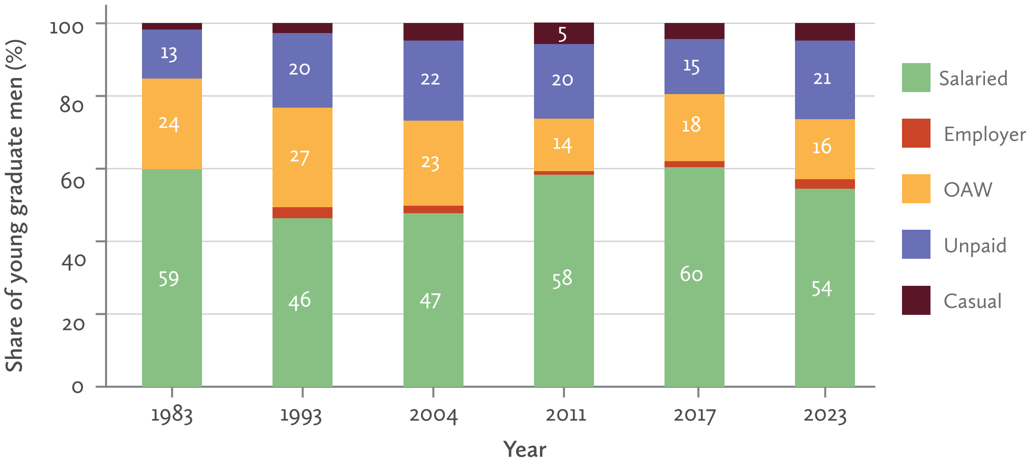
However, what is unexpected in the context of young graduate men is the recent increase in their share in unpaid family work (Figure 3.12). After declining steadily between 2004 and 2018, the share of young graduate men in unpaid family work has steadily increased. Notably, by 2023, the share of graduate men in unpaid work is comparable to that of non-graduate men. Of course, the household enterprise/business that these unpaid workers engage in may be very different between the two groups in terms of its profitability and earnings. Nevertheless, it is surprising to see the increased engagement of young men in unpaid work even after attaining higher education. The discussion on unpaid work has largely focused on the female workforce, and here we see that it is not just for women, but for young men too, unpaid family work has come to engage an increasingly large share.

There has also been a moderate increase in the share of young graduate men as employers between 2017 and 2023 suggesting an increased likelihood of young graduate men more likely starting their own enterprises and hiring workers, although the share itself remains small.

However, the important takeaway from these trends is the recent increase in the share of unpaid graduate men between 2020 and 2023. The Covid-19 and economic lockdowns may have thwarted the entry of these workers into the labour market which has possibly persisted into the subsequent years. Economic downturns tend to have long-lasting scarring impacts on young workers, especially for young graduates who enter in the time of a recession (Kahn 2010; Abraham and Jha 2023).

What are these young graduate men doing as unpaid family workers? It is not unusual to see young men in unpaid family work. They may begin, in their youth, with helping in the family business or farm. Eventually, as they age, they may then take over the business, in which case they become employers or own account workers themselves. To understand if indeed there is a such a transition of workers into different employment

Figure 3.12: Sharp increase in unpaid family work among young graduate men between 2017 and 2023



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. Includes only young (20-29) graduate men. OAW refers to Own Account Workers.

arrangements as they age, we take a limited sample of young graduate employed men between the ages of 20 to 35 years to look at the change in the probability of being employed in each of the self-employment arrangements - own account work, employer, or unpaid family work. Figure 3.13 shows the predicted probability of being in a particular employment type across age, given that they are employed, at two points in time, 2017 and 2023. Of course, Figure 3.12 is not tracking the same group and tracing their 'transition' into different employment arrangements over time, so we should not read a lifecycle perspective into it. However, within this narrow age range, it is informative to look at the transitions in the employment arrangements.

> "After declining steadily between 2004 and 2018, the share of young graduate men in unpaid family work has steadily increased. Notably, by 2023, the share of graduate men in unpaid work is comparable to that of non-graduate men."

As you can see in Figure 3.13, for graduate men, the share in OAW begins to increase as age increases and unpaid work decreases. Contrasting the 2023 trend with that in 2017, we see that at early ages, the probability of being in unpaid work is much higher at every age in 2023 compared to 2017, up until the age group of around 28 years. Further, the increase in own account work is steeper in 2017 compared to 2023. The shift from unpaid to own account work has occurred at a much slower pace in 2023.

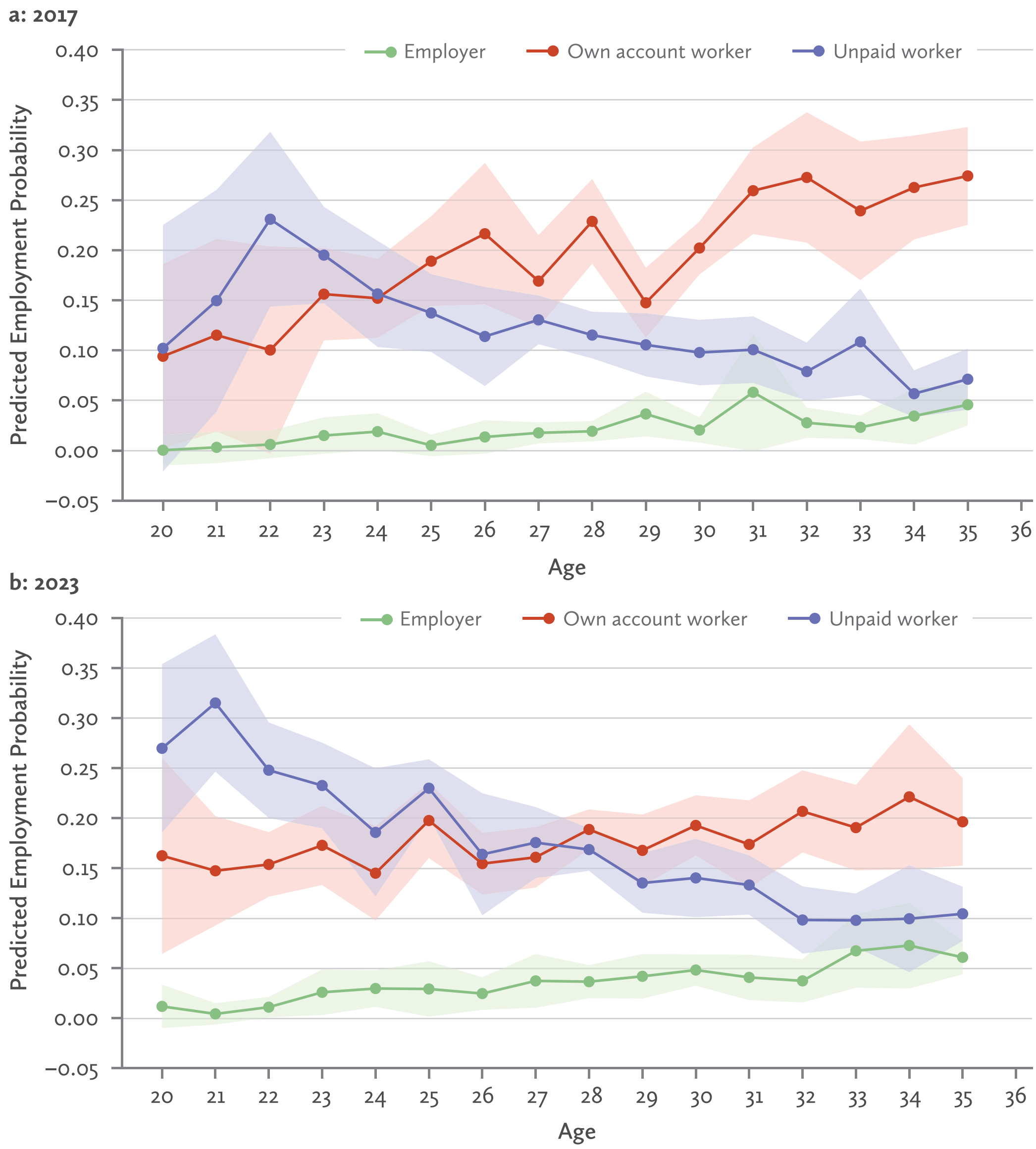
What are these young unpaid workers engaged in? The majority (67 percent) are in agriculture and about a quarter in services. Among those in agriculture, about 90% are in households where the household head is also engaged in agriculture. This participation of young graduate men in family farms is the male equivalent of the structural reversal that we saw among women in the form of an increase in their share in employment. Since men's employment rates are already quite high, the structural reversal appears not as an increase in employment rates but rather a change in the nature of their participation in the labour market i.e., helping in family farms or business. It is likely that when employment opportunities are scarce, young men may work in their family farm or business as a fallback option while they wait for regular employment.

For non-graduate young men, the major trend we observe over the last few years is an increase in their share in salaried work accompanied by a reduction in the share in casual wage work. The increased access to regular salaried employment for non-graduate young men is a positive development indicating an opening up of wage work for the less-educated male workforce (data not shown, see online Appendix).

Women

Among young graduate women, nearly 70 to 80 percent of graduate women are in salaried employment (Figure 3.14). This high figure is not surprising when we recall that a minority of women enter into paid work in the first place and that women in the workforce tend to be, on average, better educated than men.

Figure 3.13: Between 2017 and 2023, probability of young graduate men being in unpaid work is higher at every age



Source and notes: PLFS 2017-18 & 2022-23. Controls include age, marital status, religion, caste, technical education, employment type of household head, and region-specific expenditure quintiles. Includes only graduate men. Shaded area represents 95% confidence interval.

However, between 2017 and 2023, this pattern has weakened. Their share in salaried employment has fallen by nearly 10 percentage points (from 78 to 67 percent). And, as with young graduate men, we see a sharp increase in the share of young graduate women in unpaid family work.

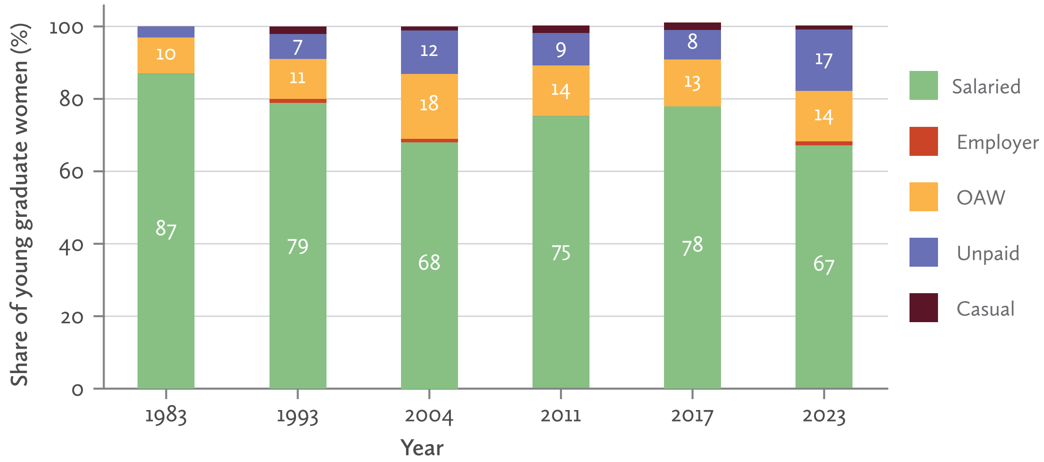
Among non-graduate women, there is a gradual increase in the share in own account work alongside a steady decline in the share of casual workers (data not shown, see online Appendix).

3.6 Earnings of young workers

What is the right metric to consider progress in youth earnings? There are two ways to look at this. One parameter to consider is entry-level earnings or earnings of young workers. How have entry level earnings changed over the years? This is on the assumption that starting salaries or earnings have an implication on subsequent lifetime earnings trajectories, which many studies confirm to be the case (Kahn 2010; Oreopoulos et al. 2008). The second metric to consider is the lifetime earnings of young workers and how this trajectory has changed for subsequent generations. So, the first is a comparison of entry level earnings over time while the second is a comparison of lifetime earnings of different generations.

We look separately at entry level salaried earnings. Further, as we saw in the earlier section, since education has a big role to play in what kinds of employment individuals sort themselves into, we disaggregate the earnings by level of education of the worker.

Figure 3.14: Majority of graduate women are in salaried employment, although unpaid work has also increased in the recent years



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. Includes only young (20-29) graduate women.

3.6.1 Salaried earnings

We begin by examining the 'raw' average monthly salary, disaggregated by gender (Table 3.2). As expected, there is a gradual increase in earnings with successive levels of education. One exception is a marginal decline when going from primary to middle school education in the case of men. The education gradient in earnings becomes substantial at the level of diploma and graduate education, where the difference is by a factor of nearly two times. And, this is even higher in the case of women. There is clearly a premium from graduate education, although this is a 'raw' unadjusted premium - we have not accounted for differences in other individual attributes, something which we will do later in this section.

Have entry level earnings increased over time? Specifically, has the graduate premium for entry level jobs increased or decreased over time? And, how does this increase compare to non-graduate entry level earnings? One can expect an increase if graduate skills have become increasingly valued in entry level jobs. On the other hand, it may decrease if either graduate skills are not valued, or if employers feel that graduate education does not come with a discernible improvement in workers' productivity, or if there are just too many graduates compared to the demand for them. Overall economic conditions matter too. How have the changes in entry level earnings kept pace with overall growth of wages in the economy? Have young worker earnings grown faster than their older

Table 3.2: Monthly (real) salaried earnings (₹) by levels of education, in 2023

	Men		Women	
	Monthly (real) salaried earnings (₹)	As a ratio of illiterate earnings	Monthly (real) salaried earnings (₹)	As a ratio of illiterate earnings
Illiterate	8,903	1.0	4,783	1.0
Literate below primary	10,102	1.1	5,388	1.1
Primary	10,392	1.2	5,718	1.2
Middle	9,828	1.1	6,439	1.3
Secondary	10,601	1.2	7,671	1.6
Higher Secondary	11,326	1.3	8,833	1.8
Diploma	13,862	1.6	13,022	2.7
Graduate	20,726	2.3	19,323	4.0

Sources and notes: PLFS 2023-24. Earnings are adjusted for inflation using CPI-R and CPI-U, base year 2020.

counterparts? In the next section, we try to answer some of these questions.

We combine all individuals with secondary education or less into one group, followed by those with up to higher secondary education, and finally those with graduate/diploma education and above. Over the long term, graduate earnings have increased sharply, particularly between the early 1990s and 2011, reflecting a period of rising returns to higher education (Figure 3.15).

However, the period since 2011 marks a clear shift. Average monthly salaries of graduates have declined in real terms, with the fall being especially pronounced among graduate men. As a result, we observe a convergence in average salaries between graduate men and women in recent years.

In contrast, earnings among non-graduates have continued to rise over much of the period, although this growth has also weakened in the more recent years, giving way to stagnation. Taken together, these trends point to a compression of education-based wage differentials in the post-2011 period, driven largely by a slowdown and reversal in graduate wage growth.

Table 3.3 compares the average real monthly earnings of young workers, across these education levels. We also look at the growth rate in earnings. To get an understanding of the overall growth rate in the economy, we also show the average growth in earnings of the older cohort of 30 to 64 year olds.

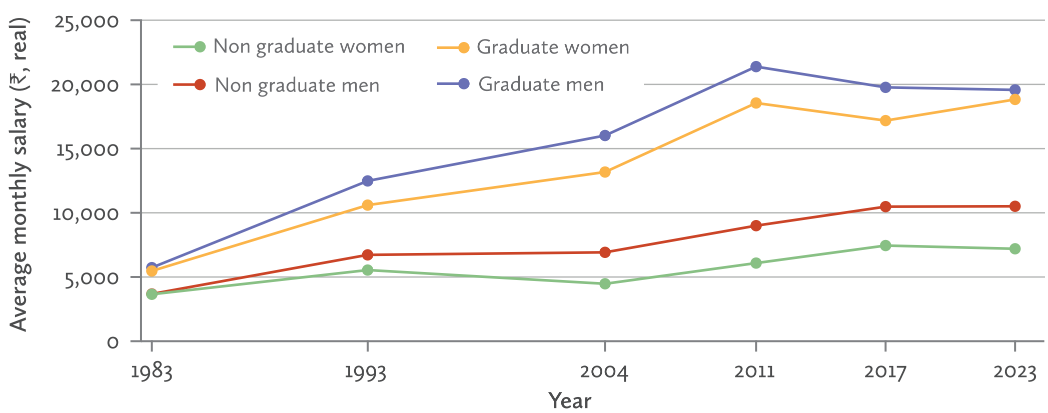
The period between 2004 and 2011 saw the highest increase in earnings. Notably, in this period, young workers' earnings increased at a faster rate than that of the older workers, for all levels of education. This period overlaps with India's high growth phase during which GDP grew at an average annual rate of 9 percent alongside the IT-led boom. This was a period that saw a huge growth in the construction sector and low productivity services sector, which can explain the increase in earnings even among those with less education. However, in the subsequent periods, there is an overall stagnation or decline in salaried earnings.

“However, the period since 2011 marks a clear shift. Average monthly salaries of graduates have declined in real terms, with the fall being especially pronounced among graduate men. As a result, we observe a convergence in average salaries between graduate men and women in recent years.”

For graduate workers, young and older, this decline is seen both between 2011 and 2017, as well as between 2017 and 2023, with the exception of some marginal growth in the case of younger women, in the later period.

Overall, what this suggests is that earnings among young workers, both men and women, across educational levels, have broadly followed the trends in earnings among older workers - growth in the early years post liberalisation and in the dream run period, and a steady stagnation or decline since 2011.

Figure 3.15: Graduate earnings rise and is followed by stagnation



Sources and notes: NSS EUS, PLFS various rounds. Data pertains to young (20-29) men and women. Earnings are deflated using CPI-R and CPI-U with base year 2020.

Table 3.3: Growth in salaried earnings has slowed down, particularly in the last few years

	20-29 year olds			30 - 64 year olds		
Men	Below Secondary	Higher Secondary	Graduate & above	Below Secondary	Higher Secondary	Graduate & above
1993-2004	0.4	0.0	2.8	1.3	2.1	4.30
2004-2011	4.0	2.7	3.4	1.7	1.2	2.4
2011-2017	2.8	0.9	-0.8	1.0	0.0	-0.8
2017-2023	0.4	-0.7	-0.1	-0.8	-0.8	-0.3
1993-2023	2.0	1.0	1.9	0.9	0.8	2.0
Women						
1993-2004	-1.2	-2.3	2.4	-0.9	2.9	3.9
2004-2011	4.9	2.7	4.1	2.3	0.2	2.5
2011-2017	4.4	0.7	-0.7	1.0	-0.7	-0.1
2017-2023	-0.6	-0.4	1.0	-0.5	-2.5	-0.4
1993-2023	1.4	-0.02	2.6	0.3	-0.3	2.13

Sources and notes: NSS EUS, PLFS various rounds. Darker shades represent higher annual rate of growth

To what extent does the stagnation in earnings imply a reduction in the graduate premium? We try to answer this question in the next section.

3.6.2 Estimating the graduate premium

A meaningful benchmark when thinking of a graduate premium is the earnings of someone who has just stopped short of completing graduate education. But a simple comparison of the average earnings of a person who has finished higher secondary education with that of a graduate can result in a biased estimate. This is because the person who has completed a graduate degree may be intrinsically very different from someone who has studied only up to higher secondary. They may come from a richer household, from more privileged communities, may have had access to better networks, have higher ability, or be more disciplined. In that case, the higher earnings may be a result of these factors, rather than the degree per se.

We attempt to control for a few of these factors, (such as household income and parental education) using a Mincerian regression.[1] This allows us to get an estimate of the effect of education, after accounting for these factors. However, several important factors such as aptitude, discipline, or ability are unobservable and therefore, to that extent, the regression estimates will continue to be biased.

Research on returns to education in India has found mixed results. Employing a quantile regression technique on IHDS 2004-05 data, Agrawal (2011), for instance, finds the rates of return to one additional year of schooling to be 5.5 percent, 6.2 percent, 11.4 percent, 12.2 percent and 15.9 percent for primary, middle, secondary, higher secondary and graduate levels respectively. Dutta (2007) finds that the returns to education differ markedly between two types of workers - casual workers experience little to no increase in wages with higher education, while regular workers exhibit positive and U-shaped returns to education. Moreover, there is some indication of a growing wage gap between regular workers with graduate and primary education, possibly linked to trade liberalization and other reforms implemented during the 1990s.

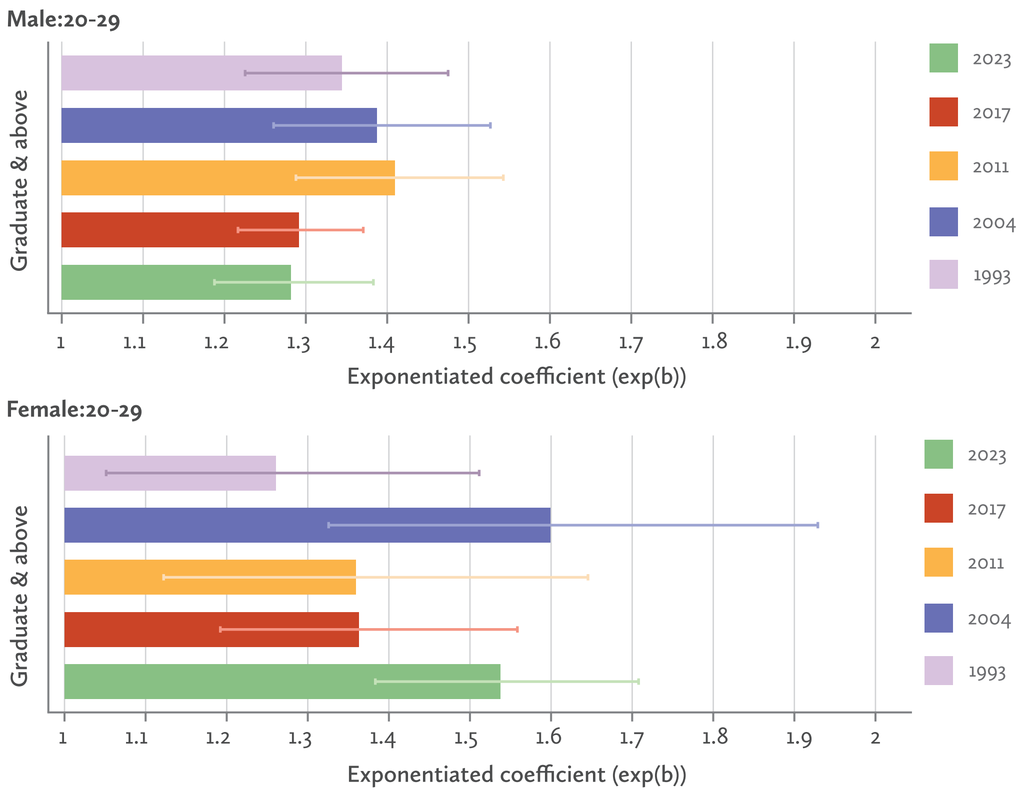
Mitra (2019) finds that the rates of return are higher at the higher end of the wage distribution across all educational levels. For graduates and above, the marginal rate of return is 9.3% at the 10th percentile and 15.3% at the 90th percentile compared to higher secondary education. Disaggregating by gender, Mitra (2019) finds that the marginal rate of return for women was 15.3% and 20% at the 10th and 90th percentile, respectively, and 6.7% and 14.3% for men in the same percentiles. The returns vary across social groups and sectors. In the private sector, the rate of return for graduates compared to higher secondary is highest for the General category at 20.5% followed by OBC at 17.4%, 5.9% for ST and 4.4% for SCs.

In this section, we estimate the returns to graduate education, taking higher-secondary completion as the base, at different points of time, from 1993 to 2023, separately for men and women between the ages of 20 to 29 years. We regress log real salaried earnings on education levels (with higher secondary education as a base), age, marital status, number of children, whether the individual is the head of the household or not, caste group, religion, education of the household head and state fixed effects. Note that in estimating the graduate premium, we do not include industry and occupation specific controls. If we were to account for these two factors, then the graduate premium would be the premium that remains after accounting for what industries/occupation graduates may get employed in. Here, we are not interested in the sorting into industries and occupations, but rather, simply the average returns from graduate earnings, assuming some employment.

While the earlier analysis indicated an overall slowdown in the growth of entry level earnings, remember that we saw this slowdown happening across all levels of education, although in varying degrees. Therefore, it is pertinent to ask whether the premium to graduate education vis á vis higher secondary education has contracted over time (if graduate workers' earnings have grown slower than higher secondary workers' earnings) or if it has grown over time. Figure 3.16 shows the factor by which graduate salaries differ from higher secondary salaries, over time, after controlling for individual and household level attributes. We do this both for the younger and older cohort of men and women.

For young men, over the long run, there is a decline in the graduate premium in entry level employment. The highest premium was in 2011, when young graduate men earned about 1.4 times more than young men with higher secondary education. Since then, this premium has contracted. As of 2023, the graduate earnings premium was about 30% i.e., the average salary of a graduate, at the entry level, is about 30% more than the average entry level salary of someone with only higher secondary education. For young women, the returns to graduate education is actually somewhat higher than that for men. In 2004, for

Figure 3.16: Graduate premiums for young men have declined



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. Controls include age, marital status, number of children, whether the individual is the head of the household or not, caste group, religion, education of the household head and state fixed effects.

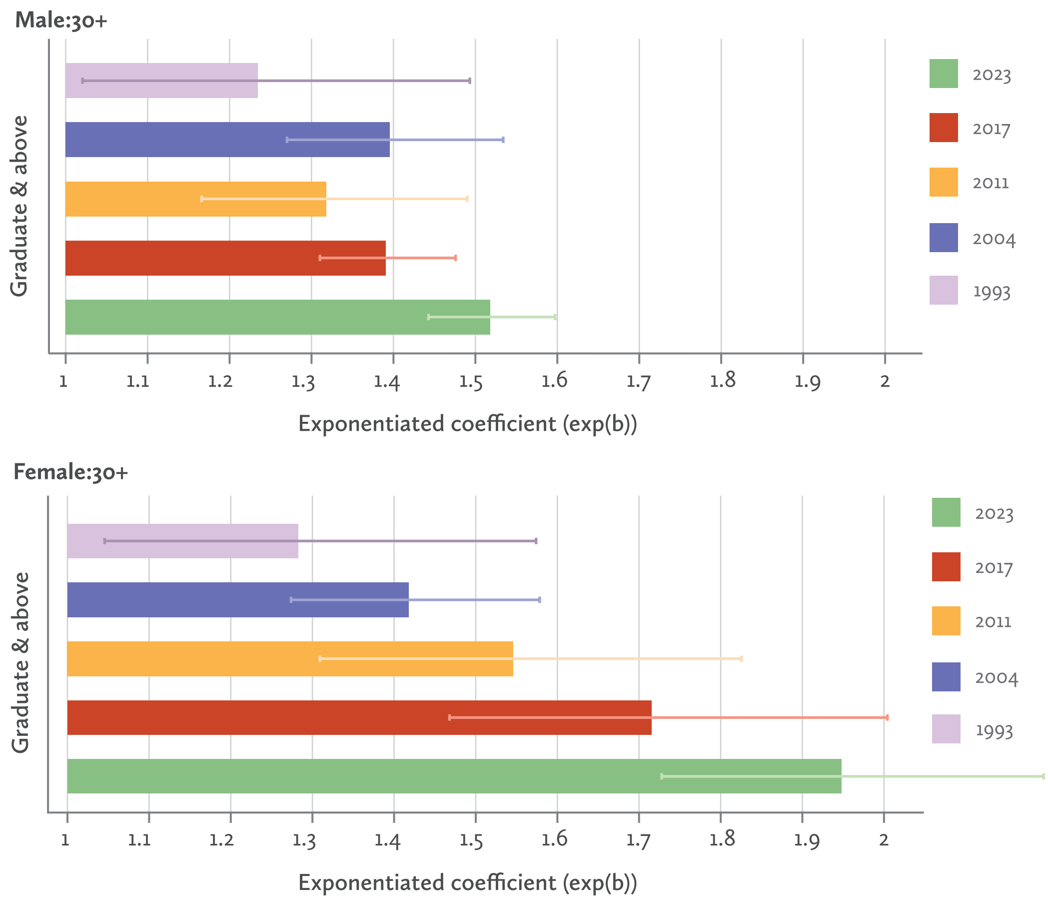
instance, graduate women earned about 60 percent more than women with higher secondary education. This has declined since, but even as of 2023, the graduate premium for women is more than 50 percent, higher than the premium observed for young men.

> **For young women, the returns to graduate education is actually somewhat higher than that for men. In 2004, for instance, graduate women earned about 60 percent more than women with higher secondary education. This has declined since, but even as of 2023, the graduate premium for women is more than 50%, higher than the premium observed for young men.**

We also compare these premiums with those for the older cohort of workers (Figure 3.17). While this does not give us an idea of how the same young workers fare as they age, it tells us, to some extent, how the overall economy has performed in terms of rewarding graduates, and also whether the trends seen over time for the younger cohorts are seen among the older workers. Note that the graduate premium is in general, higher among the older workers, reflecting the increase in earnings with experience. And we do not see the decline over time that we saw for the younger workers. Therefore, it is particularly entry level earnings for graduates that have seen a relative decline.

The other point to note is that the graduate premium is higher for older women, and steadily increasing, across all years, compared to older men. By 2023, graduate women were earning more than twice what higher secondary women earned. The corresponding factor for men is only about 1.6 times. Remember that there is a 'selection' of women into the labour market. The higher graduate premiums for women, probably, reflects this selection process - only women who are highly qualified and likely to be employed in high paying industries and occupations actually participate, and hence their earnings are likely to be upward biased.

Figure 3.17: Older graduates have higher wage premiums, and women have higher premiums compared to men



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24. Controls include age, marital status, number of children, whether the individual is the head of the household or not, caste group, religion, education of the household head and state fixed effects.

In this analysis, we have not distinguished graduate education by stream of education, specifically by technical and non-technical degrees. The majority of graduates in India have non-technical degrees. Only around 27% of young graduates have a technical degree of which the majority (55%) have a degree in engineering.[2] Engineering graduates are far more likely to be in salaried employment (76%) compared to those without technical degrees(51%). In Box 3.3, we look at how earnings compare between those with a technical degree and those without.

Box 3.3 Returns to technical education among regular salaried workers |

By Gowri R Lakshmi and Amit Basole

This analysis examines the returns to technical education among college graduates in regular salaried employment. The PLFS defines a technical degree as one obtained in agriculture, engineering/ technology, medicine, crafts among others. The vast majority of Indian degree holders have general as opposed to technical degrees. International evidence suggests that technical degrees command a higher return in the labour market (Kirkeboen et al., 2016, Andrew et al. 2024). However, the evidence is sparse in the Indian context.

We pool data from three PLFS rounds - 2021-22, 2022-23 and 2023-24 and use a Mincerian regression to analyse the returns to technical education for regular salaried workers who have at least completed their graduation. The dependent variable is the log of hourly earnings. The main independent variable of interest is a dummy which captures whether the respondent received technical education or not. Other controls include experience (age minus years of schooling minus 6), caste, religion, marital status, household size, education of the head of the household, quintiles of monthly per capita consumption expenditure (constructed for rural and urban areas separately), state of residence, and year fixed effects. We take hourly instead of monthly or weekly earnings to control for the margin of full time or part time work. We estimate the regression separately for the following subgroups: sector (urban and rural), gender (male and female) and age, young (<30years) vs old workers (>= 30 years).

Across all groups, around 20 to 40% of salaried workers reported having technical education (Table 1). Note that this is much higher than the incidence of technical education among graduates in the working age population as a whole. This indicates that individuals with technical degrees are more likely to be in regular salaried employment as may be expected.

Comparing average weekly earnings, across all subgroups, those with technical education tend to earn higher than those without. While overall earnings are lower among women compared to women, the raw premium percentages are higher for women. Older rural women with technical education earn ₹6,490 per week compared to ₹4,322 for those without technical education, reflecting a 50% premium. While percentage premiums are the highest for young and rural women (up to 50%), this can be attributed to their baseline salaries without technical education being very low (e.g., ₹2,843 for rural young women).

Table 1: Share of individuals with graduate degrees and above with technical education

	Entire working age population (%)	Regular salaried workers (%)
Rural men	15.8	22.5
Rural women	12.1	28.4
Urban men	26.3	34.5
Urban women	17.6	37.5

Source: PLFS 2021-22, 2022-23 and 2023-24. Sample includes only those with graduate degrees

Young urban men earn ₹6,303 with technical education compared to ₹4,524 without, reflecting a 39.3% premium. Young rural men earn ₹4,232 versus ₹3,357, translating to a 26.1% rise in wages.

Returns to technical education

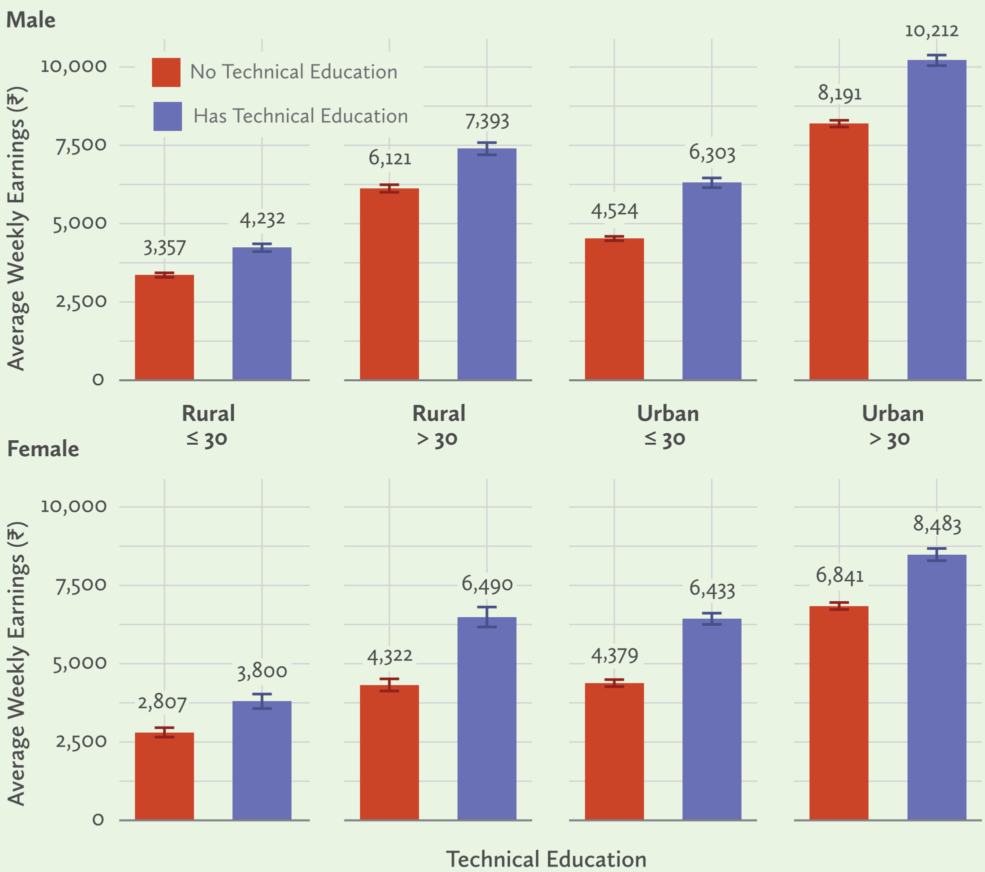
Overall we see a positive and significant impact on wages from technical education across categories controlling for household and other individual-specific attributes.

Among the rural graduate workforce, the returns to technical education, measured in terms of hourly wage, is the highest for older women, with a wage premium of approximately 47%. This is followed by younger men (40%), older men (33%), and younger women, who exhibit the lowest returns at 27%.

In urban areas, returns to technical education among graduate regular salaried workers are substantial across all subgroups with the highest gains observed for young men (40.5%), followed by young women (39%), older men (33%), and older women (29%). The relatively lower returns for older women may reflect the cumulative effects of occupational segregation and career interruptions faced due to social barriers by women. We also see that the coefficient on experience is negative for older urban women suggesting experience negatively affecting their hourly wages.

In the same regression framework, we introduce a control for the industry of work (at NIC 2 digit level). Even after adding industry fixed effects, we see positive returns to technical education for all categories. However, returns are much lower for men in both categories. For instance, among rural males, the return to technical education drops from 39.6% (without industry fixed effects) to 21.1% once industry composition is accounted for. A similar reduction is seen for older rural men, where the coefficient falls from 33.4% to 21.1%. This could mean that technical education helps men to sort themselves into certain industries that are better paying rather than increasing their returns directly. The return for older rural women also falls but to a smaller extent from 46.9% to 40.3%. The premium disappears for young rural women once industry is controlled for.

Figure 1: Average weekly earnings for men and women



Source: PLFS 2021-22, 2022-23 and 2023-24

Table 2: Technical education premium across various demographic groups

Men	Return	Women	Return
Rural young workers	39.6	Rural young workers	26.6
Urban young workers	40.5	Urban young workers	38.8
Rural older workers	33.4	Rural older workers	46.9
Urban older workers	32.8	Urban older workers	28.7

Source: PLFS 2021-22, 2022-23 and 2023-24. All coefficients are statistically significant.

For the urban population as well, we see smaller positive premia across categories after the addition of industry-level fixed effects. This again points to the fact that a substantial portion of the previously observed wage premium could be attributed to occupational sorting into higher-paying industries by the technically educated.

We also see some very predictable and interesting patterns when it comes to our control variables as well. We see conditional wage penalties for disadvantaged caste and religious groups.

Conclusion

Technical education delivers meaningful gains for all subgroups in terms of increment in their earnings. The regression analysis shows that the mechanism of this gain is different between men and women. While men get the advantage of sorting into better paying industries, women often are unable to make these shifts because of socio-cultural barriers. This also means that for women the gains observed could be directly stemming from the upskilling/ improved productivity as a result.

Across all sub categories, except for older rural women, we see that returns are higher for the younger cohort. This again could be explained by a possible higher market valuation of recent skills compared to the kind of technical education received by their older counterparts. This could also point towards skill obsolescence observed within the older population because of lack of an incentivised system for reskilling and upskilling opportunities within these technical domains.

1. Lars J. Kirkeboen, Edwin Leuven, Magne Mogstad, Field of Study, Earnings, and Self-Selection, The Quarterly Journal of Economics, Volume 131, Issue 3, August 2016, Pages 1057–1111, https://doi.org/10.1093/qje/qjw019 https://academic.oup.com/qje/article-abstract/131/3/1057/2461218?redirectedFrom=fulltex

2. Piopiunik, M., Kugler, F., & Wößmann, L. (2017). Income from educational attainment throughout life: Current calculations for Germany (ifo Schnelldienst, 70(7), 19–30). ifo Institut. https://www.ifo.de/en/publications/2017/article-journal/income-educational-attainment-throughout-life-current

3. Altonji, Joseph G., Erica Blom, and Costas Meghir. Heterogeneity in Human Capital Investments: High School Curriculum, College Major, and Careers. NBER Working Paper 30331. Cambridge, MA: National Bureau of Economic Research, 2022. https://doi.org/10.3386/w30331

Table 3: Technical education premium across various demographic groups, controlling for industry

Men	Return	Women	Return
Rural young workers	0.211	Rural young workers	0.131
Urban young workers	0.259	Urban young workers	0.260
Rural older workers	0.211	Rural older workers	0.403
Urban older workers	0.216	Urban older workers	0.222

Source: PLFS 2021-22, 2022-23 and 2023-24. All coefficients except the one for young rural women are statistically significant.

The decline in graduate premiums over the years have been confirmed in other studies too. Srivastava (2024), finds that young workers (men and women combined), have seen a steady decline in the returns to graduate education. The high supply of graduates is likely to have outpaced the demand for graduate labour, thereby moderating the graduate premium.

Besides the high supply, another explanation for the falling earnings could come from our earlier observation on how graduate men are not in industries that are very different from that of non-graduate men. This lack of sorting (for men), could also explain the fall in average earnings of graduates over time.

> Note that the graduate premium is in general, higher among the older workers, reflecting also the increase in earnings with experience. And, we do not see the decline over time that we saw for the younger workers. Therefore, it is particularly entry level earnings for graduates that have seen a relative decline.

Together these two channels - a lack of demand for graduates, and a lack of industrial sorting - may explain the fall in earnings. In the former channel, the average earnings across all industries that graduates typically find themselves in may have fallen. Consequently, the fall in graduate earnings are a reflection of this industry-wide compression in earnings. In the latter channel, entry-level industries that young graduates find themselves in, between 2011 and 2023, are very different such that in 2023, younger graduates are more likely to be in low-earnings industries. In that case, the change in the composition of industries between the young graduates of 2011 and those of 2023 could explain the fall in earnings.

To tease out which of these explains the fall in earnings, we use a Blinder-Oaxaca decomposition (Table 3.4). This decomposition categorises the changes in earnings (between two groups, or over time) into two components - the proportion of the change that is due to a change in observable characteristics (endowments) and the proportion due to unobservables (returns). In this case, the observables include the composition of industries between 2011 and 2023, broad occupation types (professional, blue collar workers and labourers) types of graduate education (diploma, graduate or postgraduate) and rural/urban composition. The decomposition reveals that more than 90% of the fall in earnings is attributable to the 'returns' effect. This implies that observable characteristics - including the industrial and occupational composition explains an insignificant portion of the difference in earnings between the two time periods. Rather, the returns component, which includes the marginal returns to various attributes, as well as other unobservable characteristics explain a large share of the fall in earnings.

The fact that young graduates are not getting sorted into industries that are distinct from that of non-graduates tells us something about the failure to match worker skills with appropriate jobs. The consequence is underemployment or overqualification with workers in jobs that do not require their qualifications - an educational-occupational mismatch (Datta and Mishra 2019; Bahl and Sharma 2024). This underutilization of human resources reflects issues of both quantity as well as quality - scarcity of jobs (or too many graduates) or a lack of required skills and issues of employability among the workers despite having the educational qualification.

Table 3.4 : Only 12% of the fall in earnings between 2011 and 2023 is explained by changes in observable characteristics, the remaining is unexplained

	Coefficients	Proportion explained (%)	Std Error	Z	P>z	95% confidence interval	
Difference	1813.9	-	838	2.2	0	171.6	3456.3
Endowments	223.2	12.3	418	0.5	0.6	-596.1	1042.5
Coefficients (returns)	1774.7	97.8	735.6	2.4	0	332.9	3216.4
Interaction	-183.9	-10.1	319.2	-0.6	0.6	-809.5	441.7

Sources and notes: PLFS 2021-22, 202

3.6.3 Young worker earnings over their lifetime: An intergenerational comparison[3]

While entry level earnings are a useful metric (since what one makes in their first job has implications on subsequent earnings), it does not really give us an understanding of whether these premiums persist into their lifetimes. A major empirical challenge in addressing this question is the lack of long-term panel data that track individuals throughout their working lives. To overcome this, we adopt a cohort-based approach, which allows us to understand the labour market dynamically by comparing age-earnings profiles across successive birth cohorts. This method effectively turns repeated cross-sectional data into a "quasi-panel," enabling us to trace how real wages change over their life cycle for different generations.

To construct cohorts, we utilize successive rounds of the Employment–Unemployment Surveys (EUS) and the Periodic Labour Force Surveys (PLFS). Starting with the first EUS round (1983), we identify the earliest cohort as individuals aged 20–29 years in 1983. Narrower age bands could create more cohorts, but would reduce the sample size for each; thus, for smoother trends and more reliable estimates, we use nine-year cohorts. This first cohort, by the next EUS round, five years later, would be aged 24–33. And, in the next EUS round which was five years later, they would be in the age group of 29 to 38 years. Like this, we track this cohort across subsequent rounds up to 2018, when they were between 55 and 64 years old. Although newer PLFS rounds are now available, we stopped tracking the first cohort in 2018 because most individuals in this group would have left the labour market by then.

Similarly, we form the second cohort by identifying those who entered the labour market in that year, i.e., aged 20–29 in 1987. Table 3.5 provides details for each cohort. Overall, we identify four cohorts: the first includes individuals born between 1962 and 1973 who we start observing in 1983 when they are between the ages of 20 and 29 and are likely to be fresh entrants into the labour market. The last includes those born between 1983 and 1994 who we observe as 20 to 29 year olds in the labour market in 2004. When a particular age category overlaps with two cohorts, we categorise those individuals into the earlier cohort.

For each survey round, we calculate real weekly earnings of salaried workers from the monthly earnings reported in the EUS and PLFS datasets. EUS records earnings for the last week, while PLFS reports earnings for the last month; for comparison, we converted the latter to a weekly basis.

Using this cohort perspective, we analyze how the structure of salaried earnings has shifted for men and women, and how returns to higher education have developed over time. By distinguishing between graduate and non-graduate workers, the analysis reveals whether the expansion of education has resulted in higher and more sustained wage growth over their lifetime and if more recent graduates experience the same kind of wage growth in their career as compared to graduates from earlier cohorts.

Men

For men, across all cohorts, graduates and non-graduates, the earnings profile follows the expected life-cycle pattern—rising with age at a decreasing rate and eventually leveling off in the later working years (Figure 3.18). However, the level and shape of the earnings curves vary significantly across cohorts and education groups.

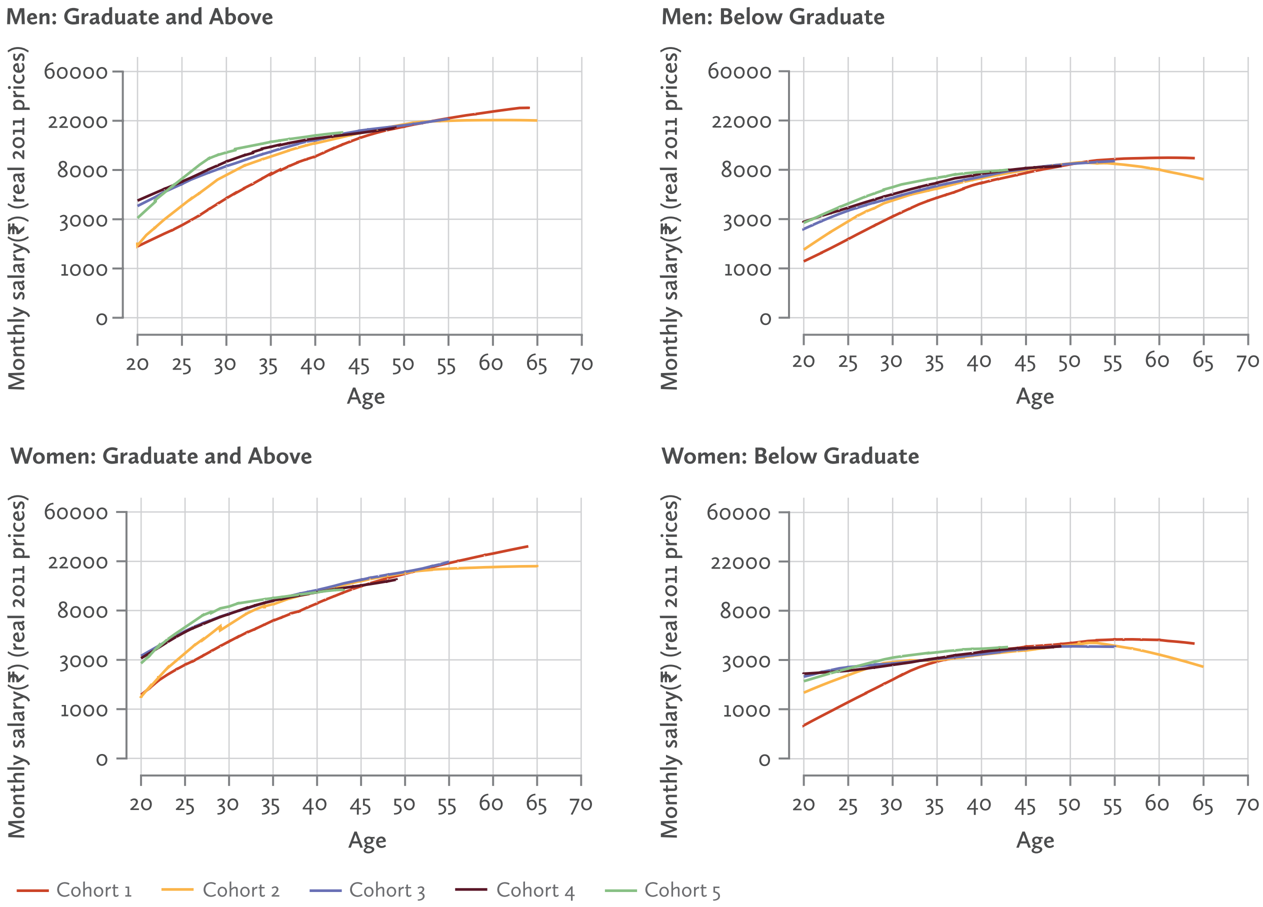
Among graduates and above, there is a clear upward shift in earnings across successive cohorts, particularly between Cohorts 1, 2, and 3. After Cohort 3, the entry

Table 3.5 : Construction of cohorts across NSS–PLFS Rounds

NSS Year	Birth year	1983	1987	1993	1999	2004	2011	2018	2023
Cohort1	1954-1963	20-29	24-33	30-39	36-45	41-50	48-57	55-64	
Cohort2	1958-1967		20-29	26-35	32-41	37-46	44-53	51-60	56-65
Cohort3	1964-1973			20-29	26-35	31-40	38-47	45-54	50-59
Cohort4	1970-1979				20-29	25-34	32-41	39-48	44-53
Cohort5	1975-1984					20-29	27-36	34-43	39-48

Sources and notes: NSS EUS 1983-84, 1987, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

Figure 3.18: Life-cycle earnings flatten across successive cohorts, with slower wage growth for recent graduates and persistent gender gaps



Sources and notes: NSS EUS 1983-84, 1993-94, 2004-05, 2011-12, PLFS 2017-18, 2023-24

level salary does not increase for subsequent cohorts and this is reflecting the slowdown in graduate entry level earnings that we observed earlier. Further, the growth in earnings in the initial years of their career, which is represented by the slope of the line, is also steeper in these years, indicating the importance of early career experience and growth. Subsequently, the line flattens out indicating that beyond a certain age, as one would expect, growth in earnings slows down. An important insight from the cohort analysis is how, with each successive cohort, there is a slowdown in the rate at which earnings increase with age. While for the earliest cohort (Cohort 1) we see a steep increase throughout all ages indicating a sustained increase in wages, for subsequent cohorts, the line flattens indicating that graduates in more recent cohorts are earning less over their lifetime. So, Cohort 2, at their retirement age, earned less than the cohort preceding them. For non-graduate men, we see a similar trend, although cohort-specific differences are modest and the growth in wages is not as steep. The contrast between the two educational groups highlights a widening gap in returns to education—consistent with India's broader structural shift toward skill-intensive sectors.

> **“With each successive cohort, there is a slowdown in the rate at which earnings increase with age. While for the earliest cohort (Cohort 1) we see a steep and sustained increase in earnings with age, for subsequent cohorts, the line flattens indicating that graduates in more recent cohorts are earning less over their lifetime. So, Cohort 2, at their retirement age, earned less than the cohort preceding them.”**

Women

For women, the earnings trajectories resemble those of men. Across all cohorts, at the initial ages, women's earnings remain substantially lower than men's, reflecting persistent gender wage disparities in the Indian labour market. However, with age, women are able to 'catch up' to men in terms of earnings, indicating that over their lifecycle, the growth in earnings for women is much steeper as compared to men. This is particularly the case for the earlier cohort of women (cohort 1). Like with men, the growth in earnings over their lifetime has slowed down for graduates.

For women with less than a college degree, the earnings profiles are flatter, and differences across cohorts are minimal. The later cohorts do not show significant gains either at entry or at peak ages, indicating that structural changes in India's labour market have had a limited impact on less educated women.

Overall, the cohort-based earnings trajectories reveal a growing gap driven by both education and gender. Recent generations of young graduates are less likely to earn as much as their earlier generation over their lifetime. While the entry level earnings are higher than previous generations, the growth in earnings has slowed down. This may be the result of both labour market saturation, skill mismatches as well as the increased supply of graduates, limiting the returns to graduates, not just at entry but also over their career.

3.7 Conclusion

This chapter examined how India's stalled structural transformation has shaped labour market outcomes for young workers relative to older workers over the past four decades. While younger workers have attained higher levels of education and exited agriculture faster than earlier generations, these supply-side changes have not been matched on the demand side in the form of productive, high earnings, stable employment. As a result, the transition of youth into decent work remains constrained.

Across both men and women, the period since 2017 marks a clear break from earlier trajectories. For young women, a reversal in the long-standing decline in agricultural employment has coincided with rising labour force participation, suggesting that the recent increase in women's work is driven largely by distress rather than by the emergence of new, high-earning non-agricultural opportunities. For young men, the stagnation of manufacturing employment and the growing reliance on construction and low-productivity services point to the limited capacity of non-agricultural sectors to absorb new entrants into decent work. Alongside this, we see an increasing share of young graduate men in unpaid family work, and a stagnation/decline in graduate premiums for young men.

Endnotes

1 A Mincerian regression, named after economist Jacob Mincer, has wages as the dependent variable and a set of explanatory variables including age (or experience) and education.

2 From a pooled sample of PLFS rounds 2021-22, 2022-23, and 2023-24

3 This section is based on ongoing work with Akshit Arora

04

Higher Education: College availability and access

04 Higher Education: College availability and access

4.1 Introduction

Typically, when approached from a labour market perspective, the role of education is studied in terms of its role in allowing entry into better types of employment or higher earnings. Important as this is, what is also crucial are questions around who gets to access what kinds of education. This is all the more pertinent when we consider the focal group of this report - the youth. Education, as Sen (1999) and others have pointed out, has its own intrinsic value. But apart from this, these 'pre-labour market' choices have far reaching instrumental consequences too. What you learn, where you learn and how long you learn determines employment and earnings, not just at the time of entry into work, but over an individual's entire lifetime. Most discussions around education in the Indian context have largely focused on primary or secondary education, the years of education from first standard to higher secondary education. However, tertiary education, which refers to the years of education after high school, i.e., college education, has crucial implications, particularly for employment outcomes. Keeping this in mind, in this chapter we look at the landscape of tertiary education in India.

India's higher education system has undergone a profound transformation over the past four decades. From a relatively small, state-dominated ecosystem prior to the 1990s, the sector has expanded into one of the world's largest, with more than 58,000 institutions and over 4.3 crore students enrolled. This expansion, however, has unfolded unevenly—geographically, socially, and institutionally. While the number of colleges has increased almost fortyfold since the 1950s and private institutions now constitute nearly two-thirds of all colleges, questions of who is able to access this expanding system and what it costs to participate still remain.

Drawing on AISHE and NSS datasets, in this chapter we trace three interlinked dimensions of India's higher education landscape. First, using the All India Survey of Higher Education (AISHE) data, we examine the question of provisioning and availability of colleges, particularly the role of private and public actors. Second, looking at enrolment patterns, we address the question of access across gender, caste, region, and economic class. Then, we extend the question of access, using household expenditure surveys, to look at affordability of higher education and how this mediates who gets to study what. Finally, we bring together the availability and cost with the labour market outcomes to understand relative returns on higher education over an individual's lifetime.

4.2 Expansion of higher education institutions post-liberalisation

The most comprehensive data on higher education institutions comes from AISHE. The survey was initiated in 2011 and brings together multiple stakeholders in the higher education sector such as the All India Council for Technical Education, University Grants Commission, Medical Council of India and State governments to collect information on several parameters including student enrolment, infrastructure, teachers etc for institutions across the country.[1] As per the most recently available AISHE report (2022), there were 53,402 colleges, 14,905 standalone institutions and 1,227 universities registered in the country. Note that Universities refer to institutions that are empowered to award degrees, Colleges are institutions affiliated with a particular University and Stand-Alone institutions are those outside the purview of universities or colleges typically running PG Diploma/Diploma courses. We classify universities, colleges, and institutions maintained by the Central or State government, or local bodies such as Public Institutions. Institutions maintained by individual agencies, trusts, societies, or other private organizations including both private-aided and private-unaided institutions are classified as Private. As of 2022, India had about 69,534 institutions of which the majority were private institutions (Table 4.1).

Table 4.1: The majority of higher educational institutions are private

Institution Type	Total	Share
Public Colleges	10,665	15
Private Colleges	42,737	61
Public Stand-alone	3,135	5
Private Stand-alone	11,770	17
Public Universities	726	1
Private Universities	501	1
Total	**69,534**	**100**

Sources and notes: AISHE 2022.

Behind this number lies the story of an initial state-led growth of institutions which was then massively propelled by private institutions, post-liberalisation. The growth of India's higher education system is closely linked to the country's policy environment. Education is a concurrent subject in India, which means both the Union and state governments work together to improve and manage it. A major milestone in this joint effort was the introduction of the National Policy on Education (NPE) in 1986, followed by the Programme of Action (PoA) in 1992. These reforms not only strengthened the public education system but also encouraged the participation of private players in higher education.

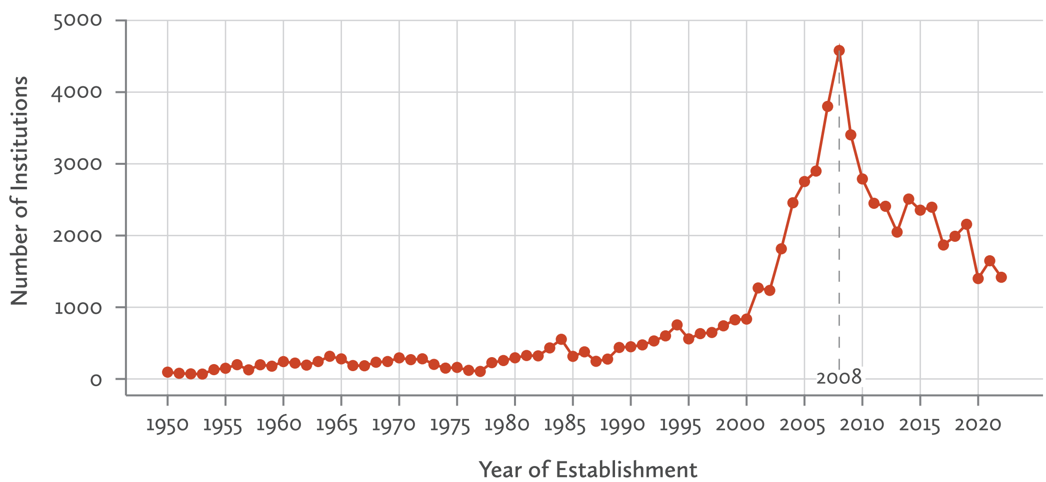
Using the year of establishment reported by institutions available in AISHE, we trace the growth of higher education institutions in the country over time.

Based on the currently available AISHE data, only 1,644 institutions were founded in the 1950s. Today, the number has increased nearly forty times. However, this growth was not an even, gradual process. Rather, a marked acceleration in Higher Education Institutions (HEIs), particularly private ones occurred in the post-liberalization period starting from the mid 1980s onwards, picking pace in the first decade of the 2000s and reaching a peak in 2008 (Figure 4.1). In the decade between 1980s and 1990s, India saw an approximately 50% increase in institutions from 7,548 to 11,287, led equally by public and private institutions. The following decade (1990-2000) saw the pace continue with a 58% increase in institutions. However, between 2000 and 2010, there was a sharp increase with the number of institutions rising by 150%.

An important aspect of the post 2000s boom is the huge increase in the number of private institutions. In 2008, for instance, there were 3,005 private colleges established in comparison to 441 public colleges. The share of private institutions has steadily increased - from 49% in 1980 to 79% in 2022 with private colleges accounting for the majority of the increase. In terms of universities, public universities still dominate the landscape although the number of private universities has also been steadily increasing.

There are several potential explanations for this increase in higher education institutions, particularly private ones, during this period. While the steady increase in the early eighties led by the state was in response to the increased need for qualified engineers and managers during the period of domestic industrialisation, in the subsequent years, the private-led growth was in response to multiple factors.

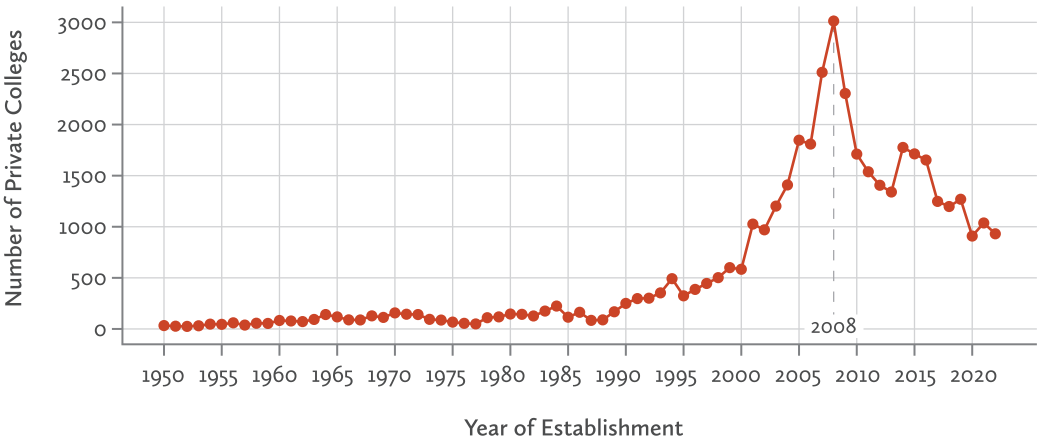
Figure 4.1: Steady increase in the number of institutions, particularly post-liberalisation



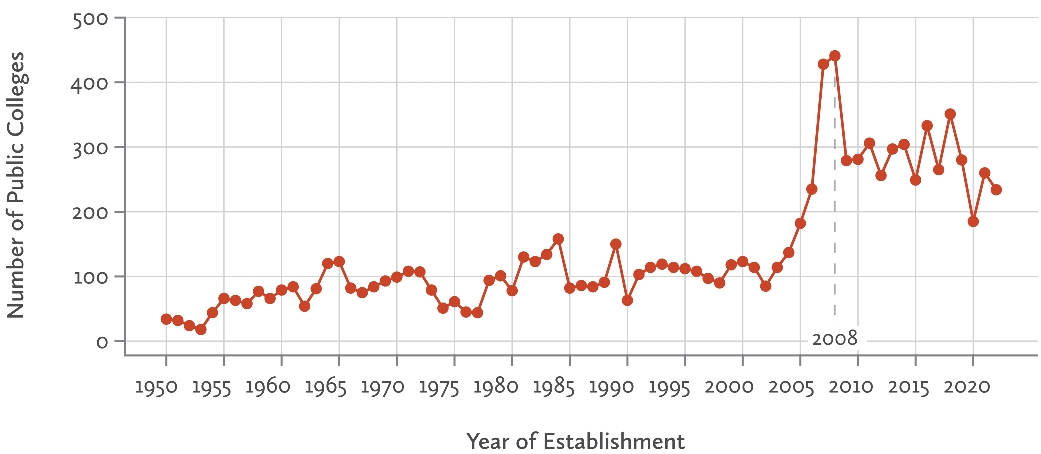
Source and notes : AISHE, all years. Where the year of establishment was missing, the values reported by the same institution in the previous AISHE years were imputed. Institutions here include Universities (public and private), Colleges (public and private) and stand-alone institutions.

Figure 4.2: Increase in institutions led by the growth of private colleges

a: Private Colleges



b: Public Colleges



Sources and notes: AISHE, all years. Where the year of establishment was missing, the values reported by the same institution in the previous AISHE years were imputed.

During the Eleventh Five Year Plan (2007–2012), the government undertook major initiatives to expand higher education in the country. These policy measures were new and unprecedented in the recent history of educational development. Prime Minister Dr. Manmohan Singh termed the Eleventh Plan as the 'Education Plan', describing it as the 'second wave' in the development of higher education. Special emphasis was placed on increasing the country's educational capacity which was reflected in the number of educational institutions (universities and colleges), teachers, and students pursuing post-secondary education (UGC, 2011). In the subsequent periods, fiscal constraints limited state expansion, while deregulation with the neo-liberal economy allowed for greater participation (Agarwal 2007; Jayaram 1991). At the same time, household incomes grew steadily and families could afford to invest in higher education. This new and burgeoning demand made higher education an attractive investment option. At the same time, the private-led growth resulted in regional clustering of institutions, proliferation of low-cost private colleges, and mismatches between enrolment, expansion and teacher availability, as we shall see.

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4.3 Where have the college expansions taken place?

While the number of colleges boomed, this was not a phenomenon that was seen equally across all parts of the country. To understand the spatial availability of colleges, we construct a per capita measure of college availability - the number of colleges in a district divided by the college-going population in the age group of 18 to 24 years. AISHE reports a measure of college density, defined as the number of colleges per lakh eligible population where the eligible population pertains to 18–23 years of age. However, since our measure is at the district level, and district-level population projections for the 18–23 age group are not available, we consider the age group of 20–24 years as the eligible population.[2]

College density has steadily improved over the last decade. In 2021, the average college density across districts was around 45 indicating that there are 45 colleges per lakh youth population aged 20–24 (Table 4.2). This is a sharp increase from the 29 colleges per lakh youth recorded in 2010. However, it's important to note that the access to college varies widely across districts as indicated by a high standard deviation of 36. While college density has steadily increased over the years, there are large regional variations with some districts having very few colleges and others having many. We explore these regional differences next.

Contrasting the number of colleges against the population it serves helps assess the equity of higher education opportunities across different regions. We look at the spatial variation in per capita college availability across three decades.

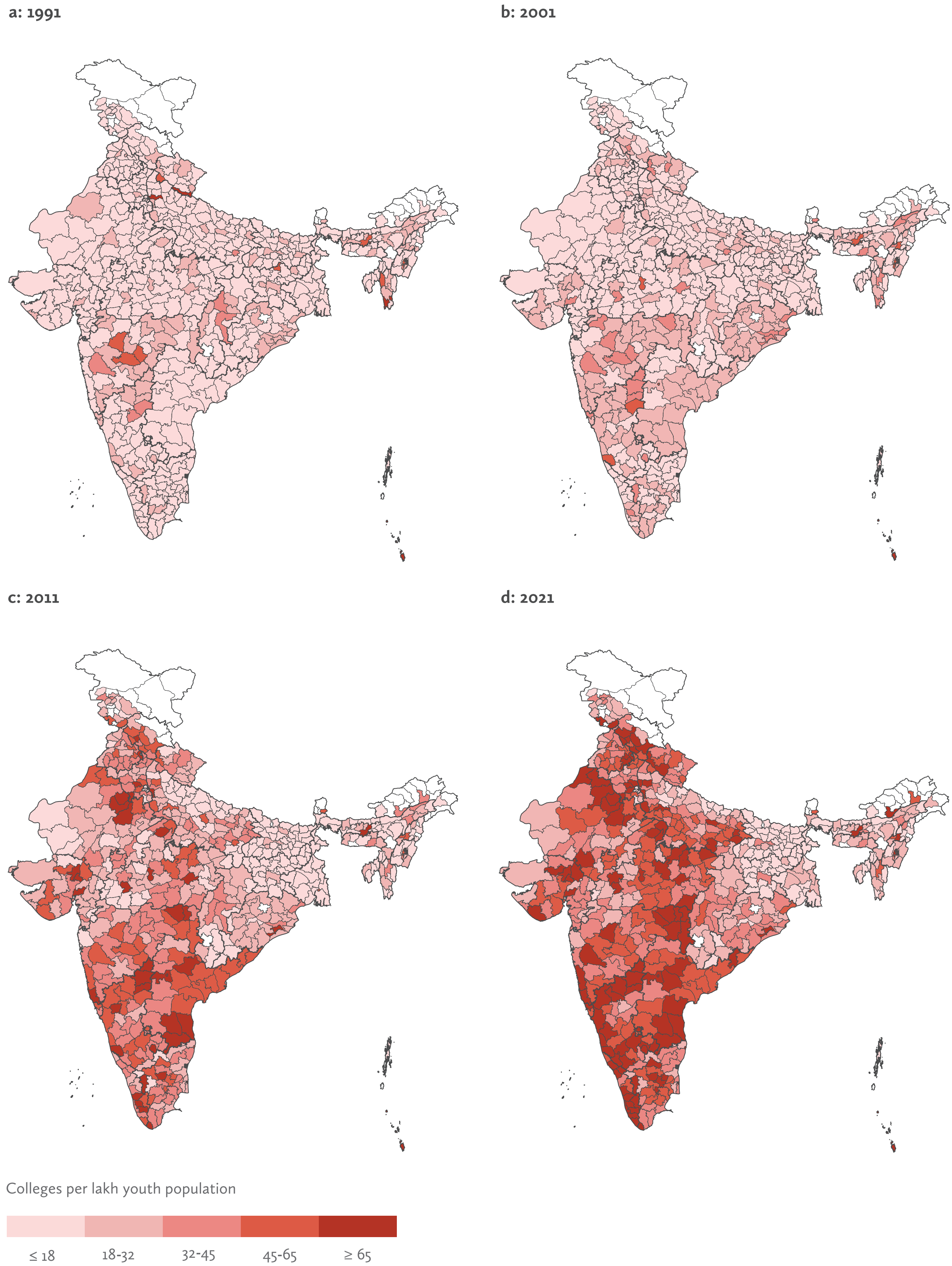
In the 1990s, the southern states had relatively higher availability of colleges per youth population (Figure 4.3). In the subsequent decade, the availability for these regions improved with other regions still lagging behind. However, by 2021, we can see a sharp increase in the availability in central and western regions too, including Rajasthan and Madhya Pradesh. Andhra Pradesh also saw a huge increase in college density during this period. However, the availability in the northern states of Bihar, Jharkhand and West Bengal, has remained low consistently over the years, with only a marginal improvement. This is concerning given that these are the states with a substantial share of the youth population. As of 2021, Karnataka leads in terms of colleges per lakh youth population, reflecting a more balanced distribution relative to its population size. It is also notable that while Uttar Pradesh has the highest number of colleges followed by Maharashtra and Karnataka, when we consider college density, this ordering is reversed.

Table 4.2: On an average, college density has steadily increased

Year	Average	Standard deviation	Minimum	Maximum
2010	29	22	1	179
2011	31	22	1	181
2012	32	22	1	182
2013	33	23	1	183
2014	34	24	1	185
2015	35	26	1	187
2016	36	25	1	188
2017	37	25	1	190
2018	37	26	1	192
2019	38	26	1	194
2020	39	27	1	196
2021	45	36	1	507

Source and notes : AISHE, all years. College density is defined as the number of colleges per lakh youth population. We have considered the 20–24 age group as the eligible population.

Figure 4.3: Regional disparities in the per capita availability of colleges



Sources and notes: AISHE. Darker shades represent higher colleges per youth population.

> While college density has steadily increased over the years, there are large regional variations with some districts having very few colleges and others having many.

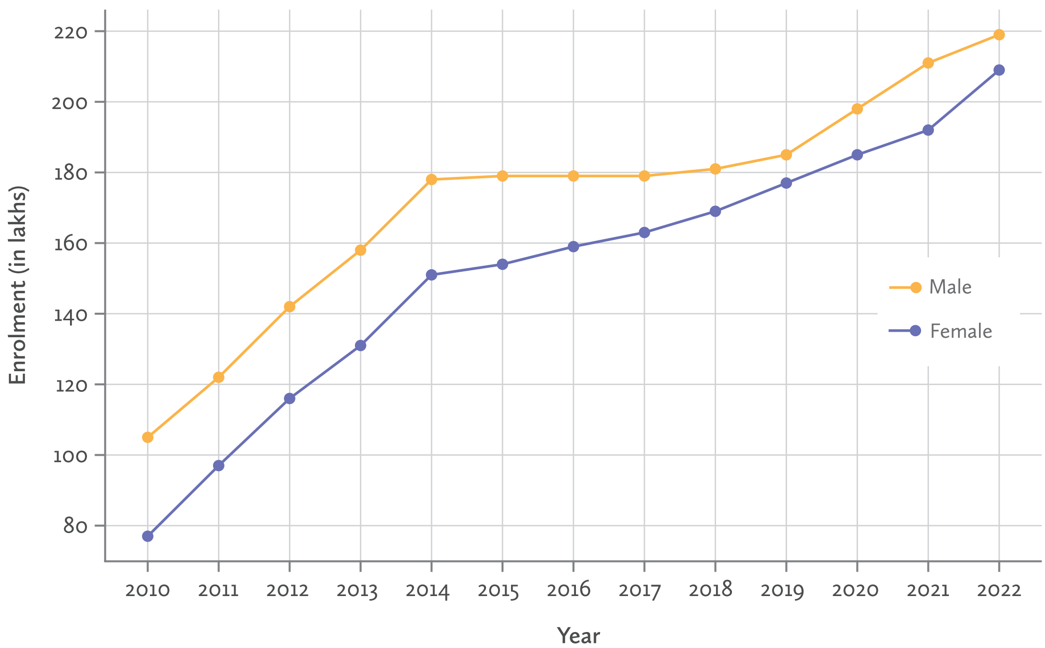
4.4 What is the demographic profile of students in higher education?

Student enrolment in India has steadily increased from 18.15 million in 2010 to 42.85 million in 2022.[3] In terms of the share of youth enrolled in higher education, the Gross Enrolment Ratio, which measures the proportion of the eligible youth (18-23 years of age) population enrolled in higher education, has steadily increased with the overall GER being 28% in 2022, an improvement from 16% in 2011.

India's current higher education landscape cannot be understood in isolation from its historical context. Soon after Independence, with the focus on large public sector units and heavy industrialisation, the need for a highly educated and qualified workforce was severely felt. Building a strong higher education system became a national priority tied to economic development and social transformation. This spurted the huge initial investment in tertiary institutions, at the cost of primary and secondary schooling (Drèze and Sen 2013). Consequently, we see the expansion of higher education particularly of large public universities and institutions amid high levels of illiteracy. Therefore, access to higher education was only for those who were able to afford and attain good primary and second education. Consequently, higher education became an elite enclave, largely inaccessible to the vast majority. This resulted in inequities in access to tertiary education, with marginalised groups - women, Scheduled Castes and Scheduled Tribes, being largely excluded from higher education.

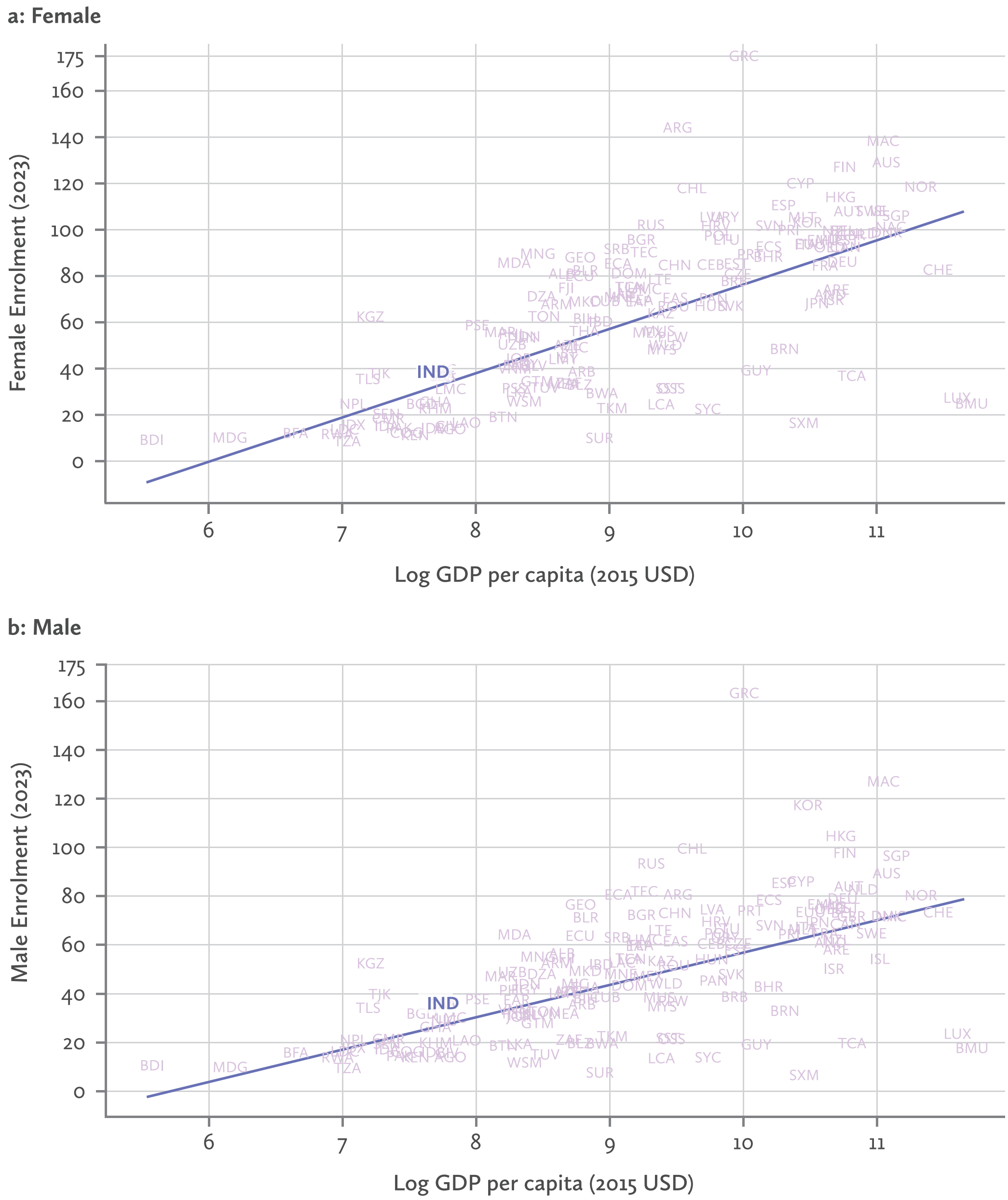
Since 2010, enrolment rates have steadily increased, especially so for women, with the number of women enrolled catching up with that of men (Figure 4.4). In 2011, the GER for men was around 17%, which has increased to 27% as of 2022. For women, starting from a lower base of 14% in 2011, GER has since surpassed the male GER, reaching 29%. Between 2010 and 2022, the gender share in overall student enrolment in India has gradually moved towards parity with the share of girls in tertiary education rising from 42% in 2010 to 49% in 2022. One of the key objectives of the National Education Policy (NEP) 2020 is to raise the Gross Enrolment Ratio (GER) in higher education to 50% by 2035, implying that about half of India's eligible youth population should be enrolled in colleges, universities, or other higher education programs by then. While the last few decades marked steady progress over the years, there is still more to cover to meet the NEP 2020 target of 50% by 2035. On ground, however, it is likely that the higher female GER is not evenly distributed across regions, as Box 4.1 shows, young

Figure 4.4: Female enrolment has steadily increased and has almost caught up with male enrolment



Sources and notes: AISHE, all years.

Figure 4.5: From a global perspective, India is on track in terms of GER, given its per capita income



Sources and notes: World Development Indicators 2023. GER refers to tertiary school enrolment (%, gross).

girls, while just as ambitious as young boys, were far more likely to exit education earlier and have lower learning outcomes.

In a global perspective, India is very much on track in terms of gross enrolment rates for men and women, given its per capita GDP (Figure 4.5). Note the higher dispersion of enrolment rates at higher levels of education. As incomes increase, tertiary education may or may not be an obvious outcome for young people in richer countries, particularly in countries where the school to work transition may be mediated by other factors such as vocational training, apprenticeship programs and good employer-employee matching institutions.

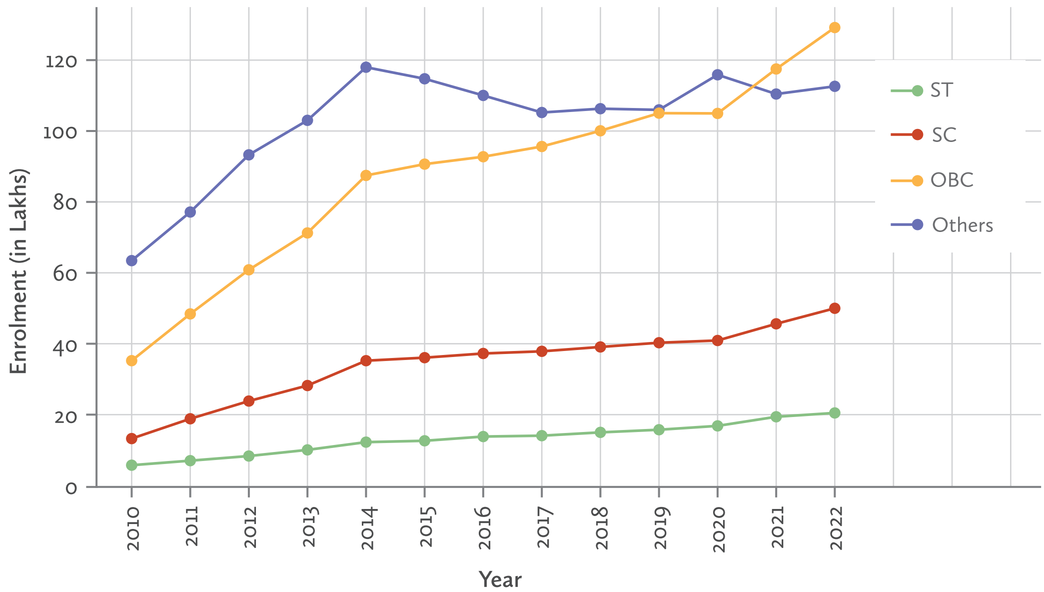
Caste-based inequities in access to higher education is partly a cumulative outcome of historical inequalities in access to primary and secondary schooling. We do not have GER estimates for OBCs and General Category separately. But from Table 4.3, it is clear that while GER among SC/STs have increased, it still remains well below the national average, as we saw earlier. Among social groups, enrolment is highest among OBC students, followed by Scheduled Castes (SC) and Scheduled Tribes (ST) (Figure 4.6). Although enrolment has increased across all social groups over the decade, the gap between OBCs and SC/STs has widened.

Table 4.3: Enrolment of SC/STs has increased but is still lower compared to overall levels

Year	GER				
	Overall	Male	Female	SC	ST
2011	16	17	14	11	8
2012	18	19	17	13	9
2013	21	22	19	15	11
2014	23	24	22	18	13
2015	24	24	23	19	14
2016	24	25	23	20	15
2017	24	24	24	21	16
2018	25	25	25	21	16
2019	25	25	26	22	17
2020	25	25	23	21	17
2021	26	26	26	24	20
2022	28	27	29	26	21

Source and notes : AISHE, all years. The eligible population is defined as individuals aged 18–23. Caste-wise all-India population projections are obtained from the respective AISHE reports for each year and for the year 2022, caste wise projections are obtained through a linear extrapolation exercise since AISHE does not report for it.

Figure 4.6: Relatively sharp increase in OBC enrolment over time



Sources and notes: AISHE, all years. Others include General category and other groups not elsewhere classified.

India has made striking progress in enrolment in higher education, particularly in closing the gender-based enrolment gap. However, historical inequities continue to persist, particularly in terms of enrolment by caste-groups. SC/STs still show a very low enrolment rate while the OBC-General gap has more or less closed.

Box 4.1 Educational aspirations and attainment: Evidence from a panel survey of adolescents in UP and Bihar | By Garima Agarwal

While studying structural barriers to access to education, it is important to consider the psychological underpinnings of individual decision-making around education. What are the aspirations or targets that young people set for themselves, and how do these interact with social identities, life events and systematic inequalities? However, there are very few data sources that collect information on aspirations.The Understanding the Lives of Adolescents and Young Adults (UDAYA) data offers a unique insight into youth aspirations for education and employment. Conducted in the states of Bihar and Uttar Pradesh, the survey focused on five groups of adolescents: unmarried adolescent girls and boys aged 10-14 and 15-19 and married girls aged 15-19. These individuals were interviewed between September 2015 and January 2016 in Uttar Pradesh and January 2016 to July 2016 in Bihar as part of the first round. Subsequently, they were re-interviewed three years later between 2018 and 2019 by which time these groups would be aged 13-17 and 18-22.[1] While many themes were covered during the survey, we were particularly interested in the questions around choices and aspirations for education, vocational training and employment. We, therefore, focus on individuals aged 15-19 at baseline in this analysis.

The literature on aspirations has focused on understanding the constraints around an individual's capacity to aspire, and the reasons for aspirational failure (Appadurai 2004, Ray 2022). Since UDAYA collects information on aspirations and achievements in education, vocational training and employment, it is uniquely positioned to give us some idea about the gap between them. How do aspirations vary across youngsters with different socio-economic identities? Who is more likely to achieve their stated goals?

Under and Over achievers

In the first round of the survey, the subsample of 15 to 19 year olds were asked about their educational aspirations[2].The majority (74%) aimed for postgraduate education and only 20% targeted Grade 12 at most. By the second round, when respondents were aged between 18 to 21 years, aspirations were revised upwards - almost 90% aimed to study beyond Grade 12. Compared to these, the overall sample had acquired around 8 years of schooling in the first round, and this increased to only 9 years by the second round. These figures appear more positive if we consider the subset of respondents with stated aspirations - schooling attainment is around 9.8 and 11.8 years in the two rounds, respectively.

Contrasting stated aspirations in the first round with actual educational attainment in the second round, we assessed whether respondents made progress towards their goals. The target outcome was defined as the stated aspiration in the first round, or the highest level of education the individual could have reached by the second wave, whichever was lower. Depending on whether attainment was equal, higher or lower than the target, we classified individuals into those who met goals, overachieved or underachieved. Respondents who do not state their aspirations are retained separately.

Over half the sample fell short of their educational goals, on average by 1.7 years.
Unmarried girls set equally ambitious goals as unmarried boys and were most effective at meeting targets. The table shows that while 38% of the sample met their educational goals across waves, 52% fell short of their target. On average, the shortfall was about 1.7 years - although the gaps were significantly larger for married women at 1.9 to 2 years. A lower share of women fell short of their goals, and this was not because the goals were any less ambitious.

Respondents in the poorest quintile were more likely to fall short of their goals compared to those in the richest quintile.
Interestingly, these gaps were almost entirely driven by young girls. The share of men who underachieved was around 52% across the highest and lowest wealth quintiles. For girls, however, almost 66% in the lowest quintile fell short of their goals, compared to 38% in the highest quintile. Further, over 50% of married girls were unable

Table 1: Gap between initial aspirations (wave 1) and subsequent educational attainment (wave 2)

Education achievement gap	UM 15-19	UF 15-19	UF_M 15-19	MF 15-19	Total
Met goal	31.8	45.9	27.4	24.2	37.6
Over achieved	4.8	5.4	3.5	2.3	4.8
Under achieved	54	44.2	66.7	69	51.8
Don't know	9.4	4.5	2.4	2.4	5.9
Total	100.0	100.0	100.0	100.0	100.0

Sources and notes: UDAYA wave 2. UM - Unmarried male, UF - unmarried female, UF_M - unmarried female, married between the two waves, MF - married female. The numbers in the labels correspond to their age in the first wave. Total N = 6,300 and survey weights are applied. Each cell refers to the column share of respondents in each course category.

to meet their goals even in the highest wealth quintile, compared to about 35% of unmarried women in the same wealth category (Figure 1).

Boys had higher learning levels compared to girls, especially in math. Married girls had the lowest scores.

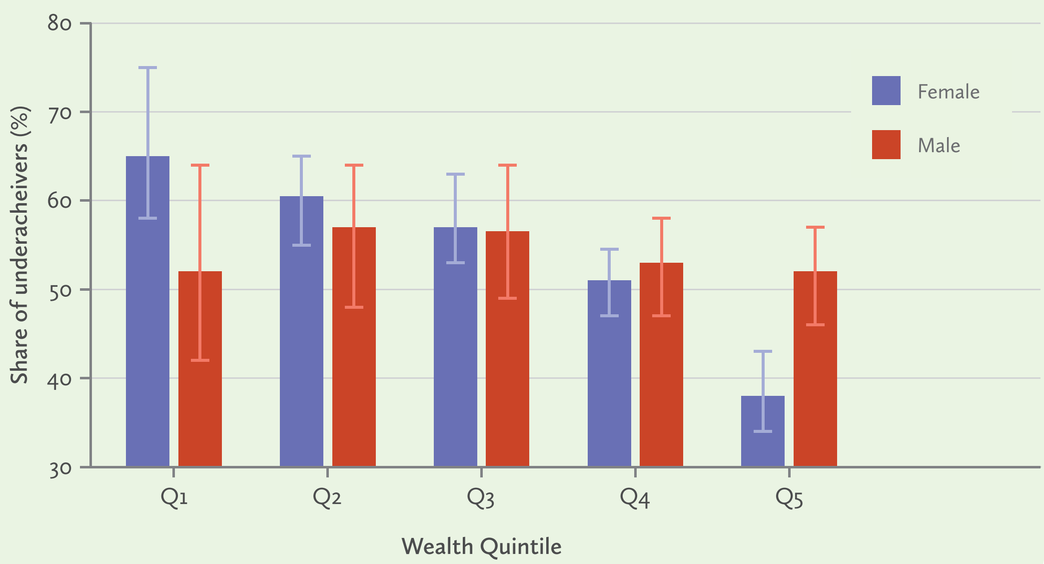
The survey measured reading and math levels at both waves using tools developed by Annual Status of Education Report (ASER) Survey.[3] Respondents were assigned an aggregate learning score based on their performance.[4] Note that these tests are used by ASER to assess learning levels for students aged 5-16, while the present sample is 15-19 years at baseline. We would, therefore, expect learning to be at the higher end of these scales.

Over 70% of unmarried girls and boys in the first round could read at story level, while these shares were lower for the subsamples of married girls (41-55%). Math performance was far more troubling. While 52% of unmarried boys could solve division problems, among unmarried girls only 35% could do so. These shares were much lower for the subsamples of married girls (13-22%).

Over half the sample discontinued education before grade 12, especially married women.

Life events play defining roles in determining how long young people choose or are able to study. These often take the form of marriage for adolescent girls and employment for boys. Around 11% of our sample had always been out of education, with a substantially higher share of married girls among them. Around 40% of the overall sample exited education between the two waves. This included premature discontinuation as well natural termination of education. The

Figure 1: Shortfall in goal attainment by wealth quintile and gender



average age of exit was around 15 years, with boys exiting slightly later compared to girls. The mean schooling attainment at exit was around 8 years. While we have made some progress in tertiary enrolment, in the sample under consideration, around 54% discontinued education before completing Grade 12. Married women accounted for almost two-thirds of this pool.

For young men, the reasons for exit included labour market compulsions, disinterest in studies, failure or cost of education, perceived irrelevance of studies or being required for household work. For women, marriage was the primary reason for early exit from education, as may be expected. Other reasons included cost of education, parental disinterest, being required for household work, disinterest in studies or distance of school. These may also be related to imminent marriage and other norms around gender roles and safety concerns.

[1] *For the rest of the discussion, we refer to these groups with respect to their ages in the first wave of the survey. We further divide the unmarried girls category (at baseline) into two groups depending on their marital status by the second round.*

[2] *Although all respondents are asked about their educational aspirations, 56% do not respond. Over half of these observations are on account of married girls.*

[3] *Reading levels included recognition of letters, ability to read words, ability to read a short paragraph (Class 1 level text), and ability to read a longer 'story' (Class 2 level text). Math levels were recognition of single-digit numbers (1–9), recognition of double-digit numbers (11–99), and ability to perform a two-digit subtraction sum with borrowing and a three-digit by one digit division sum.Children above Class 3 (older than 8 years) should be able to perform division based on NCERT textbook curriculum.*

[4] *There are additional questions that test general application skills in W2. These include concepts such as financial calculations, working with time, measurements encountered in daily life.*

4.5 College expansion and student-teacher ratio

While issues of access may to some extent have been addressed, there is still a question as to what extent these colleges meet the basic quality of provisioning of education. The post-liberalisation boom in higher education was partly motivated by private interests foreseeing the capacity to make huge profits in private education given the huge and burgeoning demand and market for tertiary education. However, many colleges often function with bare or inadequate infrastructure and are often under-staffed (Jayaram 1991; Gupta 2005). The massive expansion since the 2000s has meant the proliferation of many 'middling' institutions.

Student-teacher ratio (STR) is a widely accepted measure of school quality. The link between school quality as proxied by student-teacher ratio and learning outcomes is often difficult to establish. This is because students may self-select into schools: higher ability students (often from higher income and privileged backgrounds) may be more likely to get admission into private schools with smaller class sizes. Therefore, any relation between class size and student outcomes may be a function of these pre-education characteristics, rather than the education itself. Some studies have tried to circumvent these issues. Card and Krueger (2000), for instance, used a random assignment of students across schools with different class sizes, avoiding the selection issues, to find that students in smaller classes performed better on standardized tests. These positive effects have been confirmed in other studies and the effects have been found to persist into adulthood (Angrist and Lavy 1999; Chetty et al. 2011). However, the impact is not unambiguous and studies found either marginal or insignificant effects, or effects being conditional on other factors such as infrastructure and teacher quality (Banerjee et al. 2007; Hanushek 2011).

In the Indian context, evidence on the impact of class size on learning outcomes is limited. For secondary education in schools, studies have not been able to find a systematic relation between class size and learning outcomes (Datta et al. 2023; Banerjee et al. 2007), although these have largely been restricted to analysis of a small sample of schools in selected cities.

For higher education, to the best of our knowledge, there exists no studies that try to estimate the impact of student teacher ratios on learning outcomes.

The All India Council for Technical Education prescribes norms for faculty requirements that vary by type and level of course (AICTE 2024). For instance, AICTE Handbook for 2024-27 prescribes a teacher-student ratio of 1:20 for undergraduate institutes in Engineering and Technology, 1:15 for Design and Applied Arts and Crafts, and 1:25 for Management and Computer Application. At the postgraduate level, the requirements are generally higher, i.e., fewer students per teacher, for instance, 1:15 for Engineering and Technology, and 1:20 for Management and Computer Application. The norm therefore ranges between 1:25 and 1:15. For non-technical institutions, the UGC norms prescribe a ratio of 1 teacher per 20 students (UGC, 2019).

While the link between student-teacher ratio and learning outcomes is nebulous, particularly in the higher education context, given that there is a requirement norm as per the AICTE, we see to what extent colleges have been able to meet these guidelines. We do not, however, use this to comment on the impact on learning outcomes since given the data restrictions, it is not possible to establish this link.

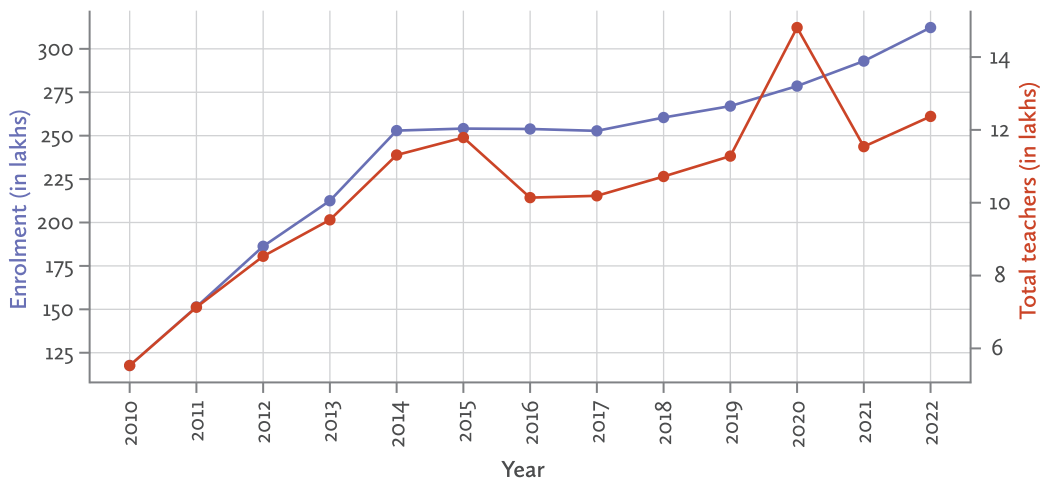
In the next sections, we broadly describe the trends in the student-teacher ratio (STR), overlaying this with the broad trends seen earlier in enrolments and institutions. The student-teacher ratio estimates shown here are computed using reported numbers of students enrolled and the reported numbers of teachers appointed, as collected by AISHE. Note that our estimates vary from the student-teacher ratios in the AISHE reports. The reasons for this variation are two-fold. First, in the AISHE report for non-responding institutions, the students enrolled and teachers appointed are imputed from responses in the preceding two years. Second, AISHE report estimates pool colleges, stand-alone institutions and universities. In our analysis, we restrict the sample to only colleges (excluding stand-alone institutes and universities) and do not make any imputations for non-responding institutions. Teachers here include all teachers at all levels of seniority and both regular and contractual employees.

Between 2010 and 2022, the number of students enrolled in colleges have increased from 112 lakhs to 312 lakhs, an increase of nearly 2.7 times. During the same period, the number of teachers increased about 2.2 times, from 5 lakhs to 12 lakhs. Although the relative increase has been similar, note that the levels are very different (Figure 4.7).

For a more intuitive interpretation, in this section, we use the inverse of the student- teacher ratio i.e., the teacher-student ratio (TSR). As this ratio represents the number of teachers available per student, any increase in its value indicates an improvement - more teachers per student. For this analysis, we exclude colleges that record zero enrolment or zero teachers.

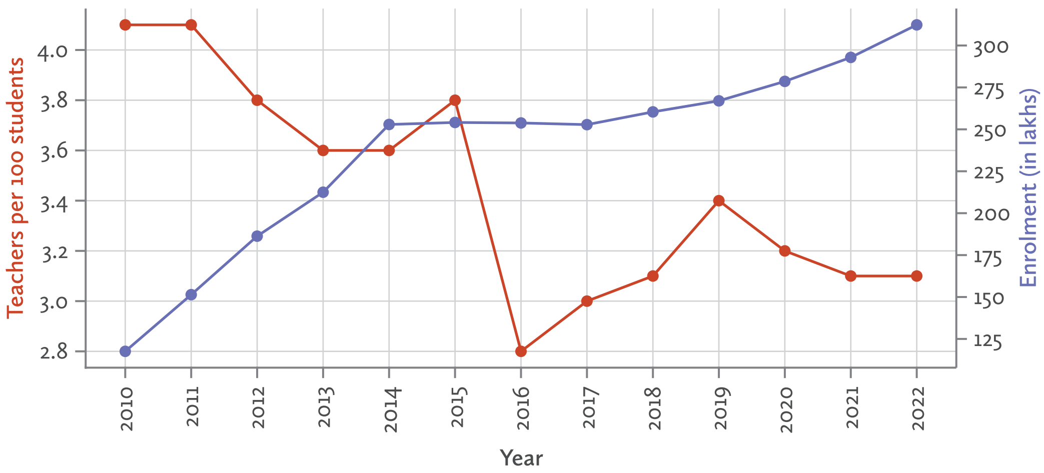
The prescribed norms of a student teacher ratio between 1:20 and 1:15 translates to anywhere between 5 and 6.7 teachers per 100 students. We see that despite teacher numbers having increased over the years, it has not kept pace with the increasing number of students, resulting in a steady fall in the

Figure 4.7: In more recent years, increase in teacher appointment has not kept pace with student enrolment in colleges



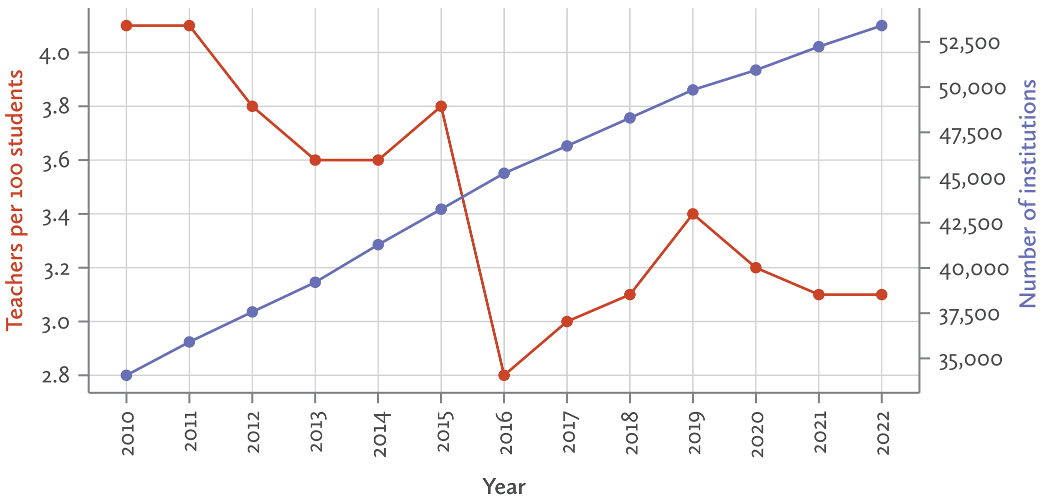
Sources and notes: AISHE, all years.

Figure 4.8: The number of teachers per students in colleges has fallen with increase in enrolment



Sources and notes: AISHE, all years.

Figure 4.9: Teacher numbers have not kept pace with institutional growth



Sources and notes: AISHE, all years.

number of teachers per student (Figure 4.8). Two points emerge from Figure 4.8, first on the levels, and second, the trends. In general, the number of teachers per 100 students has ranged from approximately 4 to 3 teachers, and in no year has the number reached the prescribed norm between 5 and 6.7. In fact, the highest recorded ratio was 4.13 in 2010 and it has fallen since. And, in terms of trends, the period of high enrolments particularly between 2010 and 2014 was accompanied by a decline in faculty per student, falling from 4.13 to about 3.8. In 2016, there was a drastic fall in the ratio. One plausible reason for this large decline could be changes in the reporting format implemented by AISHE in that year. But even after reporting systems stabilised after 2016, we observe that faculty student ratios remained below the levels seen in 2010 and 2011. As of 2022, colleges, on average, recorded a faculty student ratio of around 3 teachers per 100 students, much below prescribed norms. In more recent years, between 2017 and 2023, there has been a marginal increase in the number of teachers per student from 3 to 3.1.

It is not just with enrolment, but teacher numbers have not kept pace with the growth in institutions either (Figure 4.9). Evidently, even as the number of institutions has steadily increased, this has not been accompanied by an improvement in the quality of institutions, at least in terms of quality measured in terms of student-teacher ratio. Rather, the increase in institutions has been accompanied by a steady fall in the number of teachers per student. It is worth exploring whether the declining ratio is a result of new institutions coming up with below-average teacher numbers or a decline in teacher numbers (or increase in enrolment) in existing institutions over time. We do not answer this here.

As the growth in the faculty numbers has not kept pace with the increasing student enrolment and expansion in colleges, the student-teacher ratios have worsened over time. This trend is evident for both private and public institutions. In general, public colleges have had much higher students per teacher compared to private colleges (Table 4.4). This

Table 4.4: Public colleges have higher student-teacher ratios compared to private

Year	Public	Private
2010	39.2	20.2
2011	38.1	20.5
2012	38.4	22.9
2013	40.2	24.2
2014	38.9	24.8
2015	37.5	23.6
2016	48.1	32.1
2017	46.1	30.3
2018	43.6	28.9
2019	40.9	26.6
2020	45.9	27.0
2021	48.9	27.5
2022	47.1	28.2

Sources and notes: AISHE, all years. The numbers refer to the number of students per teacher. The estimates are for only colleges, dropping institutions where there are zero students, or zero teachers.

deviation has remained largely unchanged over time. Notably, for both private and public colleges, we see a steady increase in the ratio over time.

To what extent does the all-India average and trends reflect state-level experiences? To understand this, we look at the student-teacher ratio at the district level across India at three points in time, in 2011, 2016 and 2021. Note here that the measure that we use for quality is the student-teacher ratio, i.e., the number of students per teacher, rather than teachers per 100 students. Therefore, higher number refers to lower quality. The darker shades on the graph indicate higher numbers, i.e., lower quality (Figure 4.10).

In 2011, the national average of students per teacher was 24.3, in 2016 it had worsened to 35.4 and by 2021 it was 32. To what extent is there a variation across and within states in this student teacher ratio? And how has this changed over time? In 2011, most higher educational institutions in southern districts had low students to teacher ratios ranging between 2 to 19 students per teacher. Districts in Punjab, most parts of Rajasthan and Gujarat had medium to low levels, ranging from 18 to 27 students per teacher. However, districts of Uttar Pradesh and Bihar had the highest number of students per teacher, with a wide range of anywhere between 50 to 200 students per teacher.

How has this distribution changed over time? In general, across most regions of the country, there has been an increase in student-teacher ratios. Between 2011 and 2016, student teacher ratios increased across all districts, even in the southern and western districts in the states of Kerala, Karnataka, Rajasthan and Gujarat. More recently, between 2016 and 2021, there has been some improvement in the student-teacher ratio in the northern districts, particularly in districts of Uttar Pradesh although, broadly, the north-south gradient remains and northern districts continue to have very high numbers of students per teacher compared to districts in the south. Even in the south, and districts of Gujarat and Rajasthan which previously had relatively low student-teacher numbers, we now see a worsening of numbers with an increase in the number of students across both these states.

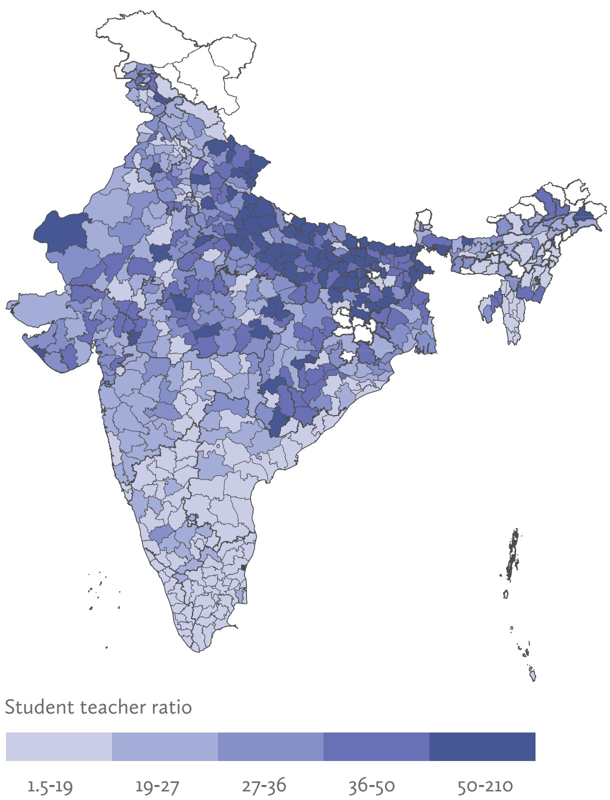
To examine how teacher numbers have kept pace with rising student enrolment across regions, we estimate, for each district, the increase in number of teachers associated with enrolment of an additional 100 students. Figure 4.11 represents these estimates averaged across all years for each of the 640 districts.[4] Each district-specific estimate indicates how many additional teachers are added, on average, for every 100-student increase in enrolment.

> **“The prescribed norms of a student teacher ratio between 1:20 and 1:15 translates to anywhere between 5 and 6.7 teachers per 100 students. We see that despite teacher numbers having increased over the years, it has not kept pace with the increasing number of students, resulting in a steady fall in the number of teachers per student.”**

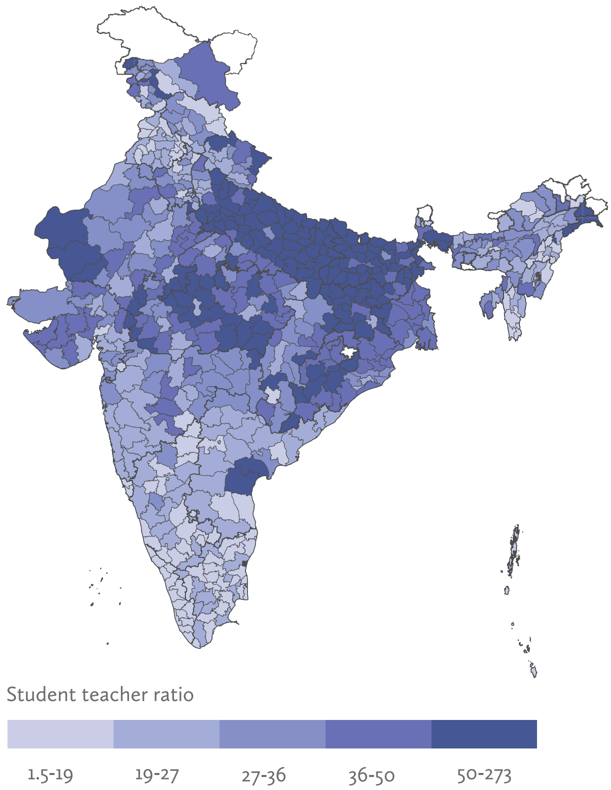
As discussed earlier, note that an increase in enrolment by 100 students should be accompanied by an increase in teachers by between 5 to 6.7 as per prescribed norms. In most districts across Kerala,

Figure 4.10: Large regional variations in student teacher ratios – southern states fare better although disparities have narrowed slightly over time

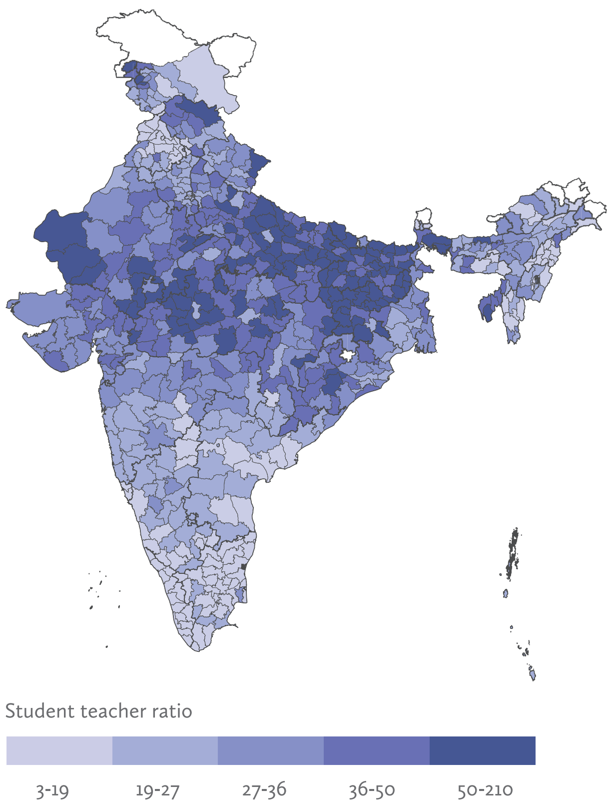
a: 2011



b: 2016



c: 2021

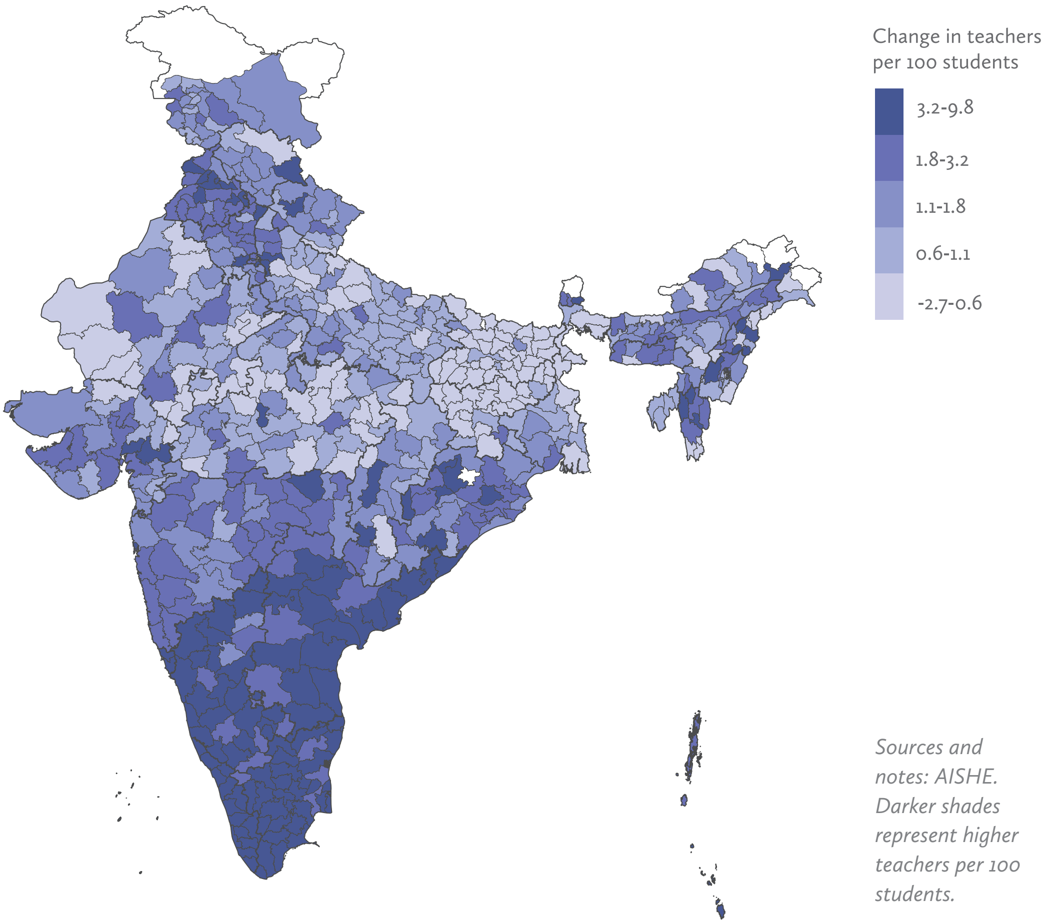


Sources and notes: AISHE. Darker shades represent higher student-teacher ratio, i.e., fewer teachers per student.

Andhra Pradesh, Karnataka and Tamil Nadu, the increase in teacher numbers has ranged between 3 to 10 per 100 students (Figure 4.11). Note that these were also the regions that saw a huge increase in college density as well as enrolment. This suggests that the expansion of colleges in these regions has not meant a worsening of student teacher ratio (also seen in Figure 4.11), but rather the number of teachers have also increased alongside. In Central and Northern regions, on the other hand, the number of teachers have either remained unchanged or reduced alongside an increase in students.

Since AISHE allows us to track institutions over time, we construct a panel of institutions, i.e., track the same set of institutions over a sustained period of time. We exploit this panel nature of the data to have a more precise measure of how growth in the number of teachers in colleges has kept pace with increasing enrolments, and to examine how this measure has varied over time and across districts (see online Appendix for details). Therefore, accounting for college-specific and time-specific variations, we see, on an average, the increase in teachers within colleges.

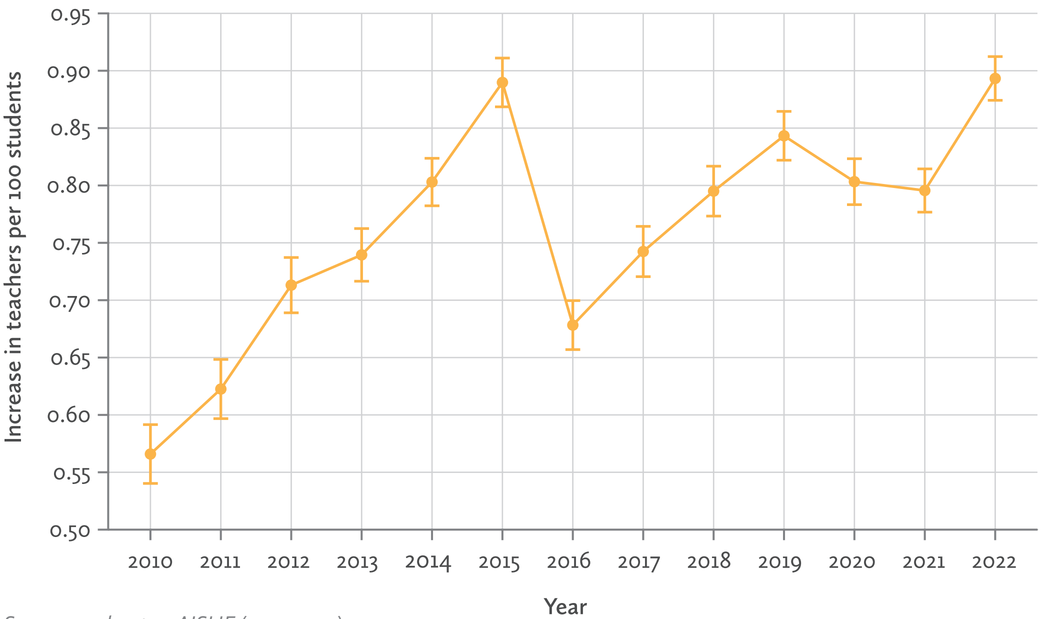
Figure 4.11: Increase in teachers per 100 students highest among the southern districts



Sources and notes: AISHE. Darker shades represent higher teachers per 100 students.

Ideally, as per norms, an increase of students by 100 should be accompanied by an increase in teachers by between 5 to 6.7. From Figure 4.12, we see that irrespective of the year, the estimated increase in teachers per student lies between 0.5 and 0.9. Similar to the overall student-teacher ratio trend, we see a structural break in 2016. Between 2010 and 2015, which also corresponds to the period of large increase in higher education institutions and growth of enrolments, across all colleges, increase in teacher numbers has been marginal. In the last few years, although the increment has improved, it still remains well below norms. If we analyse private and public colleges separately, we can see that the incremental increase has been much lower for public colleges compared to private colleges. But in both cases, there has been an improvement, although marginal, in recent years.

Figure 4.12: Across all colleges, for every increase in student numbers by 100, the corresponding increase in teachers has been less than one



Sources and notes: AISHE (2010-2022).

4.6 Who gets to access higher education?

While the earlier sections have documented trends in provisioning of colleges and faculty across the country, another important factor that mediates access is the cost of education. One of the implications of costs related to higher education could be the choice of courses especially for students from households with financial constraints. For estimating the expenses related to pursuing higher education, we use the National Sample Survey (NSS) of Household Social Consumption on Education. The survey is available for five rounds - 42nd (1986-87), 52nd (1996-97), 64th (2007-08), 71st (2014) and the 75th (2017-18). Conducted at the household level, the survey collects information on the access to education, attendance, expenditure on education, incentives received etc.

We use the education survey to examine trends related to the costs of pursuing higher education, and stream choices across social identities – namely caste, gender and household income levels. Pooling across three rounds, we have a sample of 5,85,022 individuals in the age group 5-29 years who are enrolled in an education course as well as those not enrolled.

4.6.1 Average cost of graduate level courses

Course selection at graduate level, might not be solely driven by academic interests, performances and expected returns, but could also be affected by household resource constraints. The monetary costs associated with pursuing higher education vary considerably across courses. Table 4.5 presents self-reported annual expenditures for select academic years across different courses and levels of the program.

Medicine and Engineering witnessed especially sharp increases. Graduate programs in Humanities, Science, and Commerce, while remaining relatively affordable, also saw a moderate rise in costs. The changes in costs between courses and over the years have important implications for course choices, particularly among students coming from lower-income households. Professional courses such as Medicine and Engineering are among the most expensive courses, costing, on an average, between ₹1,10,005 and ₹81,746 annually respectively in 2007-08. Between 2007–08 and 2014 costs have risen significantly for most professional degree programs.[5]

4.6.2 Household incomes and access to higher education

Before looking at inter-household variation in the access to different kinds of courses, we first look at how overall enrolment rates differ by household income. As we saw earlier, there has been a significant growth in the number of colleges established in the last couple of decades, especially after 2008. This expansion in colleges has been accompanied by increased enrolment and consequent improvements in gross enrolment ratio (GER) at the higher education level. We categorise households in the education survey into four quartiles based on their reported monthly consumption expenditure per capita (MPCE). The first quartile represents the poorest household and the fourth, the richest. For each quartile, we

Table 4.5: Costs of pursuing graduate and postgraduate courses over the years by course stream

	2007-08		2014		2017-18	
Course	Graduate	Post-graduate	Graduate	Post-graduate	Graduate	Post-graduate
Humanities	9,545	13,032	10,412	12,806	10,674	14,187
Science	18,954	29,341	22,112	25,251	18,502	26,333
Commerce	15,968	13,414	19,096	22,735	18,172	20,694
Medicine	1,10,005	1,04,404	1,37,840	1,65,258	97,405	1,23,411
Engineering	81,746	89,514	88,677	87,298	72,637	76,009
Others	32,306	60,774	48,673	73,527	72,061	76,200
Total	20,800	36,570	29,317	40,116	23,159	29,152

Sources and notes: NSS Social Expenditure on Education surveys. Expenses include cost of uniforms, books and stationery, transport, private tuition along with tuition and examination fee.

Table 4.6: Richer households have higher gross enrolment rates than poorer households, although the gap has narrowed over time

	2007-08			2014			2017-18		
HH MPCE Quartiles	Male	Female	Total	Male	Female	Total	Male	Female	Total
Q1	5	3	4	11	9	10	18	11	14
Q2	9	6	7	23	16	20	27	19	24
Q3	18	13	15	35	32	34	36	28	33
Q4	40	40	40	60	55	58	55	44	50
NSS	16	12	14	28	23	25	30	21	26
AISHE	NA	NA	NA	24	22	23	24	24	24

Sources and notes: NSS Social Expenditure on Education surveys. The Gross Enrolment Rates (GER) indicates the proportion of individuals among 18 to 23 years of age that are enrolled in colleges for tertiary education.

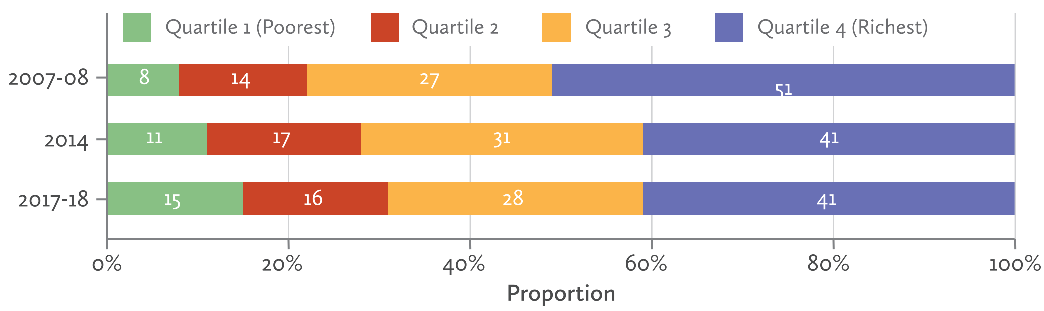
> **Professional courses such as Medicine and Engineering are among the most expensive courses, costing, on an average, between ₹1,10,005 and ₹81,746 annually respectively in 2007-08. Between 2007–08 and 2014 costs have risen significantly for most professional degree programs.**

examine the enrolment rates (Table 4.6). In general, richer households, as one would expect, have higher gross enrolment in tertiary education. In 2007-08, the GER for the highest quartile, at 40%, was nearly ten times that of the lowest quartile at 4%. But by 2017-18, this gap has considerably narrowed - the poorest households have a GER of about 14 percent compared to 26% for the richest, a difference of two times. Although inequality in the GER has reduced in the decade between 2008 and 2018, it is important to note that the differences persist.

Note that for 2014 and 2018, when we compare the GER estimates for NSS and AISHE, both estimates are nearly similar at the overall level. However, estimates from NSS indicate gender differences in GER with higher enrolment for male. An important caveat to remember while reflecting on the variance in estimates from AISHE and NSS is that while AISHE estimate is based on all colleges reporting the students enrolled, NSS is a household level sample survey not capturing the same population of enrolled students. For instance, in the NSS data we find that nearly 39 percent of students enrolled in higher education are from public (government-run) colleges in higher education in 2018, whereas in AISHE, the corresponding number is 31 percent.

We examine the distribution of the households across MPCE quartiles within the individuals who are enrolled at the graduate level (Figure 4.13). In 2007-08, about half of those enrolled in graduate education belonged to the richest quartile of households. Only 8 percent of graduate students were from the lowest quartile.

Figure 4.13: The majority of students enrolled in undergraduate courses come from richer households



Sources and notes: NSS Social Expenditure on Education surveys.

By 2017-18, the majority of graduate students (41 percent), continue to come from the richest households, although the share has declined. Students in graduate courses from the lowest quartile improved to nearly 15 percent in 2017 from 8 percent in 2007. Thus, change in enrolment rates and distribution of enrolled undergraduate students across MPCE quartiles suggest some convergence towards equity in educational access.

Thus, while the expansion of colleges may have increased the access to higher education in terms of the number of seats available, access to education still remains unequal. In the next section, we explore if the improvements in equity in enrolment rates at graduate levels translate across the spectrum of courses.

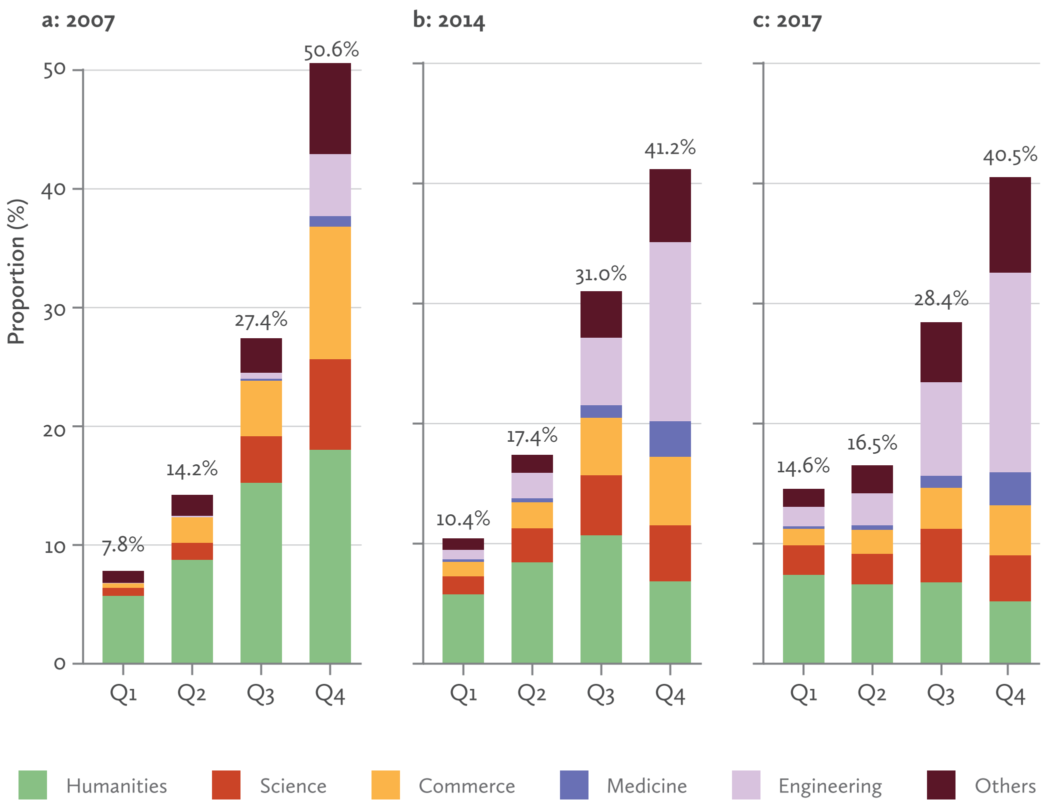
> “By 2017-18, the majority of graduate students (41 percent), continue to come from the richest households, although the share has declined. Students in graduate courses from the lowest quartile improved to nearly 15 percent in 2017 from 8 percent in 2007.”

4.6.3 Course choice by household incomes

Figure 4.14 shows the distribution of enrolled students across courses and MPCE quartiles over the three survey years. The height of each bar shows the proportion of graduates coming from that household quartile. As we saw in Figure 4.13, while richer households dominate in the pool of graduates, the share of graduates from poorer households have steadily increased over time. However, what is interesting from Figure 4.14 is the distribution of stream of study and its variation over time and across quartiles. In 2007, courses such as Engineering and Medicine are almost exclusively the domain of graduates from rich households. In the poorer households, Humanities is the predominant stream. By 2017, a decade later, Engineering and Medicine graduates continue to be largely from the richer households. However, we see a marginal increase in their shares in the lower quartiles.

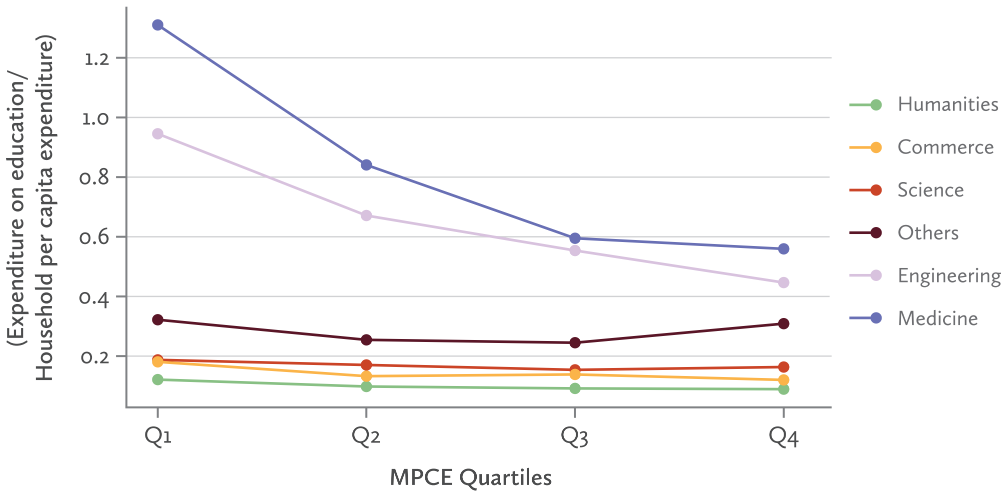
Therefore, students from the bottom of the consumption distribution continue to be markedly

Figure 4.14: Steady increase in students in engineering courses, particularly in the richer households



Sources and notes: NSS Social Expenditure on Education surveys. The height of the bar represents the proportion of households in the respective monthly per capita expenditure (MPCE) quartiles having a student enrolled in a graduate course, across different specializations. Q1 refers to the poorest quartile, and Q4 the richest.

Figure 4.15: Financial burden of professional degrees exceeds household's per capita expenditure among the poorer households



Sources and notes: NSS Social Expenditure on Education surveys. The figure depicts the annual expenditure incurred for the education course share of annual household per capita expenditure across the monthly per capita expenditure (MPCE) quartiles. Q1 refers to the poorest quartile, and Q4 the richest.

underrepresented in high-cost professional programs such as Medicine and Engineering. The financial burden associated with these programs is substantial. We calculate educational expenditure as a share of a household's per capita expenditure.

In the bottom quartile, the cost of pursuing a professional degree like Engineering and Medicine exceeds or is as much as the annual per capita expenditure of households (Figure 4.15). This steep cost barrier likely contributes to the persistent socioeconomic gradient in course selection. Thus, even as enrolment has broadened overall, affordability continues to play a decisive role in shaping academic aspirations and outcomes. Even among the richest households, expenses on these degrees are about half the total household per capita expenditure.

> **"In the bottom quartile, the cost of pursuing a professional degree like Engineering and Medicine exceeds or is as much as the annual per capita expenditure of households."**

4.6.4 Gender and course choice

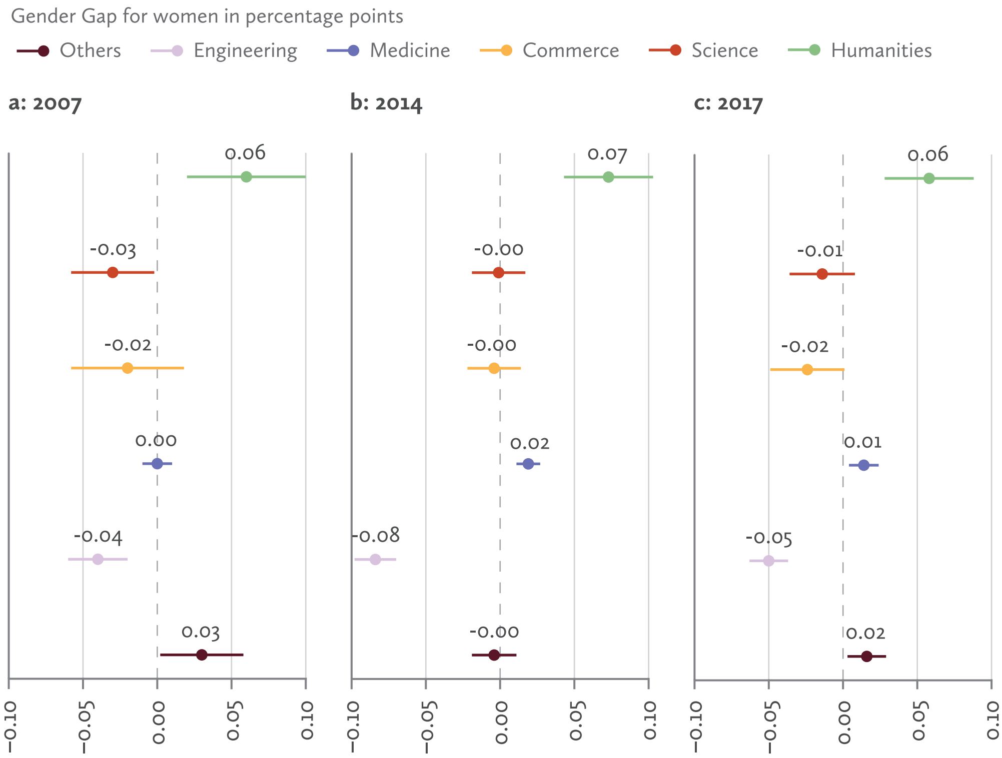
Gender-based disparities also persist in stream selection. In Figure 4.16, we estimate the gender differences in likelihood of enrolling into major graduate level courses. For each course, the point on the graph represents the proportion of female students subtracted by the proportion of male students within the course. Thus, a positive difference indicates that the proportion of girls in the course are higher than boys and vice versa. The estimates indicate that female students are significantly less likely to enroll in Engineering programs and more likely to choose Humanities or Medicine. Encouragingly, the gender gap in STEM fields (particularly in Science and Engineering) has narrowed somewhat between 2007 and 2017, suggesting a slow but positive trend towards gender parity in these domains.

There are several studies that point to households spending less on girls relative to boys (Sahoo 2017; Kaul 2018; Datta and Kingdon 2019; Rashmi et al. 2022). We observe a similar pattern at the higher education level. For students enrolled in graduate and above level courses in 2017, we find that the annual average education expenditure for women is ₹24,198, significantly lower than that of men at ₹29,132 by ₹4,934. Part of this difference reflects the types of courses students pursue and their household economic background. Thus, when men and women are compared within similar fields of study and similar household spending levels, the gap reduces to ₹1,572. Although smaller, this difference remains statistically significant. This indicates that even among students pursuing the same courses and coming from similarly placed households, female students receive lower educational spending than their male counterparts.

4.6.5 Caste and course choice

We also observe disparities in course selection by caste. The numbers in Figure 4.17 shows the relative share of a given caste group in comparison to the General category, in a particular course. A positive

Figure 4.16: Gender gap has narrowed in STEM fields, but persists



Sources and notes: NSS Social Expenditure on Education surveys.

number indicates that there are more students of that caste group in that course, compared to General category students. Note that OBC students exhibit patterns broadly similar to those of General category students. However, SC and ST students are more likely to pursue Humanities and less likely to enter professional programs such as Engineering and Medicine. Figure 4.17 presents these differences, controlling for household monthly per capita consumption expenditure. The gaps are significantly larger when MPCE is not accounted for, indicating a strong correlation between caste and household economic status. This further suggests that economic and social disadvantages reinforce each other in shaping educational trajectories.

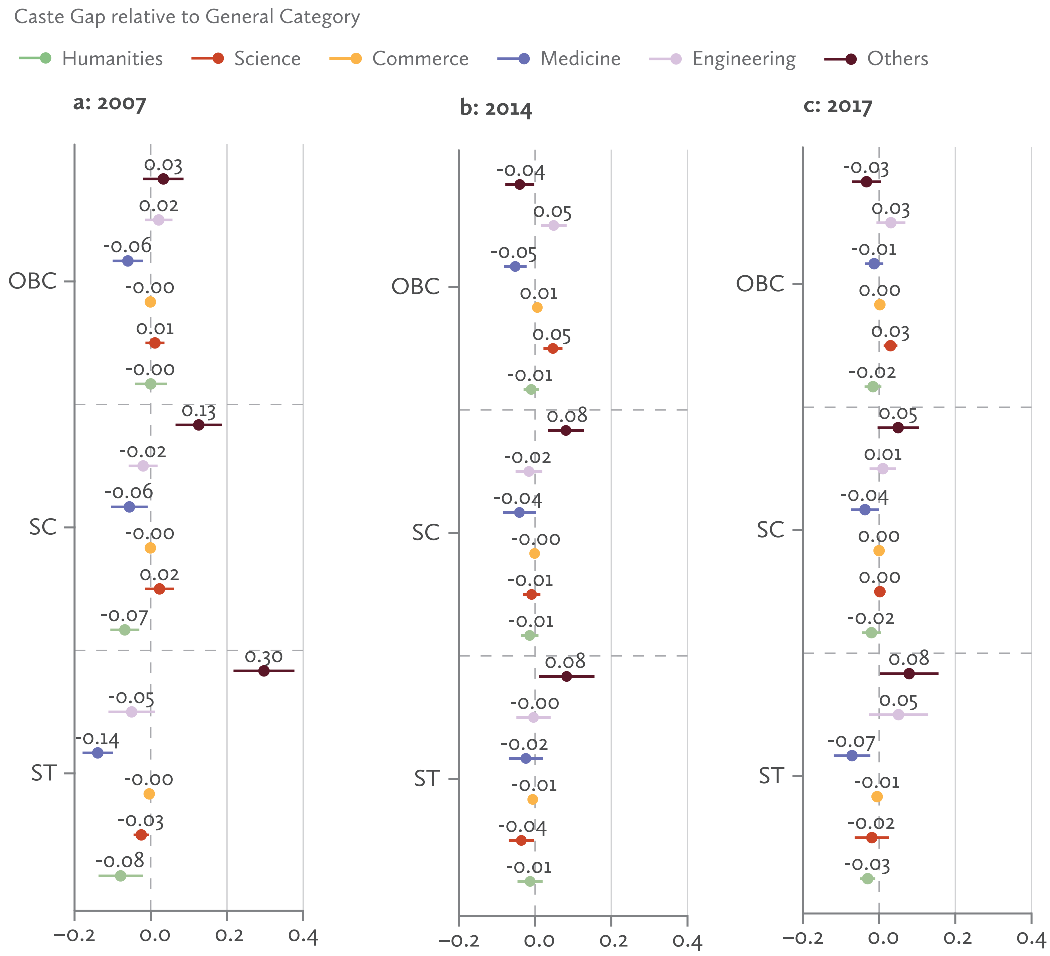
4.7 Higher education and employment outcomes

So far, in this chapter, we have looked at higher education from the perspective of provisioning of and access to colleges. Despite massive expansion, inequities remain not just in the availability of colleges but also in huge variation in the costs of different kinds of degrees/courses. Technical courses like engineering are prohibitively expensive for poorer households. Therefore, the link with graduate education and subsequent labour market earnings becomes crucial - is education worth the cost? We look at this question in this section.

Before that, we bring together the two sides - the supply of graduates, the demand for graduates (by employers) and graduate earnings. The consequence of the mushrooming of educational institutions and high enrollment since the 2000s, is, naturally, a large increase in the graduate population. Between 2004 and 2023, the number of graduates (of all ages) in the population increased from 49 million to nearly 149 million, an addition of nearly 100 million over 20 years, approximately 5 million graduates every year. During the same period, the number of employed graduates rose from 31 million to 86 million, an addition of only around 2.8 million graduates to the *workforce* every year (Figure 4.18, the green, red and yellow lines with enrolment numbers on the right-axis). Graduate employment, therefore, has not kept pace with graduate supply. And, if we were to consider salaried employment as a kind of aspirational employment for graduates, this gap between employment and supply is further sharpened - every year, about 1.7 million graduates become salaried workers. The failure to create adequate jobs for the burgeoning population of graduates has resulted in a situation of too many graduates and too few jobs.

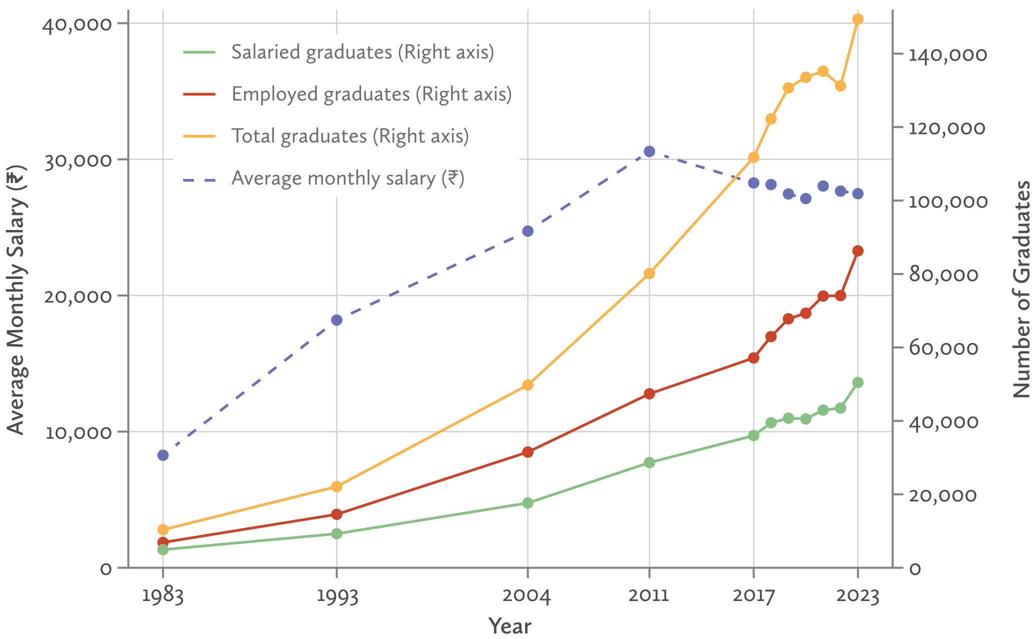
Now, consider the increased enrollment alongside the erosion in institutional resources as measured by the student teacher ratio. Relatedly, although not entirely consequently, the quality of graduates

Figure 4.17: Likelihood of students from OBC, SC and ST social groups enrolling in the given course relative to General Category students



Sources and notes: NSS Social Expenditure on Education surveys.

Figure 4.18: Graduate employment has not kept pace with the supply of graduates



Sources and notes: NSS-EUS and PLFS various rounds.

as measured by job-readiness and employability has also been compromised. Multiple employer-surveys reveal their discontent in the disconnect between graduate qualifications and on-the job performance. For instance, the India Skills Report (2025) which uses the Global Employability Test based on a range of employee skills estimates that only 55% of Indian graduates are employable, with the deficit being particularly acute in specialized domains like IT and Banking, Financial Services, and Insurance (BFSI).

Similarly, the Skills for the Future: Transforming India's Workforce Landscape Report (2025) finds that educational attainment did not translate into corresponding employment opportunities for India's youth. Consequently over 50% of graduates worked in jobs requiring much lower skill levels, and only 8.25% of those with a university degree were in roles matching their education. Together, this points to a breakdown of one of the roles of graduate education - as a signal allowing employers to discern 'good' workers from 'bad'. And so, we find ourselves in the curious situation of an oversupply of graduates and a deficit of talent. Some of this discontent in graduate quality is manifested in the falling earnings (captured in the dashed line in Figure 4.18, to be read along the left axis).

> **Between 2004 and 2023, the number of graduates (of all ages) in the population increased from 49 million to nearly 149 million, an addition of nearly 100 million over 20 years, approximately 5 million graduates every year. During the same period, the absolute number of employed graduates rose from 31 million to 86 million, an addition of only around 2.8 million graduates to the workforce every year. Therefore graduate employment has not kept pace with graduate supply.**

The discussion in this and the earlier chapter (Chapter 3) points towards a flailing role of education in employment outcomes, particularly in recent years. Graduate premiums have shrunk, lifetime earning trajectories of workers seems to be increasing at a slower rate for more recent generations of graduates and education does not seem to guarantee entry into a high productivity industry or employment arrangement. Yet, we continue to see families invest in higher education for their children. Why is this so? Of course, it goes without saying that education has an intrinsic value of its own, aside from the instrumental value of ensuring better jobs and better pay. And the social prestige and standing associated with getting higher education and the social mobility that it enables can also not be disregarded. All of these aside, and despite the rather tenuous outcomes in recent years, the fact remains, as we saw, in Chapter 3, that graduates (men and women) earn twice as much as non-graduates.

This economic gain is all the more if we look at *lifetime* accumulation of earnings with and without a graduate education. Using a 'returns on investment' perspective, we look at this question in this section.

Besides the direct costs of college which include fees, books and transport, there is also an indirect cost - that of foregone income, the income that the individual could have earned through work had they not gone to college. Alongside costs, there are gains too. College education promises better jobs - better in terms of pay and/or working conditions. And, those with college education are more likely to see improvements in their working conditions and pay over their lifetime. And, unlike the costs, which are immediate and short term, these gains are into the future and accrue over a longer period. The returns on investment (ROI) compares the value of these benefits which accrue in the future with the more current and immediate costs.

Of course, there may be other private costs too that are not easily quantifiable - for example, for women, this may include the costs of confronting patriarchal norms which tend to prevent women from accessing higher education. Benefits may also be similarly non-quantifiable in the form of improved social status, better outcomes in the marriage market, and individual satisfaction from learning and exploring.[6]

In this section, we use secondary data on the costs and benefits of higher education to quantify the monetary returns to education. We see the difference in these returns by categories of higher education degrees and how they have evolved over time.

To construct the returns to higher education we need information on three things: (i) the expenditure incurred in getting the degree, (ii) the lifetime earnings of people with the degree, and (iii) the opportunity cost of the degree i.e., the lifetime earnings of a similar group of people who did not get the degree, including for the years spent in higher education. The third point here creates the baseline or the `counterfactual' telling us what a person would have earned if they had not gone to college. The net benefit of going to college would be the incremental earnings over and above this baseline.

Actual expenditure incurred in acquiring a degree
For information on expenditure on higher education, we use the NSSO Household Expenditure on Social Consumption:Education survey for 2018. We consider individuals currently enrolled in diploma or graduate programmes (we do not include those in postgraduate programmes). For these individuals we use the information on the total expenditure incurred on their education, which includes expenditure on course fees, books and transport. We assume that non technical degrees take three years, engineering degrees take four years and medical degrees take five years. The annual expenditure multiplied with the corresponding number of years gives us the total cost of the degree.

Earnings of graduates
For estimating the earnings for graduates we use the Periodic Labour Force Survey 2017-18. Using this cross-sectional data i.e., data collected across individuals at one point in time, we estimate the actual earnings of graduates in each employment type - salaried, own account work, employer and casual wage work for each year of age starting from the age of 21 years. There is no certainty that a graduate will be employed and in what kind of employment and we account for this uncertainty by calculating the probability of being in a particular employment type, given that the person is a graduate, again for each year of age. Finally, we multiply the earnings for each employment type with the probability of being in that type to get the expected earnings for a graduate in each year of age from the age of 21 years.

Finding 'lifetime' earnings would ideally mean that we observe an individual over their lifetime. Since that is not feasible (since we only have cross-sectional data), we use the expected earnings at different ages. A potential estimate of the lifetime earnings of a college graduate aged 21, is to look at the expected earnings of college graduates of age 22, 23, and so on till age 60, and assume that, on average, the individual will be earning similarly over their lifetime. There are limitations to this approach and estimates are likely to be biased. However, keeping in mind the limitations of the data, we proceed with this approach. We clearly show the expected earnings by age so that the trend is clear, without making any assumptions about how these may evolve in the future. We contend that the actual lifetime returns to higher education are likely to be lower than the returns we calculate using these estimates since the gap between the earnings of college graduates and non-graduates is likely to shrink as the supply of college graduates increases over time, and increases faster than the demand for graduates. Indeed this has been the trend since 2011 as we saw in Figure 4.18.

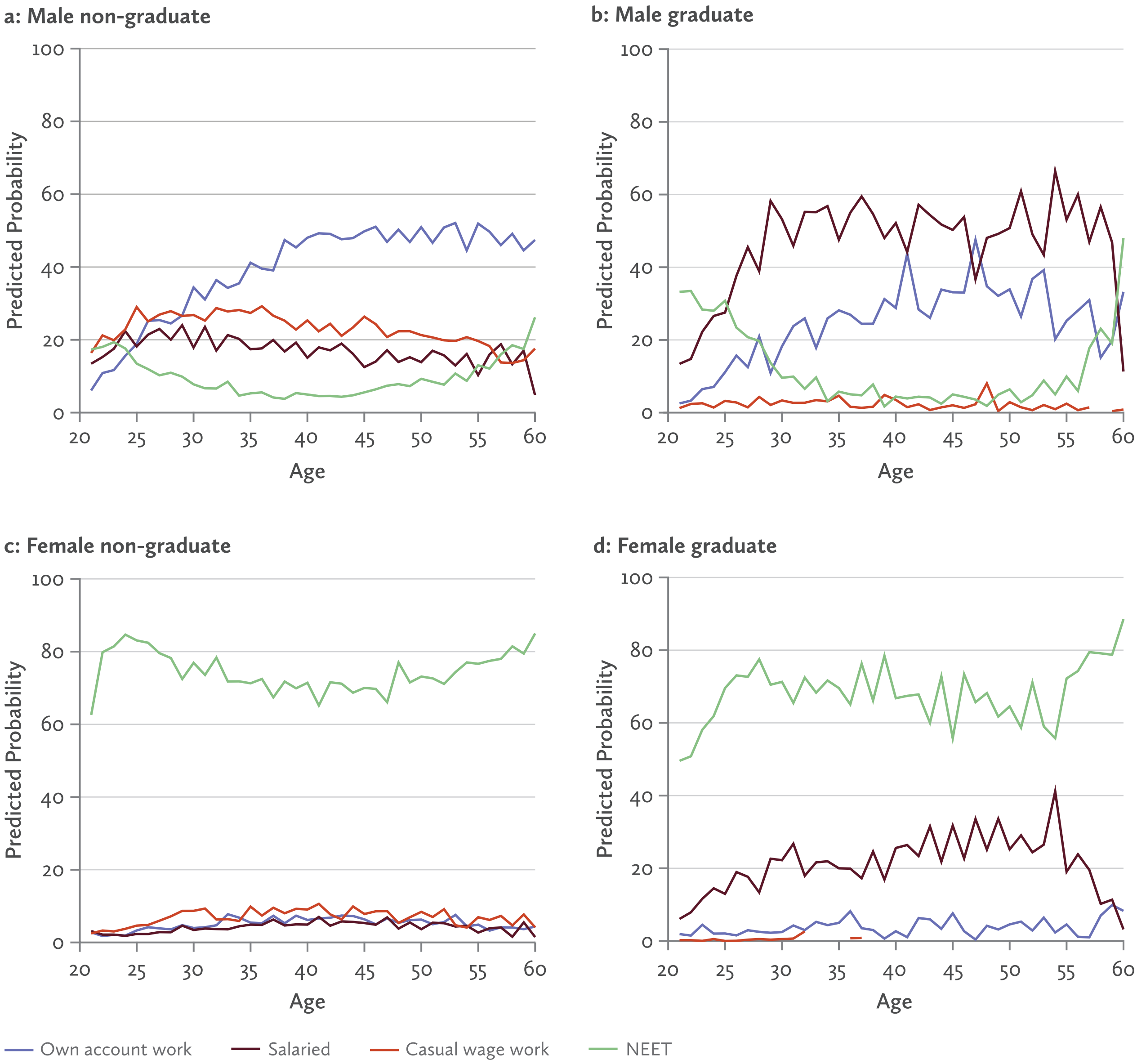
First, we compare between male graduates and non-graduates. Being a graduate coincides with a significantly higher probability of getting salaried employment compared to a non-graduate, which is as you would expect (Figure 4.19). Beyond the age of 30, while 15-20% of non-graduate men are in salaried work, the share is in the range of 50-60% for graduate men. It is important to note that for graduate men, the proportion of salaried employment rises from about 13% for 21 year olds to reach the eventual level of 53% for 30 year olds. This is accompanied by a corresponding drop in NEET (Not in Employment Education or Training) from about 33% to less than 10% for the same age range.

For non-graduate men, a similar transition is seen from NEET to own account work, but the levels are lower. NEET declines from around 17% to 7%, and own account work increases from 7% to 34% in the same age range. The proportion of own account workers keeps increasing for older ages, combined with a further decline in NEET but also a decline in salaried and casual work, perhaps indicating an age cohort effect (older men entered the labour market at a different point in the past and the current distribution may reflect persistent effects of that).

For women, the stark levels of NEET is the most noticeable element of both the graphs with the proportions being similar in graduates and non-graduates. For non-graduate women, the proportion in NEET ranges between 70 to 80%, while for graduate women this is 60 to 70%. For graduate women, salaried employment increases from 6% for 21 year olds to 22% for 30 year olds. However, unlike men, the proportion in NEET also increases from 50% to 71% for the same age range. This indicates that many women after completing graduation are not ending up employed. If we assume that this is observed and understood by women entering higher education, we can contend that factors other than future employment may be driving the decision to enter higher education for a significant proportion of women.

Finally, we need to find the counterfactual or the earnings that the college graduates would have had

Figure 4.19: The likelihood of graduate men entering salaried employment increases with age



Sources and notes: PLFS 2017-18. Current weekly status. Y-axis represents the share of individuals in that age who are in that employment type.

they not gone to college.This is not directly observed. Instead, we use the data on earnings of those non-graduates in our dataset who are similar to the graduates on certain demographic characteristics. Hence, the assumption is that the graduates in our sample would have earned the amount that non-graduates who are of the same age, gender, caste group, religion, sector (urban/rural) and state as them. This is likely to be an under-estimate and so, again, the returns i.e., the difference between actual and counterfactual earnings that we calculate, are biased to be higher than what they would actually be (this bias is in the same direction as the one highlighted above).

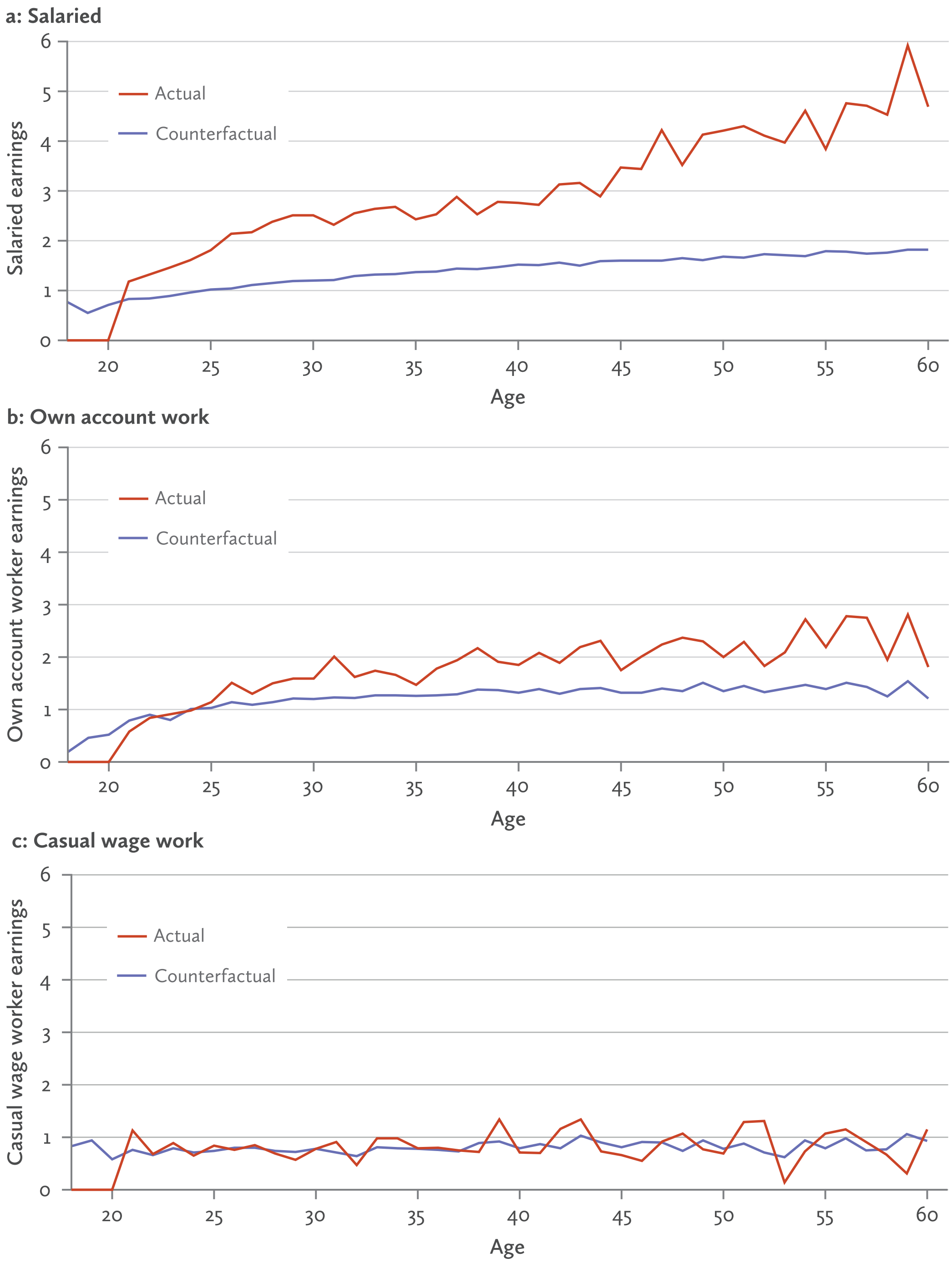
Acknowledging these caveats, we calculate the counterfactual as follows. For each type of employment (salaried, wage, owner, self-employed) we estimate an earnings regression for those 18 years and above with less than graduate education with controls for age, age squared, gender, caste, religion, sector and state fixed effects. Using this, we predict the earnings of actual graduates, had they not graduated, between the ages of 18 to 60. We estimate the proportion of non-graduates securing a particular employment type at each age. We multiply the predicted earnings with the probability of that employment type at each age. This is the counterfactual earnings for each employment type at each year of age.

Each panel in Figure 4.20 shows the expected earnings for different years of age separately for salaried, own account and casual wage workers. It also shows the counterfactual earnings of these workers had they not been graduates. As is expected, being a graduate in salaried employment provides an increase in entry level earnings as well as a sustained increase over an individual's lifetime. A young graduate of 25 years of age in salaried employment earns around ₹2 lakh per year, while an experienced graduate of 50 years of age earns around ₹4 lakh per year. A comparable 25 year old non-graduate earns ₹1 lakh per year, about half of the corresponding graduate earnings. A comparable 50 year old non-graduate earns only ₹ 1.7 lakh per year, which is much lower than half of what a graduate earns at that age.

For own account work, both young graduates and comparable non-graduates at the age of 25 earn a similar amount with annual earnings of ₹1.1 lakh and ₹1 lakh respectively. There are some returns to being a graduate for older own account workers with annual earnings of ₹2 lakhs for 50 year old graduates, compared to ₹1.35 lakh for comparable non-graduates.

For casual work, being a graduate, or gaining experience, does not seem to make any difference at all. While 25 year old graduates in casual wage work earn ₹0.8 lakhs per annum on average, a comparable non-graduate earns ₹0.7 lakhs. For 50 year olds, these

Figure 4.20: Actual and counterfactual earnings for graduates



Sources and notes: PLFS 2017-18. Net present value and ROI - by stream numbers are 0.7 and 0.9 respectively. It is easy to see this in Figure 4.20c where both lines are flat and overlapping.

These findings so far show that the key outcome of being a graduate is a higher chance of getting into salaried employment, which can result in higher earnings and faster earnings growth over their lifetime. This increase in the probability of getting into salaried employment as a result of graduation is significantly different for men and women, with a significant proportion of graduate women ending up not being employed at all.

As we discussed earlier, the decision to go to college is often combined with other choices like the stream to study. Hence, it is instructive to view the costs and returns of these streams differently. We consider four streams - Medicine, Engineering, Other technical, and Non technical degrees. The non-technical courses are the most popular. They also have the lowest cost and lowest earnings out of the four categories as we saw earlier. But, if we view the choice of stream as an investment that yields some expected returns over a lifetime, we can compare the four categories taking into account both the costs and benefits over this extended time period. We adopt the following methodology for this exercise.

The first point to consider is that returns in the future are less valuable, since the investment would have generated some interest in the future in any case if they had not invested in education. Hence, we need to discount future earnings to compare them to current costs. While acknowledging that interest rates may change over the long time horizons we are considering, we fix it at 6.5% (small changes in this assumption do not change the direction of our findings). We assume that these decisions are being made when the individual is 18 years old, hence we discount all income and expenses at higher ages to their equivalent amount at 18 years of age. As mentioned earlier, we assume that the future income of an 18 year old entering, say, an engineering education today will be the same as the current income of an older engineering graduate (corrected for inflation).

We find the discounted sum of the lifetime earnings of graduates of each stream, and also of comparable non-graduates, using the counterfactual construction methodology described above. This gives the present value of the net returns. We also find the present value of the actual costs of each stream. The difference between discounted earnings, and the sum of discounted counterfactual earnings and the actual costs, gives the net present value of entering that stream of education. Table 4.7 shows the NPV of the four streams along with its three constituent elements.

Clearly, an engineering education is most valuable with an NPV of around ₹17 lakhs but also costs the highest, with a direct cost of around ₹2.5 lakhs. A non-technical education has the lowest NPV of less than 7 lakhs but also costs only about ₹40,000. Given this, we can also ask where the return on investment is highest. We find this by dividing the NPV by the direct cost. The returns are all significant but are actually highest for the non-technical education, driven by the significantly lower cost than the other streams.

This shows that any kind of higher education continues to be very valuable in monetary terms. This implies that we will see a continued increase in enrolments over the coming years. It also explains the high prevalence of non-technical education. Given credit constraints for poorer households who cannot afford the costs of technical education, a non-technical education can still provide significant benefits at a fraction of the cost.[7]

Table 4.7: Net present value and return on investment, by stream

Stream	PV of earnings (lakhs)	PV of counterfactual earnings (lakhs)	PV of actual costs (lakhs)	NPV (lakhs)	ROI
Medicine	22.2	6.0	2.2	14.0	~640%
Engineering	25.9	6.6	2.5	16.8	~670%
Other technical	16.1	5.8	1.9	8.4	~440%
Non-technical	13.0	6.0	0.4	6.7	~1700%

Sources and notes: PLFS 2017-18. PV - present value, NPV - net present value, ROI - return on investment.

> An engineering education is most valuable with a net present value of around ₹17 lakhs but also costs the highest, with a direct cost of around ₹2.5 lakhs. A non-technical education has the lowest NPV of less than 7 lakhs but also costs only about ₹40,000. The returns on investment on education are all significant but are actually highest for the non-technical education, driven by the significantly lower cost than the other streams.

4.8 Conclusion

India's higher education system has expanded tremendously over the past few decades from a small, state-dominated system to one of the world's largest (over 58,000 institutions and 4.3 crore students). However, this expansion has been uneven. Much of the growth in new colleges have been driven by private institutions. The increase in the number of colleges have not translated into equal access across regions and social groups. . Many regions still lag behind in college availability and many groups still have limited access to higher education. While access, as measured by college density, has improved, many courses still remain unaffordable for a large share of households. Thus, the massive expansion has not led to a commensurate equalization of opportunities. Persistent issues of affordability and equitable access continue to shape who enters higher education and which courses they study. These inequities in pre-labour market outcomes have huge implications on labour market choices and outcomes as we shall see in the subsequent chapters.

Endnotes

1 The results published in the AISHE report are based on the number of institutions that have registered and uploaded their information in the specially designed Data Capture Formats (DCFs). Some colleges may not fully register or update their data on the AISHE portal. The survey might include institutions that have been shut down, merged, or upgraded, which are not reflected in the raw data.

2 The district-level population numbers are sourced from the Population Projections Report by International Institute for Population Studies, Mumbai and have been extrapolated for the years prior to 2011.

3 These estimates are based on calculations from raw AISHE data, while the enrolment numbers published in the AISHE report are computed using imputation techniques that adjust for missing college data within universities and states.

4 For details of the regression, refer to online Appendix

5 Due to changes in data collection and sample composition in the survey, cost estimates for 2017–18 are not directly comparable to earlier years.

6 Besides private costs, there may be social costs including public spending and cost of resources allocated to education as well as the foregone earnings for society. The social benefits include having better social and political outcomes as a result of having a more educated population. However, these are very hard to measure and quantify.

7 The average costs of technical education hides significant variation in costs between cheaper public institutions where entry is highly competitive, and private institutions where entry may be easier but costs could be prohibitive for poorer households.

05

Skills training and ITIs: Expansion versus gaps

05 Skills training and ITIs: Expansion versus gaps

5.1 Introduction

Similar to the expansion of higher education institutes, India witnessed a rapid growth in its skill training programmes. In this chapter, we focus on one of the key components of India's formal skill training architecture – Industrial Training Institutes (ITIs). Established under the Craftsmen Training Scheme (CTS) launched in 1950, ITIs were among India's earliest skill training institutions. They were designed to deliver short, intensive, skill-oriented courses to produce 'craftsmen' – creating a steady pipeline of trained workers to support the planned industrialisation of the Indian economy, improve productivity, and reduce unemployment, especially among the youth.

In theory, ITIs were meant to address two intertwined challenges: industrialisation and unemployment. On one hand, India's post-independence mandate of rapid and heavy industrialisation demanded a technically competent workforce to operate new factories, workshops, and large-scale infrastructure projects. On the other hand, the formal schooling of the educated youth did not necessarily align with the needs of an emerging industrial economy. ITIs emerged with the potential to bridge the transition from education to employment, producing graduates with practical skills demanded by industry while absorbing surplus labour. This dual role played by the ITIs in supporting industrial growth while smoothening the friction in labour market matching placed it at the heart of India's workforce training and development strategy.

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To fulfil such an ambitious vision, India needed an administrative framework that could balance national coordination with regional implementation. The National Council for Vocational Training (NCVT), set up in 1956, became the apex body responsible for maintaining uniform standards across the country – framing curricula, conducting trade tests, and awarding the National Trade Certificate (NTC) recognised nationwide. At the same time, the responsibility for establishing and managing ITIs rested largely with the state governments and Union Territories. States handled infrastructure, recruitment, and daily administration, while the central government, through what is currently known as the Directorate General of Training (DGT) under the Ministry of Skill Development and Entrepreneurship (MSDE), provided policy direction and oversaw quality control. This structure continues till date, with the NCVT guiding national standards while states manage implementation.

Within this structure, training at ITIs is organised into specific 'trades' – occupational areas such as fitter, electrician, welder, or computer technician, each with defined curricula, duration, and competency benchmarks. As of 2024, around 15,000 ITIs across India offer training courses in more than 150 trades. Since 2013, these trades have been aligned with the National Skills Qualification Framework (NSQF), which standardises skill levels nationally by linking vocational qualifications to a hierarchy of competencies. The NSQF ensures that ITI graduates possess skills that are comparable, recognisable, and portable across states and sectors, integrating India's training system more effectively with regional, national and global labour market benchmarks.

Through its Management Information System (MIS) portal, NCVT releases various types of data on ITIs. This includes information about the ITIs themselves, as well as the trainees and the trainers. In this chapter, we utilise three sets of data obtained from the NCVT MIS portal. First, for all active ITIs as of 2024, we utilize ITI-wise information on the date of establishment, type (public/private) and location (rural/urban) along with the rating of the institution as assessed by MSDE through its evaluation framework. Second, we obtain trainee-level information on all trainees that graduated from ITIs during the period from 2014 to 2022. We bring together various trainee-level datasets to compile a comprehensive database of roughly 96 lakh graduates with information on their gender, caste, educational qualification, whether they are attending a public or private ITI, and finally, the trade in which they are enrolled. The third dataset is at the level of ITIs, but obtained from a separate section of the portal that reveals information on the extent of vacancy of trainers in an ITI, and the proportion of trainers in an ITI who are certified under the Craft Instructor Training Scheme (CITS).[1]

> **“ITIs emerged with the potential to bridge the transition from education to employment, producing graduates with practical skills demanded by industry while absorbing surplus labour. This dual role played by the ITIs in supporting industrial growth while smoothening the friction in labour market matching placed it at the heart of India’s workforce training and development strategy.”**

Before we present our analysis, the interested reader may note that we do not have information on the age of individual trainees. This however, does not compromise our overall focus on the youth (15 – 29) as the central theme of this report. First, with very few exceptions, the official eligibility criteria for most courses offered in ITIs sets an upper age limit of 40 years, by the mandate of CTS. However, a majority of the trainees, as we will see in subsequent sections in this chapter, are school-leavers who join ITIs immediately after completing Class 10 or 12. Consequently, enrolments are naturally concentrated among youth well below the age of 30.[2]

5.2 Post 2005 ITI boom: The quantity-quality trade-off

The first 50 years since independence witnessed a slow growth in ITIs (Figure 5.1). In all these decades, the number of new ITIs remained modest, never exceeding a few dozen new institutes each year.

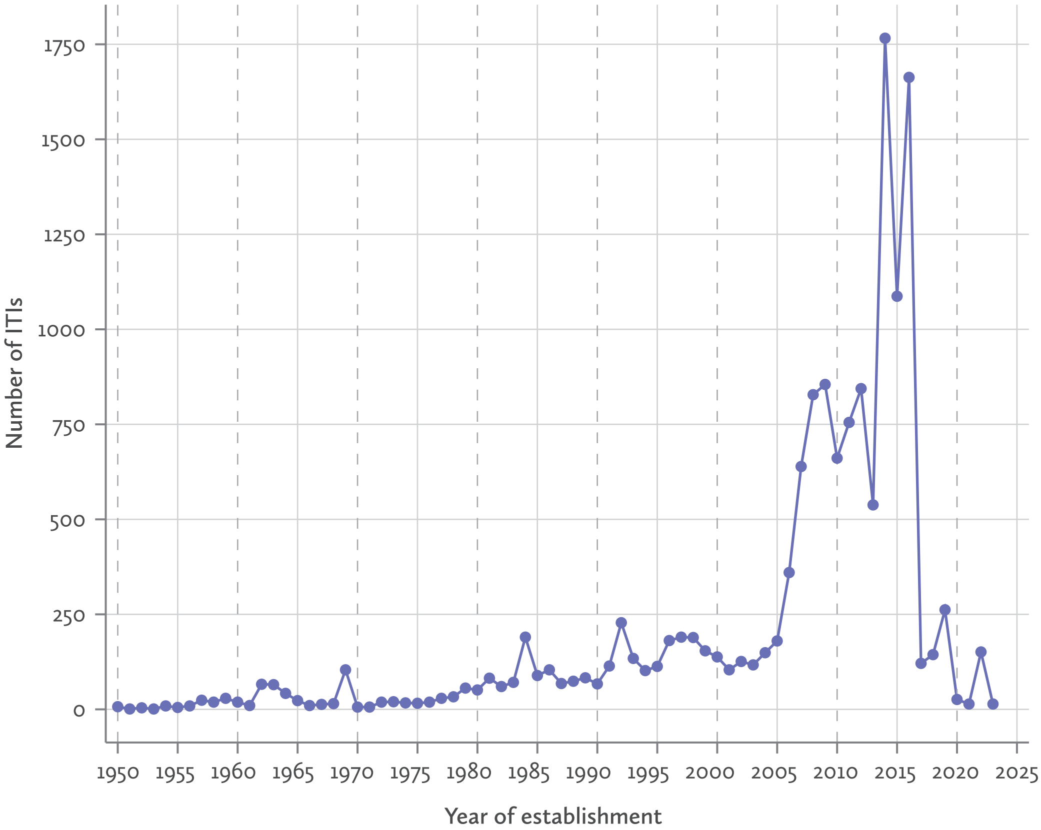
This pattern, however, changed abruptly in 2005, with a sharp acceleration beginning around 2007 and culminating in an extraordinary surge between 2010 and 2015, when over 1,000 to 1,500 ITIs were opened annually. Consequently, the number of ITIs increased by 300% during this time, from 3,674 in 2005 to 14,582 in 2025.

The scale of this expansion, while unprecedented, reflects a deliberate policy shift to leverage India’s emerging demographic dividend. As India’s youth population swelled between the 1990s and 2000s, policymakers recognised both an opportunity and a looming challenge. Harnessing this demographic potential required equipping young workers with employable skills, while failing to do so risked widespread unemployment and social distress.

It is in this context that vocational education, long treated as secondary to formal schooling, became central to India’s development discourse. The Skill Development Initiative (SDI) launched in 2007 sought to scale up short-term training opportunities, while the creation of the Ministry of Skill Development and Entrepreneurship (MSDE) in 2014 consolidated fragmented policy efforts under a single umbrella. By liberalising approvals and encouraging private participation, the government accelerated ITI growth in response to both existing and anticipated skill shortages in emerging industries. In less than two decades, India’s ITI network more than tripled, reshaping the country’s skill training architecture in size and scope. For a nation seeking to align its young workforce with industrial ambitions, this expansion signalled a much-needed, proactive response to changing labour market dynamics.

One may note how the trajectory of ITI expansion closely mirrors the growth of higher education institutions in India (Figure 5.1), particularly after the 2000s. Far from a coincidence, such an expansion of higher education institutes and ITIs was possibly driven by similar policy imperatives: leveraging India’s demographic dividend, widening access, and decentralising opportunities across regions. The liberalisation of the economy eased approval norms, and combined with the emphasis on skill development at scale may have triggered such rapid

Figure 5.1: The number of ITIs have sharply increased after 2005



Sources and notes: NCVT-MIS (institution-level data)

growth in both systems. However, as we will see in subsequent sections in this chapter, just as with higher education, this quantitative boom in ITIs is not free from concerns about quality and employability, as infrastructure, faculty, and labour market linkages have not kept pace with rising numbers in either domain.

For nearly three decades after independence, ITIs were overwhelmingly public institutions, established and managed by state governments under the Craftsmen Training Scheme framework. This centralised, state-led model reflected India's planned economy, where vocational training served the needs of public sector undertakings and large industrial clusters. By the early 1980s, over 80% of all ITIs were government-run, ensuring standardized curricula, relatively uniform infrastructure, and close integration with national industrial policy.

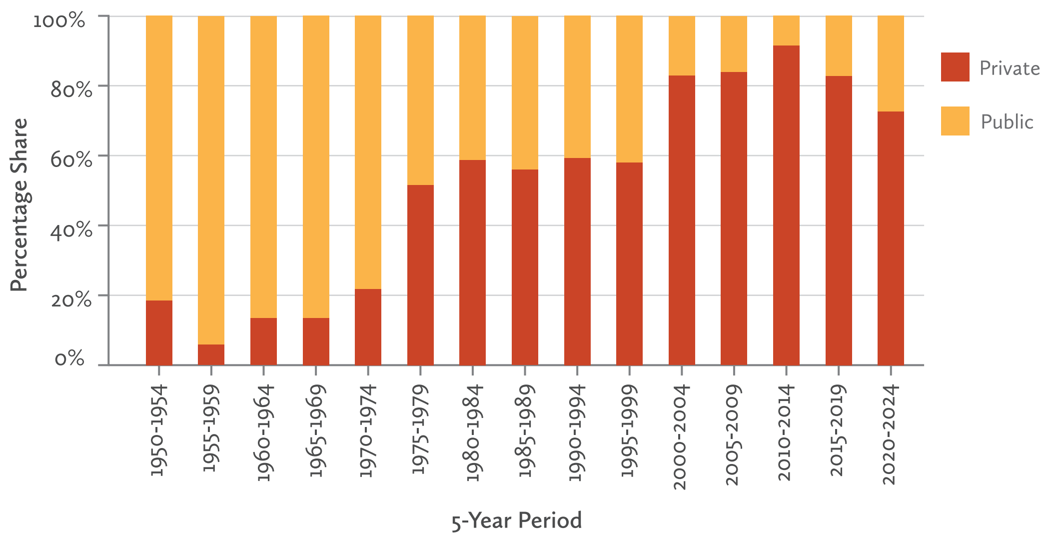
Although the public-private balance started shifting from 1975 onwards, it is with the post-2005 surge that we see a strong shift in favour of private ITIs (Figure 5.2) with private ITIs accounting for 70% to 85% of the total. Such a shift in the public-private share reflects the policy regime of liberalisation, and perhaps a recognition that state governments lacked the resources to scale infrastructure fast enough.

While this strategy succeeded in multiplying the number of ITIs, it also introduced new tensions into the system. Several assessments, including the Sharda Prasad Committee Report (2016), found widespread deficiencies in many private ITIs – inadequate workshops, outdated equipment, underqualified instructors, and weak connections to employers. Regulatory bodies like the NCVT struggled to enforce consistent standards across a rapidly proliferating private sector. Such unevenness has direct implications for employability: employers are now more likely to differentiate between graduates of well-resourced, reputable ITIs as opposed to those from underperforming private institutes (Sharda Prasad Committee 2016). In other words, the expansion in numbers has not necessarily translated into better quality training. At the same time, private dominance also has implications for access. While public ITIs remain more affordable, private institutes typically charge higher fees, potentially creating new equity challenges for disadvantaged groups. In subsequent sections within this chapter, we will discuss some of these implications in detail.

In the early decades, ITIs were primarily urban-based, reflecting the logic of situating training infrastructure close to industrial hubs where workshops, apprenticeships, and eventual employment opportunities were concentrated. Urban ITIs are also likely to benefit from better connectivity, stronger employer linkages, and access to instructors with relevant industrial experience. However, from very early on, we see a shift in favour of rurally located ITIs (Figure 5.3). With rural ITIs beginning to outnumber urban ones since late sixties, by the latest decade, roughly 70% of the new ITIs established were in rural areas. This becomes critical from the lens of employment linkages as well, at least for the manufacturing sector where the demand of ITI-trained workers is likely to be higher. The Sixth Economic Census by the Government of India notes that only 34% of the manufacturing establishments with at least one hired worker are located in rural India, as opposed to urban India, where 66% of such establishments are located. However, currently the supply of ITI-trained workers is exactly the reverse: approximately 75% of the trainees graduate from a rurally located ITI as opposed to urban, creating a greater friction in the labour market for the manufacturing sector.

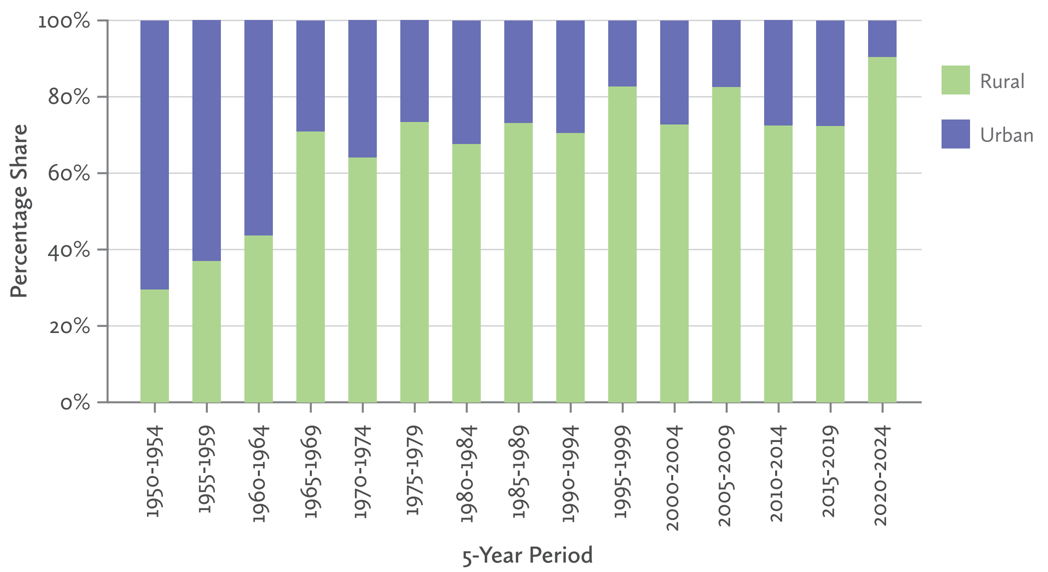
For rural youth, this expansion may have opened up new pathways to formal training and potential employment. However, rural ITIs often operate far from industrial clusters, making it difficult to integrate on-the-job training and apprenticeship opportunities into their programs. Such distances from local urban labour markets vis-a-vis employers weakens the

Figure 5.2: Increasing presence of private ITIs compared to public



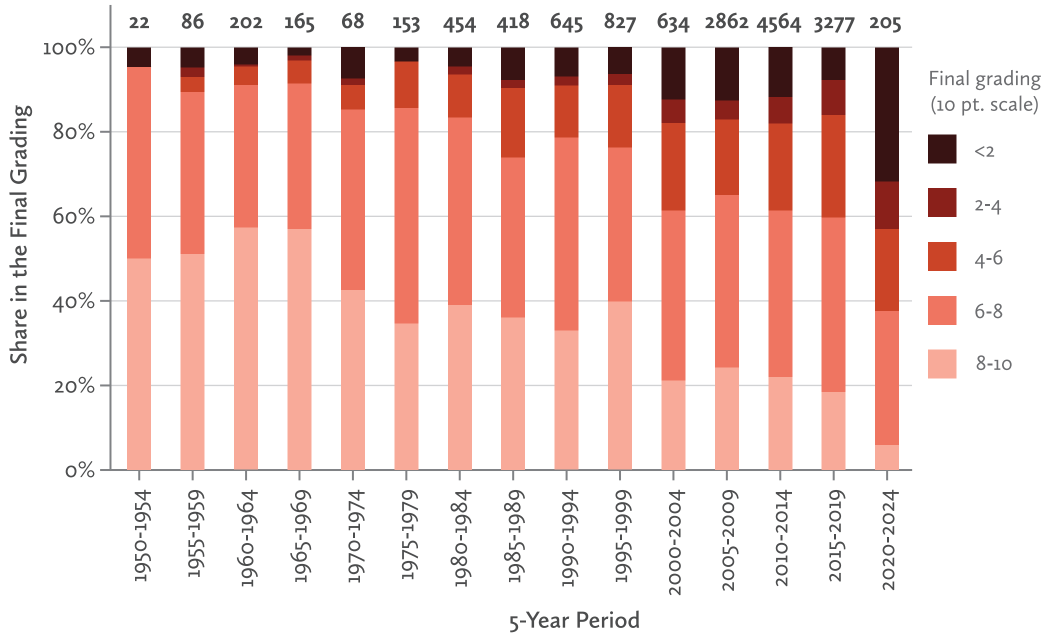
Sources and notes: NCVT-MIS (institution-level data)

Figure 5.3: Newer ITIs are more likely to be located in rural areas



Sources and notes: NCVT-MIS (institution-level data)

Figure 5.4: Newer ITIs fare much worse on quality parameters compared to older ITIs



Sources and notes: NCVT-MIS (institution-level data). Grading is based on admission percentage, female participation, trade diversity, pass percentage, CBT exam participation, average marks, DST enrolment, and SC/ST/PwD enrolment. A grade of 8-10 indicates best quality, 6–8 good, 4–6 average, 2–4 below average, and below 2 poor. Numbers on the top of the bars refer to the number of ITIs.

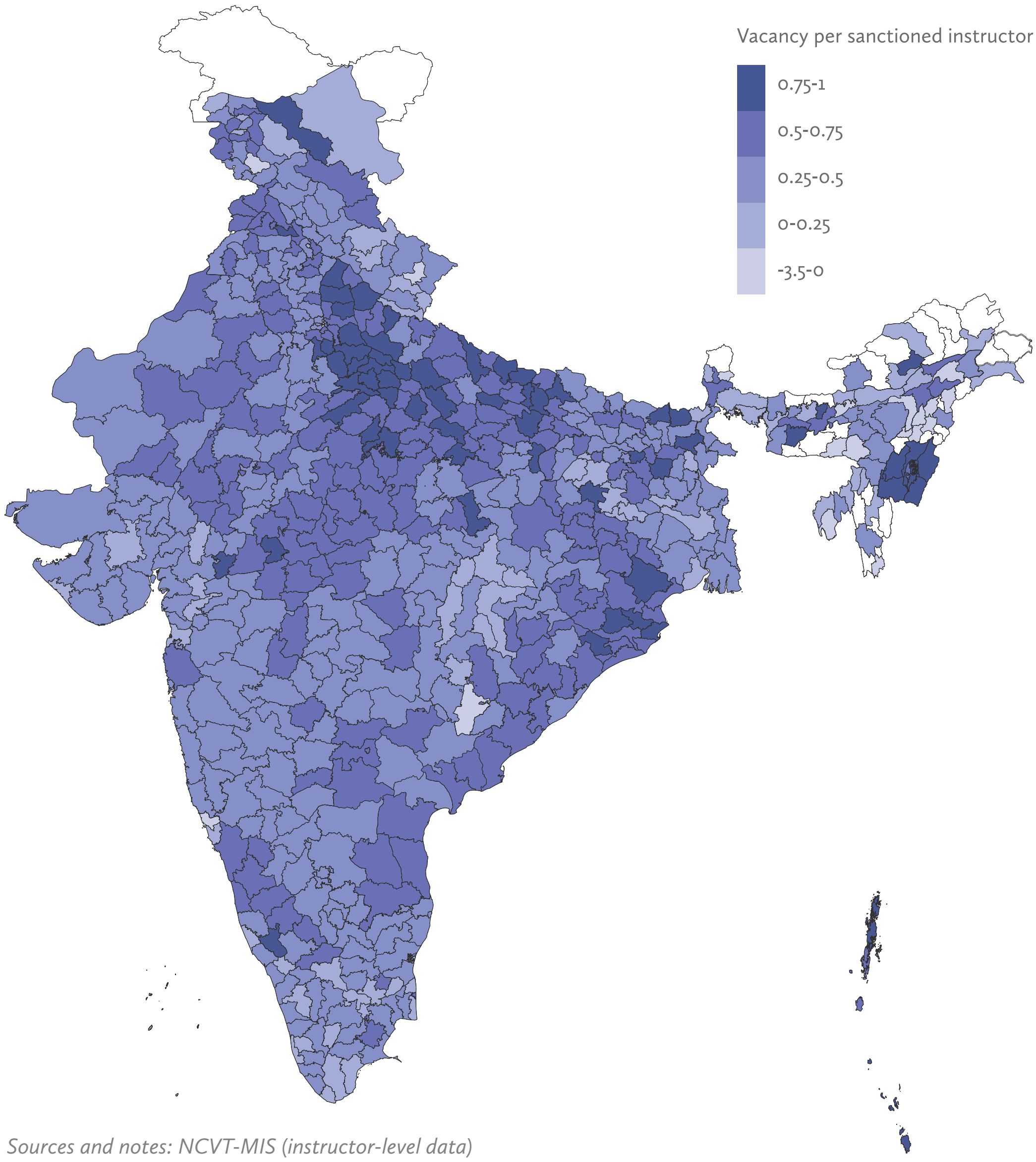
quality of practical exposure, leaving graduates less job-ready than their urban counterparts. Moreover, several committee reports on the state of skilling infrastructure in India point out (Sharda Prasad Committee Report 2016) the need for ITIs to locate near established industrial (especially manufacturing) hubs. This is because industries often prefer ITIs located within or near these hubs or clusters, where collaboration is easier and training aligns directly with local labour demand. While setting up of rural ITIs may address equity concerns around access, without deliberate efforts to connect rural ITIs to regional industry networks, the graduates risk facing the same employment bottlenecks that vocational training was meant to resolve. In fact, in subsequent sections of this chapter, we shed light on the nature and extent of spatial mismatch between ITIs and industrial clusters.

Taken together, the three figures indicate how the ITI ecosystem underwent extraordinary transformation over time. The post-2005 boom demonstrates India's responsiveness to the challenges and opportunities posed by its demographic transition. Rapid expansion and privatisation allowed India to dramatically scale up vocational training capacity, while the continued focus on rural ITI expansion signalled an intent to extend access to rural youth in formal skill systems. At the same time, it also presents some potential challenges, especially on the quality of these institutions. An immediate question that these figures raise, therefore, is whether these newly established ITIs in the post 2005 era are able to deliver the same quality of skill training for its trainees?

We answer this question by leveraging data on recent grading reports of ITIs. MSDE, through the DGT and the NCVT, grades ITIs on a 10-point composite scale. This framework evaluates institutes on eight broad indicators using weighted parameters: admission percentage, female participation, trade diversity, pass percentage, Computer-Based Test (CBT) exam participation, average marks, DST enrolment, and SC/ST/PwD enrolment. Together, these indicators capture how well ITIs attract students, ensure inclusivity, diversify trades, deliver effective training, and achieve strong learning outcomes. By combining access, equity, and performance measures, the system provides a comprehensive view of institutional quality. These dimensions are then combined into a single rating ranging from 0 to 10. Based on the ITI grading report for the academic year 2024 – 25, we group ITIs into five quality bands: 8–10 (best), 6–8 (good), 4–6 (average), 2–4 (below average), and below 2 (poor). Seen through the lens of institutional quality, ITI rating reveals a concerning pattern (Figure 5.4).

For ITIs established between the 1950s and the 1980s, a large share today falls in the top quality bands, with relatively few in the lowest. But beginning with the 2000–2004 cohort, sharply after 2005, the share of

Figure 5.5: High vacancy of instructors across ITIs, especially in the North



Sources and notes: NCVT-MIS (instructor-level data)

ITIs in the 8–10 band shrinks dramatically, while those scoring below 6 and especially below 4, increases. By the time we reach the most recent cohort, established after 2015, only a small fraction achieve high grades and a significant proportion are at the bottom of the quality scale.

This decline aligns closely with the concerns raised by the first three figures. The unprecedented surge in new ITIs post-2005, mostly through an increase in private ITIs, is indeed associated with a rapid rise in quantity at the cost of decline in quality. Many new private ITIs may not even meet the basic norms for equipment and staffing. Establishing a fully compliant ITI is capital-intensive: workshops must be equipped trade-wise, instructors must meet NCVT-prescribed qualifications, and courses need close coordination with industry. Figure 5.4 raises reasonable doubts on whether private providers entering en masse during the boom years, failed to address these requirements, resulting in infrastructure gaps that directly pull down composite scores.

The implications of this quality gradient are far-reaching. ITIs were conceived as a bridge between education and employment, equipping young people with practical skills for industrialising India. Even as the number of formally trained workers rise sharply, their employability has not kept pace (NITI Aayog 2023), potentially due to a decline in quality of training imparted via the newly established ITIs.

> **"The unprecedented surge in new ITIs post-2005, mostly through an increase in private ITIs, is indeed associated with a rapid rise in quantity at the cost of decline in quality."**

Table 5.1: Distribution of trained instructors across districts

Percentage of Certified Instructors	No. of Districts	Percentage
Less than 25%	434	71.85
Between 25–50%	157	25.99
Between 50–75%	11	1.82
More than 75%	2	0.33

Sources and notes: NCVT-MIS (instructor-level data)

This perhaps partly explains the paradox where India produces more certified workers than ever before, yet industries continue to report skill shortages, and youth unemployment continues to be high.

Our analysis so far underscores how the growth of ITIs resulted in a drop in the quality of the same, as evaluated by MSDE themselves. Before we examine the spatial inequities of such growth, it is worthy to turn the lens towards the institutional capacity of ITIs themselves. To do this, we turn to the third dataset mentioned earlier: the extent of vacancy of trainers in an ITI, and the proportion of certified trainers in an ITI.

Figure 5.5 plots vacancy per sanctioned instructor post, and the picture is alarming. Districts shaded deepest blue correspond to vacancy levels above 75 percent of sanctioned posts, meaning that in several northern and eastern belts, three out of four instructor positions remain unfilled. Large clusters of high vacancy stretch across Uttar Pradesh, Bihar, Jharkhand, Chhattisgarh, and parts of the northeast, forming a continuous band of decline in institutional quality. In contrast, many southern and western districts display lighter shades, with lower vacancy ratios vis-á-vis near-complete staffing. As we will see in the next subsection, these regional asymmetries are not accidental, but track the same historical and administrative contours that shape the geography of ITI expansion. Where proliferation was fastest and most recent, recruitment systems and instructor pipelines have lagged.

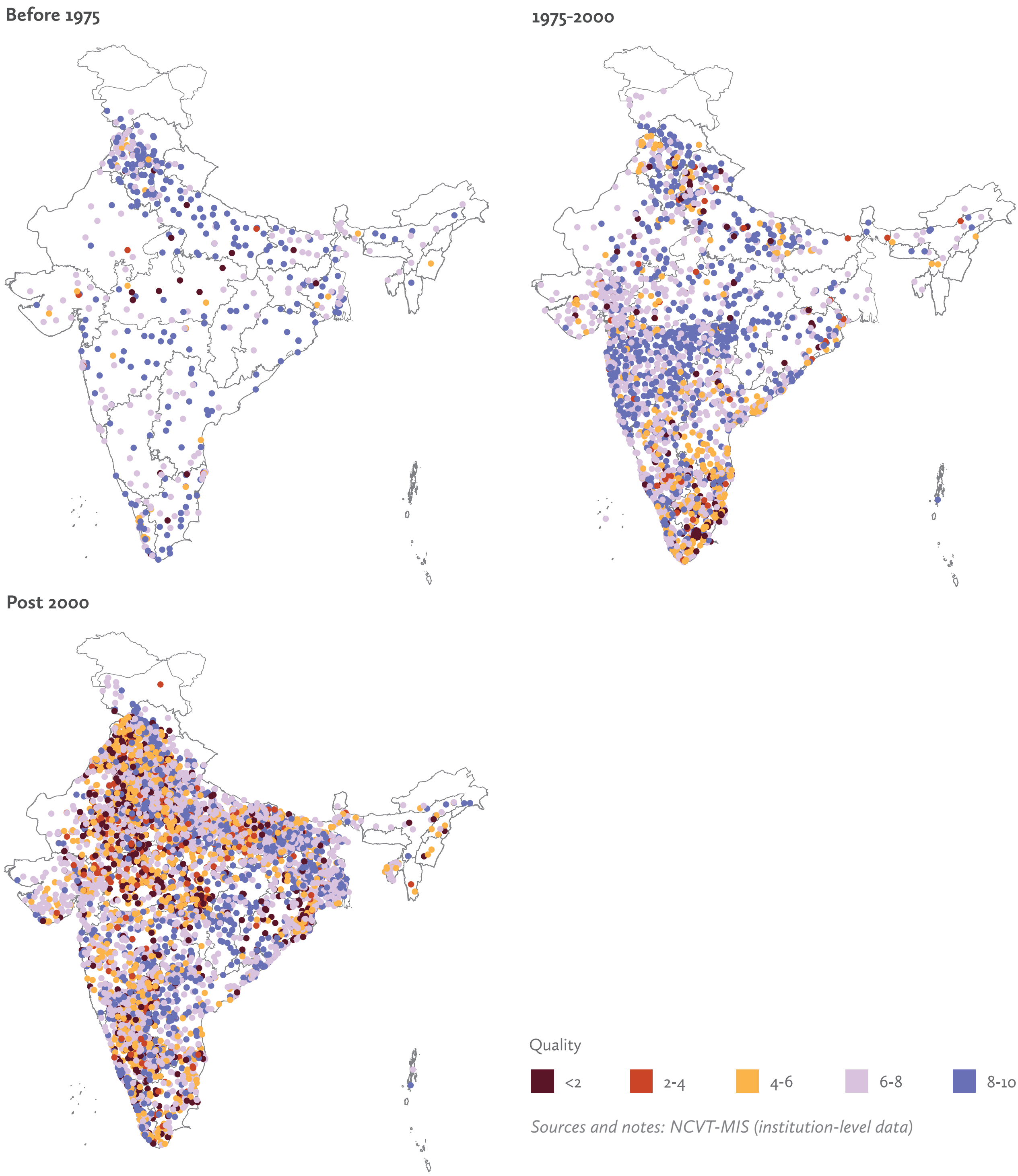
Table 5.1 provides a district-level distribution of the share of CITS-certified instructors among total filled positions — a measure of instructor qualification rather than headcount. The results are far from encouraging, as it shows that a majority of districts do not have any CITS-certified instructors. More specifically, nearly 72 percent of districts fall into the lowest category, with less than 25 percent of their instructors holding CITS certification. An additional 26 percent of districts have certification levels between 25 and 50 percent, indicating that even moderate levels of qualified instructors are relatively uncommon. Only a tiny fraction of districts; less than 3 percent combined, have more than half of their instructors certified, and virtually none exceed the 75 percent threshold. Taken together, the distribution highlights a systemic shortage of qualified instructors across the country, with significant implications for training quality and institutional performance.

5.3 Spatial Distribution of ITI Growth: Where are the good ITIs located?

Figure 5.6 maps the spatial distribution of Industrial Training Institutes (ITIs) across India, panelled by their period of establishment and coloured by their quality ratings. Each dot represents one ITI, with blue marking institutes graded in the highest quality bands, fading into lavender and mustard for mid-level scores, and darker red for those scoring below 2. The three panels compare ITIs established before 1975, between 1975 and 2000, and after 2000, allowing us to visualise not only the spread of training institutions over time but also how quality patterns have evolved geographically

In the earliest period, before 1975, the ITI landscape was relatively sparse, concentrated in industrial belts and urban clusters of northern India. The post-2005 boom that we saw in the earlier section is spatially reflected in the dramatic surge in the number of ITIs - the dots spread thickly across the map, spilling well beyond the traditional industrial belts. In the middle period, 1975-2000, we can see a substantial expansion, particularly into southern states such as Tamil Nadu, Karnataka, and Andhra Pradesh, alongside growth in western industrial hubs like Maharashtra and Gujarat.

Figure 5.6: Steady decline in ITI quality over time



Sources and notes: NCVT-MIS (institution-level data)

However, even as the number of ITIs increased and their spread widened, we see a worrying trend in the quality. Most of these early institutes – many of them publicly funded score well in today's quality assessments, indicated by the dominance of the green dots. Since then, there has been a steady decline in quality - an increase in the orange and red dots. While Figure 5.4 highlighted the aggregate decline in grading for post-2005 ITIs, Figure 5.6 shows the striking spatial disparities in quality with several regions marked by clusters of low-quality institutions.

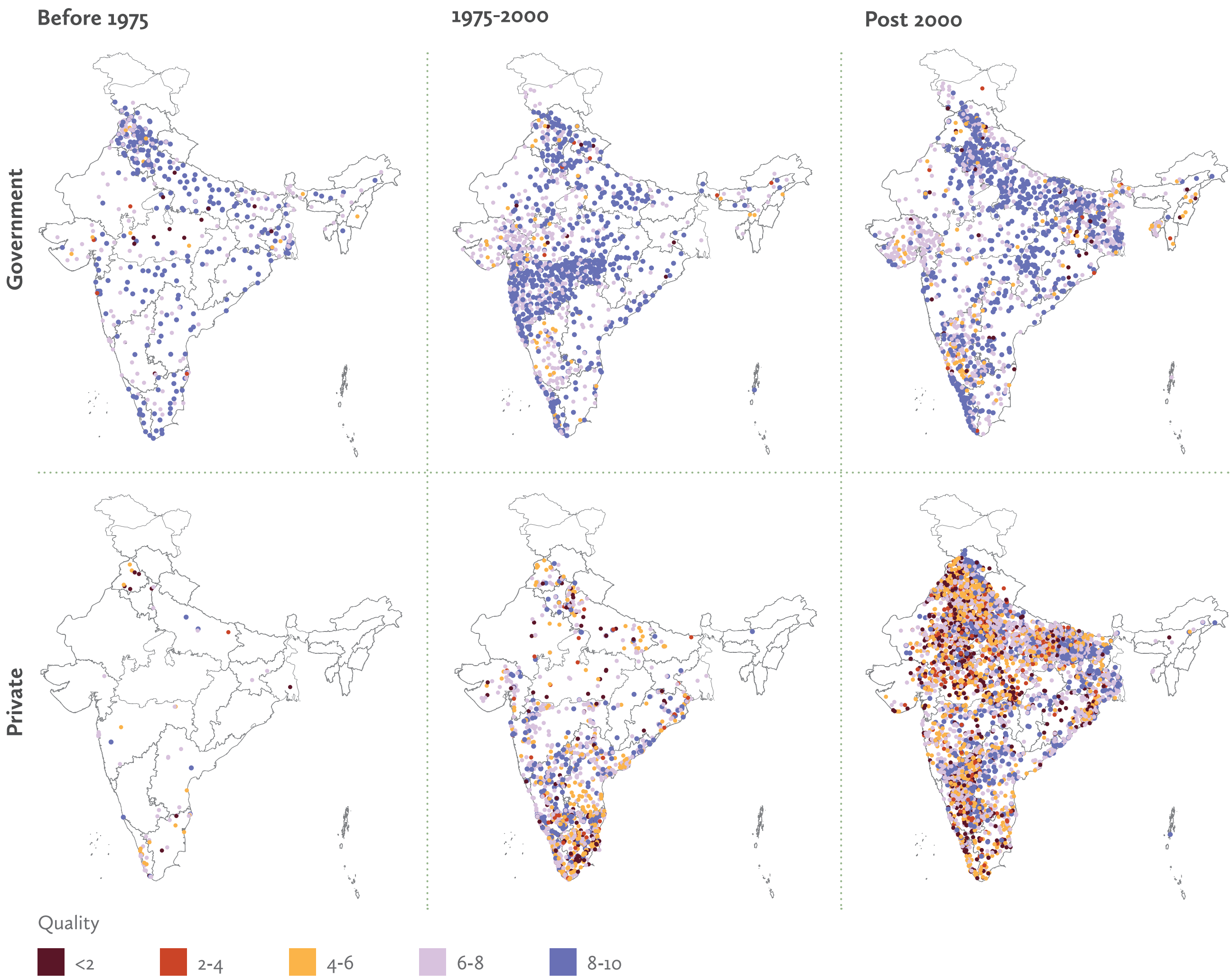
While the rise in low-performing ITIs are higher in the northern states, we note a similar rise for southern states too, most prominently in Karnataka. Even historically strong regions such as Tamil Nadu and Maharashtra, while still retaining pockets of high quality ITIs, now display a far greater share of middling and poor performers.

The geographic concentration of poor-quality ITIs raises concerns for equity and regional development. In states already grappling with slower industrialisation and high youth unemployment, weaker training institutions risk compounding the problem. This uneven geography of quality also feeds back into industrialisation patterns themselves: firms are less likely to invest in regions where they cannot rely on a skilled workforce pipeline, further deepening the divide between India's industrial heartlands and its hinterlands.

Until 2000, ITIs were overwhelmingly government-run, and their quality outcomes are consistently high, with dense clusters of blue dots indicating better-performing institutions. We have already noted the increasing presence of private ITIs post 2000s. Figure 5.7 plots the quality of ITIs across India, separating them by management type – the top row shows government ITIs, the bottom row private ITIs and across three periods of establishment: before 1975, 1975-2000, and post-2000. Each dot represents one ITI, coloured by its composite quality score on a ten-point scale.With the increase in private ITIs, we also see the explosion of private ITIs reshapes the map: red and mustard dots proliferate across many regions, while government ITIs remain relatively better performing even within this expansionary phase. Thus, while Figure 5.6 establishes the regional disparities in accessing quality ITIs, Figure 5.7 sheds light on the underlying driver of this regional divergence – the increased private provisioning of vocational education.

Before 1975, India's ITI network was small but tightly concentrated, with clusters in Delhi, Haryana, Punjab, and parts of western Uttar Pradesh. Nearly all these institutions were government-run and planned as part of India's early industrialisation strategy. Their locations align closely with regions identified for industrial development: the Delhi NCR belt, Ludhiana's machine tools cluster, and the early automotive corridors in the West. Private ITIs were almost absent in this phase, and where they did exist marginally, they were already disproportionately low quality.

Figure 5.7: Sharp spatial disparity in ITI quality



Sources and notes: NCVT-MIS (institution-level data)

Between 1975 and 2000, the system underwent a significant phase of public-sector expansion. States such as Maharashtra, Kerala, Karnataka and Gujarat experienced a strong scaling up of government ITIs to support fast-growing industrial economies. In these states, government-led institutions retained relatively high quality, visible in the dense clusters of green in the top row of the middle panel (Figure 5.7). Maharashtra stands out especially: its government ITIs from this period continue to score strongly, benefitting from consistent state-level investments.

This period also marks the first signs of a dual-track system. In the southern states – particularly Tamil Nadu, Karnataka and Andhra Pradesh – private ITIs began to emerge, often in semi-urban and rural areas. Even in this period, the number of private ITIs in southern states surpassed the number of public ITIs while their quality scores lagged far behind those of their government counterparts, creating an early layer of unevenness within the system.

After 2000, and especially after 2005, the landscape changed sharply. The rapid liberalisation of approvals and policy incentives triggered an explosion of private ITIs, dramatically reshaping the spatial distribution of vocational training. Irrespective of southern or northern states – dense clusters of new private ITIs appear, many of them fall into the lowest quality bands, scoring below four on the composite scale. Crucially, Figure 5.7 shows that newly established government ITIs continue to perform relatively well even during this expansionary phase. Most of the public ITIs established during this period continue to be of a higher quality – as reflected in the expansion in and around UP. In Tamil Nadu and Karnataka as well, the contrast between private and government ITIs is stark: government ITIs retain relatively high-quality scores, while the surrounding private institutions underperform, creating a fragmented training ecosystem within the same region.

The implications of this divide are significant. For students, particularly those from rural or low-income households, the dominance of low-performing private ITIs effectively means paying high fees for training that is less likely to result in employable skills. This deepens existing inequalities in access to quality vocational education. For industry, the mismatch between training outputs and skill needs discourages investment in precisely those regions where industrialisation could generate the most employment.

On one hand, India has made remarkable progress in expanding access to vocational training, responding swiftly to the pressures of a growing youth population. However, as the grading patterns reveal, this surge has come at the cost of quality. A modern manufacturing ecosystem depends on a steady supply of technically competent, job-ready workers, but when training institutions fail to deliver these standards, firms hesitate to invest or rely instead on informal, short-term training – most often on-the-job. This mismatch between scale and competence, thus risks weakening the prospects of industrial growth. The challenge, therefore, is no longer about building more ITIs but in ensuring that the existing ones deliver consistently high-quality training aligned with industry needs. Without addressing these structural gaps, the vocational system risks producing large numbers of certified graduates who remain unemployable, undermining both India's employment prospects and its ambitions for sustained industrial transformation.

“After 2000, and especially after 2005, the landscape changed sharply. The rapid liberalisation of approvals and policy incentives triggered an explosion of private ITIs, dramatically reshaping the spatial distribution of vocational training. Irrespective of southern or northern states – dense clusters of new private ITIs appear, many of them fall into the lowest quality bands, scoring below four on the composite scale.”

The findings in this subsection, especially the ones around spatial and institutional unevenness raises important distributional questions. Taken together with the differences of private and public ITIs, these findings call for an analysis of the demographic profile of ITI trainees – by caste, class, gender, and location – to assess who bears the brunt of this quality divide and how it shapes opportunities. We now turn to our sample of ITI trainees who have graduated between 2014 to 2022 to understand the broad trends in enrolment.

> "The challenge, therefore, is no longer about building more ITIs but in ensuring that the existing ones deliver consistently high-quality training aligned with industry needs. Without addressing these structural gaps, the vocational system risks producing large numbers of certified graduates who remain unemployable, undermining both India's employment prospects and its ambitions for sustained industrial transformation."

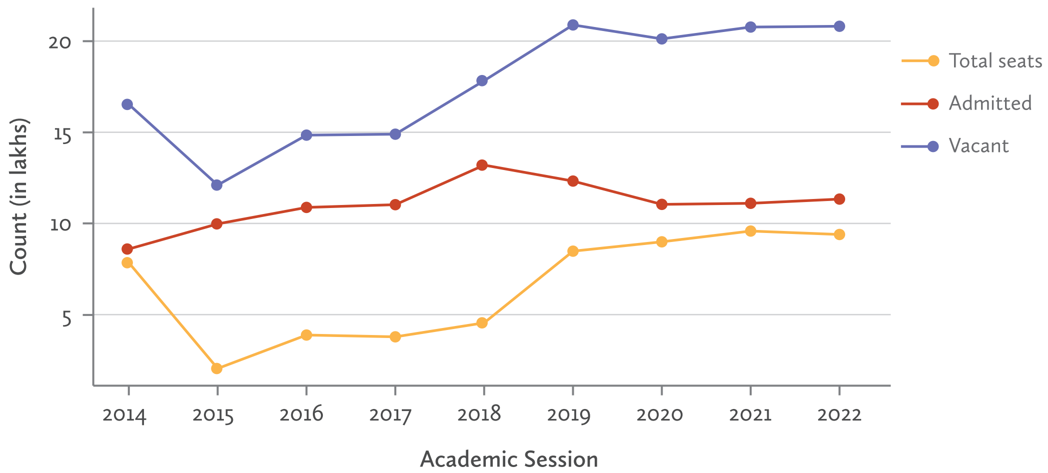
5.4 Who is enrolling in ITIs?

The rapid expansion of India's ITI system through the last decade has not translated into commensurate uptake. Figure 5.8 tracks total seats, admissions and vacancies from 2014 to 2022. While capacity has steadily increased (to 23 lakhs by the end of the period), admissions has seen a slower increase climbing from under 10 lakh in 2014 to a high around 2018 and then slipping back towards 12 lakh, flattening through 2020–2022.

The consequence is visible in the vacancy line: after falling sharply in 2015, vacancies surge again, crossing 9–10 lakh from 2019 onward and remaining persistently high even as admissions trend stabilizes. In short, the supply of seats outpaced demand after the mid-decade peak, leaving roughly half the capacity unused in recent years.

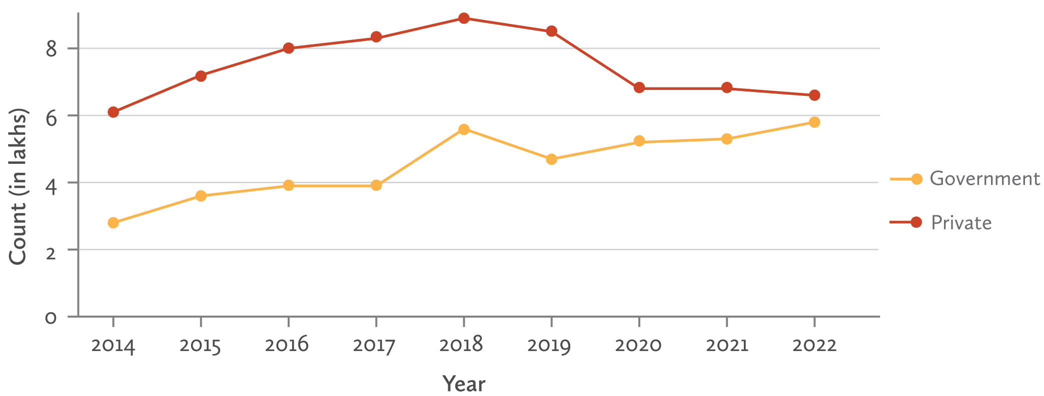
The split between government and private provision clarifies the capacity–demand imbalance. Figure 5.9 shows private ITIs enrolling more trainees than government ITIs every year, peaking around 2018 and then contracting sharply in 2020 before stabilizing. Government ITI enrolments also surge in 2018 but persist around that level till 2022, narrowing the gap with private ITIs. This asymmetry matches the vacancy pattern: a large, fast-growing private sector expanded capacity quickly; with a reduction in demand, possibly because of the pandemic-driven perceptions of placement outcomes - private enrolment fell more than government enrolment.

Figure 5.8: Although more seats have been added over the years, admissions have risen at a slower pace



Sources and notes: NCVT-MIS (trainee-level data)

Figure 5.9: Count of trainees by ITI over the years



Sources and notes: NCVT-MIS (trainee-level data)

5.4.1 Gender profile of ITI trainees

Vocational education has traditionally been highly male-dominated, and remained so over the years (Figure 5.10). While there is a slight increase in female enrolment over the years, male enrolment dominates consistently, rising from about 7 lakh in 2014 to a peak of nearly 13 lakh in 2018 before stabilising around 10 lakh enrolment per year, with men accounting for 86% of all enrolments as of 2022. Female participation remains persistently low, barely crossing 1.5 lakh across the entire period. Despite the rapid expansion of ITIs since the mid-2000s, women remain starkly underrepresented, indicating possible structural barriers in access and, as we will discuss in later parts of this section – segregation in trade choices.

Interestingly, however, we observe that women are more likely to be enrolled in government ITIs, whereas for men, it is the private ITIs that dominate. Such a pattern likely reflects state-run provisions such as women-only ITIs and reservation for women.

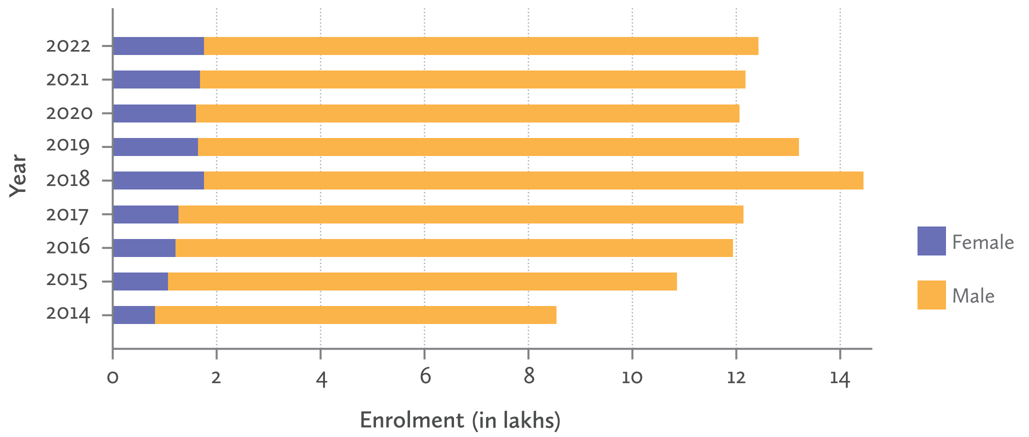
“Despite the rapid expansion of ITIs since the mid-2000s, women remain starkly underrepresented, indicating possible structural barriers in access and, as we will discuss in later parts of this section – segregation in trade choices.”

5.4.2 Caste profile of ITI trainees

In terms of caste profile of the trainees, between 2014 and 2022, OBC trainees consistently dominate, rising sharply from just above 3 lakhs in 2014 to a peak of nearly 6.5 lakhs in 2018, before dipping slightly and stabilising around 5.5 – 6 lakhs in recent years (Figure 5.11).

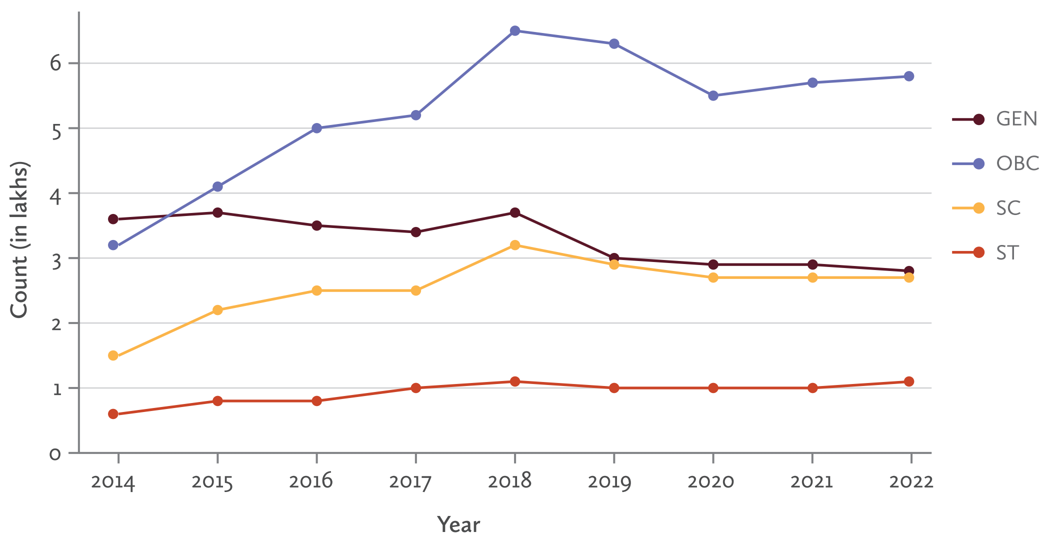
SC enrolments have grown steadily from about 1.5 lakhs in 2014 to over 3 lakh by 2018, flattening around 2.8 to 3 lakhs post-2019. ST enrolments are

Figure 5.10: ITIs have been consistently male-dominated



Sources and notes: NCVT-MIS (trainee-level data)

Figure 5.11: The majority of those enrolled in ITIs are OBCs



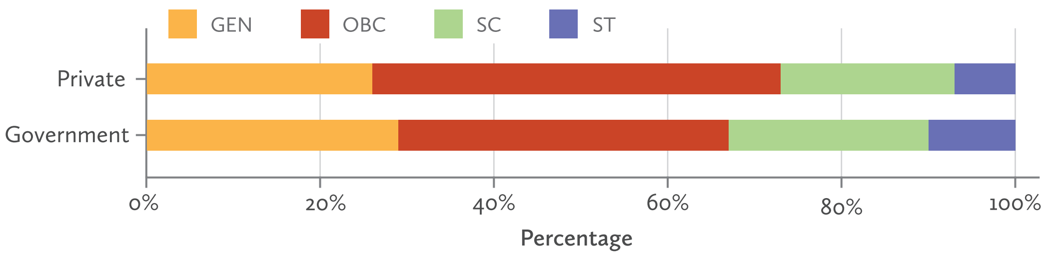
Sources and notes: NCVT-MIS (trainee-level data)

Table 5.2: Comparing enrolments by caste between higher education (AISHE) and vocational training (ITI)

	AISHE		ITI		
Social group	Enrolment	Share (%)	Enrolment	Share (%)	Overall population share
General+Others	16,833,978	39.3	281,470	22.7	28.5
OBC	16,655,079	38.9	583,657	47.0	43.6
SC	6,605,637	15.4	270,480	21.8	18.9
ST	2,756,149	6.4	106,664	8.6	8.9

Sources and notes: AISHE ,NCVT-MIS (trainee-level data) and overall population share from PLFS 2022-23.

Figure 5.12: SC/STs are more likely to be enrolled in government ITIs



Sources and notes: NCVT-MIS (trainee-level data), AISHE (various rounds)

the smallest share across the period. By contrast, enrolments from the general and other categories remain relatively flat, hovering around 3 lakhs. To what extent does the social composition reflect the shares of these groups in the overall population? And, more importantly, how does it contrast with their share in formal higher education.

Table 5.2 compares ITI and AISHE enrolment in 2022. OBC trainees form nearly 47% of total ITI enrolments, closely aligned with their share in the population, while SCs account for about 22% and STs for 8.6%, both broadly comparable to demographic weights. By contrast, general-category students make up just 23% of ITI trainees, once again roughly similar to their national share, while they constitute nearly 39% of enrolments in higher education under AISHE. This divergence underscores how ITIs are positioned within India's educational hierarchy: they are more likely to be chosen by historically disadvantaged groups not because of better access but because other, higher-status pathways remain less accessible. For many, ITIs function as an inferior career option rather than an aspirational choice, reflecting persistent barriers to mainstream higher education and the uneven social value attached to vocational training relative to university degrees.

The skew also reflects how historical disadvantages shape educational trajectories well before students reach the stage of choosing between vocational and higher education. As will be discussed in later parts of this section, the majority of ITI trainees are 10th pass students. Clearing higher secondary education remains a significant hurdle for many, and dropout rates after Class 10 and Class 12 are disproportionately higher among communities that have faced systemic barriers over generations either due to limited schooling infrastructure, economic precarity, or entrenched social exclusion. As a result, many students from SC, ST and underprivileged OBC groups are less likely to qualify for college-level pathways and are instead funneled into vocational streams like ITIs. Taken together, while the ITI enrolment by caste may appear proportional, it is less a matter of individual preference and more a structural outcome: access to ITIs for these groups reflects constrained educational opportunities rather than an empowered choice between equally valued options.

In government ITIs, SC and ST trainees together account for roughly 33% of total enrolments. By contrast, private ITIs show a markedly different composition: SC and ST trainees together comprise 26% (Figure 5.12) While on one hand private ITIs are not legally bound to follow reservation policies, and while some voluntarily adopt quotas, adherence is uneven. This divergence means that government ITIs serve as a preferred entry point for historically disadvantaged groups, as opposed to private institutions.

> "This divergence underscores how ITIs are positioned within India's educational hierarchy: they are more likely to be chosen by historically disadvantaged groups not because of better access but because other, higher-status pathways remain less accessible."

5.4.3 Educational profile of ITI trainees

Educational qualifications among ITI trainees show a clear pattern of concentration around lower secondary schooling. As Figure 5.13 indicates, a large majority of enrollees enter ITIs after completing Class 10. Those entering after Class 12th, remain a much smaller fraction, while participation from graduates or those with education beyond higher secondary is negligible. This pattern largely holds true even if we disaggregate the figure by gender and caste.

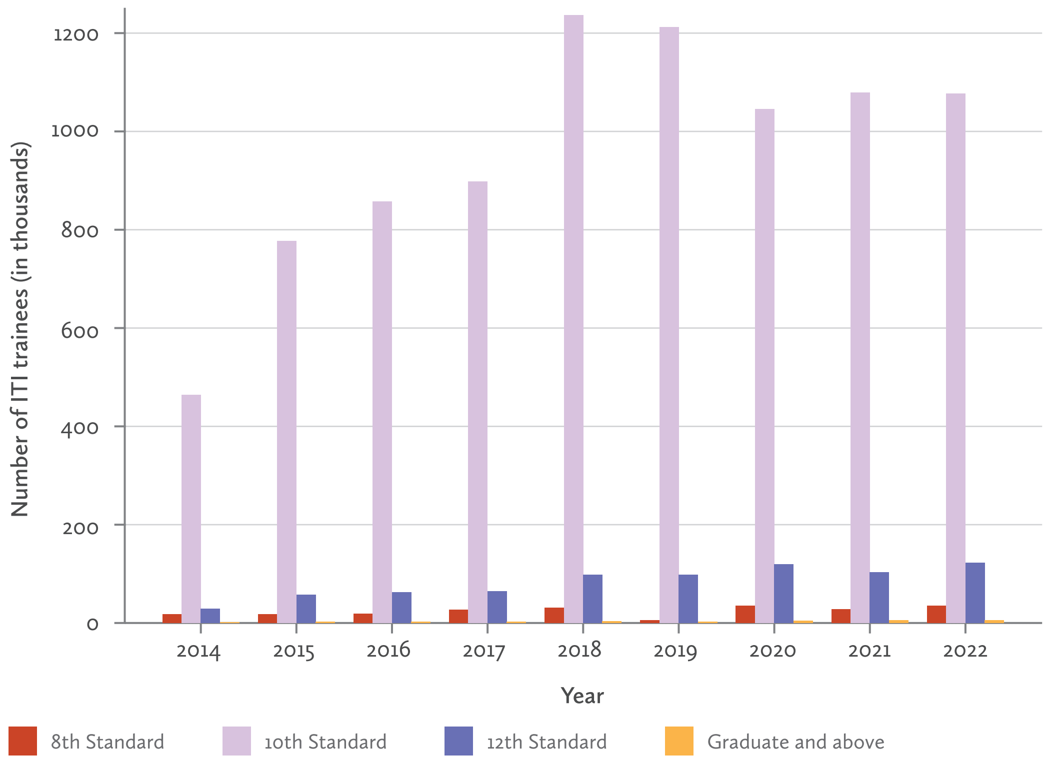
Taken together, the broad trends that these summary statistics underscore, is that ITIs largely draw students who have limited pathways into higher education, reflecting how skills training remains a secondary choice rather than a respected alternative, especially for those unable or unwilling to continue in academic streams.

5.4.4 Spatial variation in ITI demography

In the earlier section, we noted the increased spatial distribution of ITIs, although this has often come at the cost of quality. How has the spatial spread impacted regional access? Figure 5.14 shows the availability of ITIs per lakh eligible population between 2014 and 2022. There is a clear pattern of intensification of ITIs rather than spatial diffusion. In 2014, ITI availability is already uneven, with mid-density clusters visible in Maharashtra, Karnataka, parts of Gujarat, western Uttar Pradesh, and Haryana, while much of eastern India, the central tribal belt, and the North-East remain pale, indicating fewer ITIs per eligible population.

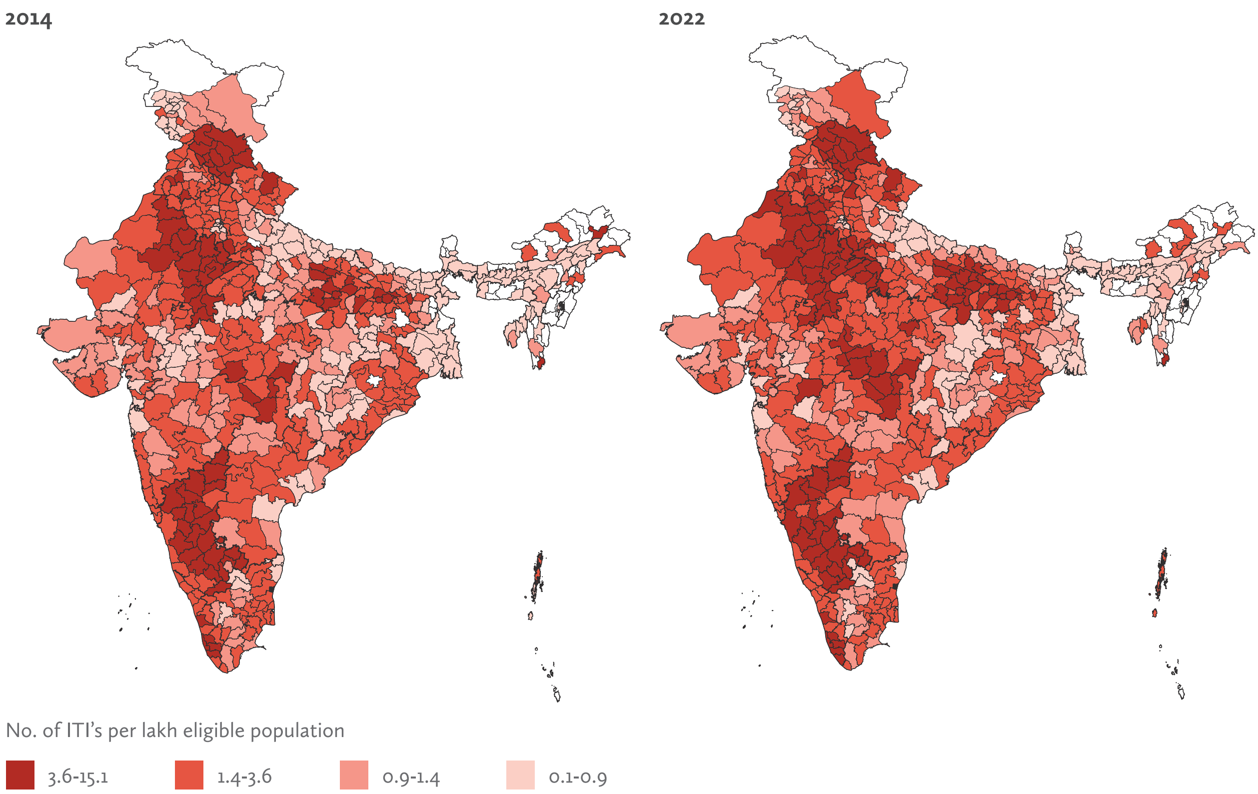
In 2022, we see an increase in intensification. Several districts in Maharashtra, Karnataka, Haryana, and eastern Uttar Pradesh show a very high increase in ITI per population, while large areas of western and central India remain underserved. Rather than a broad-based expansion, ITI capacity has thickened where it was already concentrated. This deepening without meaningful spatial spread suggests that opportunities for vocational training remain regionally skewed, potentially reinforcing existing inequalities in access to skills development.

Figure 5.13: Majority of ITI trainees have completed up to 10th standard



Sources and notes: NCVT-MIS (trainee-level data)

Figure 5.14: Regional disparities in ITIs for the eligible population



Sources and notes: NCVT-MIS (trainee-level data)

Comparing male and female ITI trainees per lakh eligible population reveals the gendered differences in ITI access at a district level (Figure 5.15). There are stark gender disparities in vocational training participation and significant regional differences, especially in case of women.

For men, enrolment is relatively widespread across the country, with dense clusters of ITI trainees visible in states such as Maharashtra, Karnataka, Tamil Nadu, Gujarat, and parts of Uttar Pradesh and Haryana. In many of these districts, the density exceeds 500 trainees per lakh eligible population, indicating a relatively high uptake of vocational education. Even in central India and parts of eastern Uttar Pradesh, male participation is moderate, suggesting that ITIs serve as a primary pathway to skill acquisition for men, especially where alternate higher education opportunities may be limited.

In contrast, female enrolment is much lower and more unevenly distributed. While there are pockets of relatively higher female participation, particularly in parts of Himachal Pradesh, Punjab, Haryana, and the north-eastern states; most of southern India, including Tamil Nadu, Karnataka, and Kerala, shows much lighter shades, indicating far fewer women enrolling in ITIs relative to the eligible population. This is notable because these southern states are among India's better-performing regions in terms of female education. The pattern suggests that cultural and economic expectations may be steering educated young women in these regions away from vocational tracks like ITIs, either towards higher education or directly into the labour market, bypassing formal skill training.

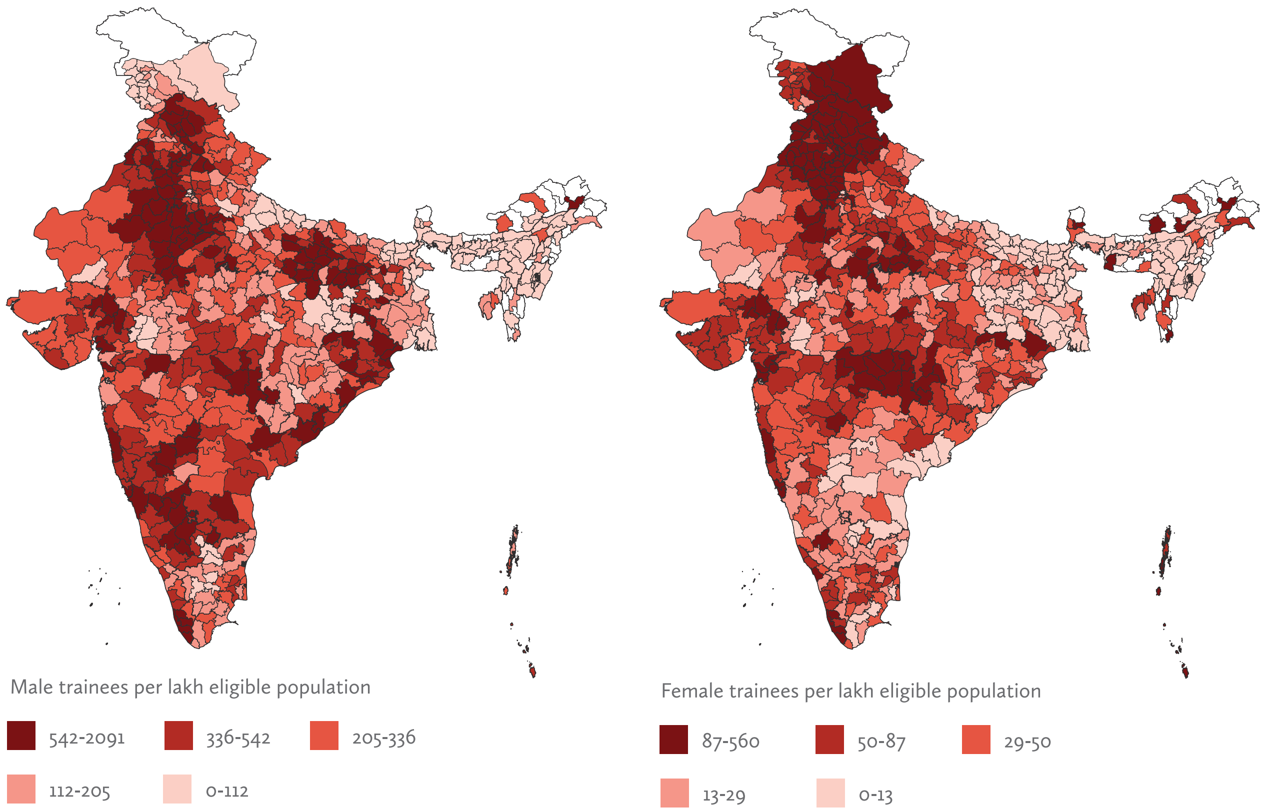
Conversely, in several northern and central districts where fewer women pursue higher education, ITIs appear to function as a fallback option, leading to relatively higher female representation. Overall, the maps in Figure 5.15 underscores two dynamics: persistent gender gaps in vocational training and the influence of regional norms and opportunities on female participation. While ITI expansion has intensified in many districts, its inclusivity remains limited, with women's enrolment highly constrained in precisely those regions where educational attainment among women is otherwise stronger.

In terms of caste, however, such spatial variations are rare. The district-wise analysis of caste background of trainees reveals that the shares of General, OBC, and SC/ST trainees exhibit broadly similar patterns across

Figure 5.15: Gender disparities in ITIs for the eligible population

a: Male

b: Female



Sources and notes: NCVT-MIS (trainee-level data). Eligible population corresponds to 14-40 years old. Population estimates from IIPS population projections.

the country, with no strong regional clustering in any specific caste category. Most districts have higher OBC share, consistent with our earlier observation that OBC's comprise the largest share among ITI trainees. While a few exceptions exist – such as higher share of general-category in districts around Delhi-NCR, overall, caste composition appears far more uniformly distributed than gender.

> **"While ITI expansion has intensified in many districts, its inclusivity remains limited, with women's enrolment highly constrained in precisely those regions where educational attainment among women is otherwise stronger."**

5.5 What courses? Caste, gender and trade choices

Access to an ITI is only one dimension of inclusion. Conditioned on that inclusion, the skill-training opportunities that are available to different groups, may vary. In principle, vocational education could blur social hierarchies by focusing on skill over status, yet it could also reproduce existing divisions if entry and trade choices followed broader social norms or structural barriers. Patterns of segregation may therefore emerge across three axes -- gender, caste, and educational background -- each shaped by distinct social and institutional mechanisms. The following discussion sets out these possible channels, before turning to the empirical evidence on how India's expanding ITI system has in fact absorbed, or reinforced, inequality along these lines.

With respect to gender, in principle, ITIs could serve as equalising spaces, providing entry into technical trades based on skill rather than social norms. If access and trade choice were determined purely by aptitude, one might expect men and women to participate across similar occupational categories. Yet, gendered norms that dictate ideas of 'respectable' work may restrict women's choices, leading to concentration in a narrow range of service or clerical trades. At the same time, initiatives such as women-only ITIs and reserved seats in government institutes create institutional mechanisms that can broaden access. Thus, formal neutrality and reservation support could, in theory, reduce segregation; but deeply embedded gender norms on the supply side, as well as employer biases on the demand side, may sustain it.

The observed patterns in trade enrolment by gender, reveal that the latter channel dominates (Table 5.3). Among male trainees, enrolments are overwhelmingly concentrated in a narrow band of industrial and mechanical trades, with the top ten streams accounting for nearly 89% of all male trainees and about 78% of the overall ITI universe. These trades include Electrician, Fitter, Mechanic (Diesel/Motor Vehicle), Welder, Wireman, and Turner, all strongly associated with production, repairing services, and largely industrial work. Each of these has a male share exceeding 90%, reflecting the social perception of such trades as masculine, or relying on manual skill and physical labour.

For female trainees, apart from Computer Operator and Programming Assistant (COPA), every other trade in the top 10 list for females is distinct from their male counterparts. In addition, while these top ten streams together make up 75% of all female enrolments, they account for just 9% of the ITI universe, showing how women are clustered in a few specialised areas that in itself forms a smaller sphere within the larger ITI system. These include Sewing Technology, Dress Making, Fashion Design and Technology, Cosmetology, and Stenography, each of which has an overwhelmingly female share (above 90%). Thus, even as women enter ITIs in growing numbers, their training pathways remain confined to a handful of trades with low industrial mobility and limited earnings potential.

Analytically, this near-complete segregation follows predictable patterns rooted in gendered divisions of labour. Trades involving physical labour, machinery, and fieldwork are coded as male domains, while those involving clerical, or care-related skills are coded as feminine. Consequently, vocational training rather than breaking down occupational segregation tends to reproduce them, even in the pre-labour market phase of a worker's life-cycle.

Could such gender segregation in trades stem from educational disparities rather than social or institutional ones? If women entering Industrial Training Institutes (ITIs) tend to have higher educational attainment than men, their clustering in

Table 5.3: Top ten trades by enrolment and gender

	Top 10 Trades (Male)		Top 10 Trades (Female)	
	Stream	Share of Male	Stream	Share of Female
1	Electrician	96	Computer Operator and Programming Assistant	41
2	Fitter	98	Electrician	4
3	Mechanic Diesel	97	Sewing Technology	90
4	Welder	97	Dress Making	93
5	Computer Operator and Programming Assistant	59	Fashion Design & Technology	97
6	Mechanic (Motor Vehicle)	98	Cosmetology	98
7	Electronics Mechanic	86	Stenographer & Secretarial Assistant (Hindi)	48
8	Wireman	93	Health Sanitary Inspector	35
9	Plumber	98	Fitter	2
10	Turner	96	Electronics Mechanic	14

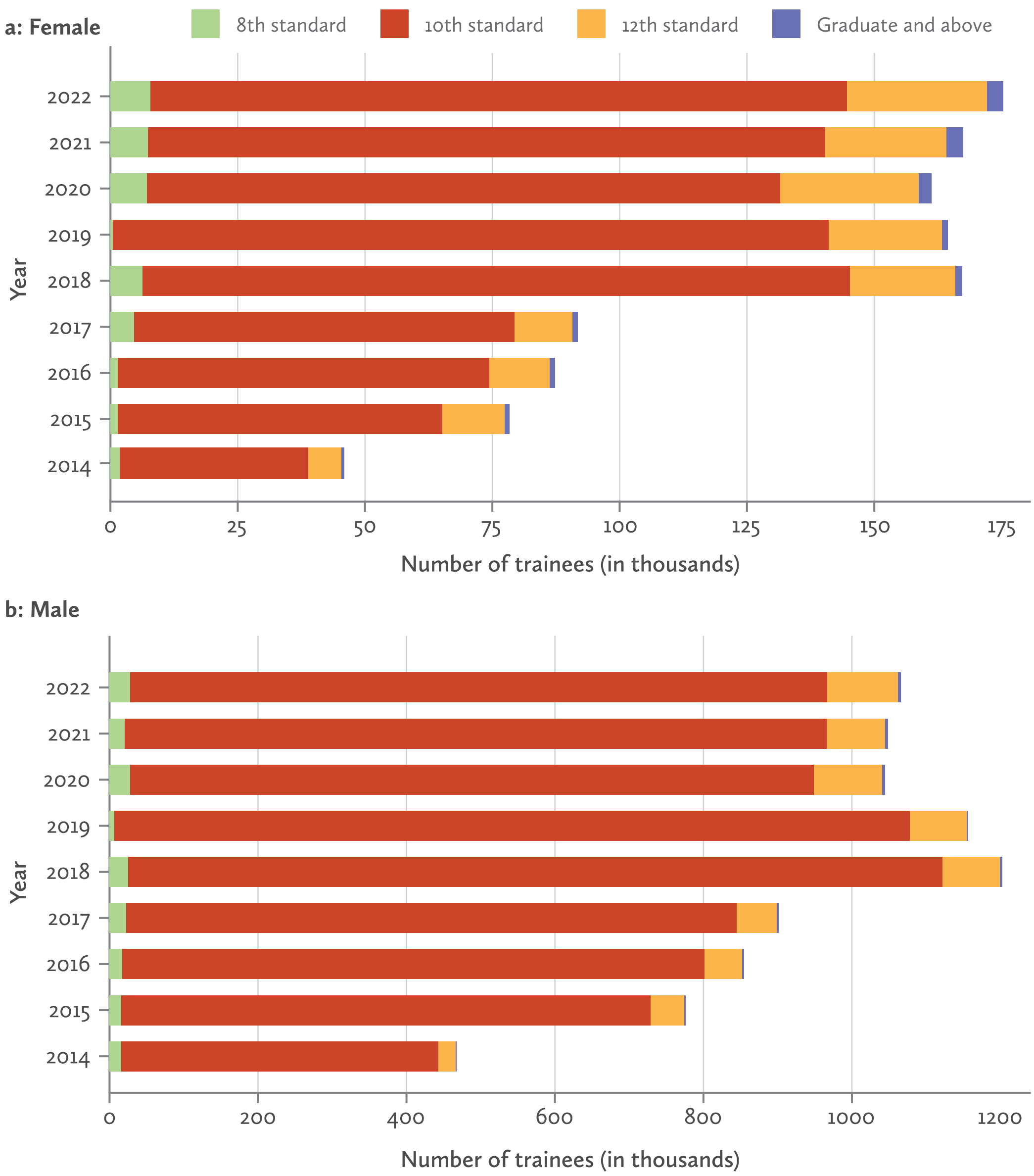
Sources and notes: NCVT-MIS (trainee-level data)

service-oriented, white-collar trades could be read as a reflection of qualification-based self-selection. Under this reasoning, gender segregation in ITIs would not indicate discrimination but simply educational sorting: individuals with differing qualifications channel into distinct occupational segments aligned with their perceived skills and opportunities. That is, higher-educated women may prefer clerical, digital, or creative fields rather than industrial or mechanical ones. Conversely, men with lower education might opt for physically intensive or technically mechanical trades. Our analysis, however, rules out such a possibility.

Figure 5.16 sheds light on the male and female enrolment across different educational levels. Both graphs show a striking similarity in educational composition. In both cases, the overwhelming majority of trainees enter with only a 10th standard education or below. For men the share of 8th and 10th standard combined is only slightly higher (between 89–95%), as opposed to women (between 81–86%). The difference in these shares result from slightly higher participation of female trainees from 12th standard and graduate-level, but this gap is relatively stable over time. The broad parallel in educational profiles across genders suggests that differences in trade choice cannot be explained primarily, let alone uniquely, by differences in schooling or entry-level educational qualifications.

Since almost 75 percent of all female trainees are concentrated in the top ten female-dominated trades and most female trainees possess only a 10th standard education, it follows that gender segregation occurs largely within the same educational backgrounds.

Figure 5.16: For both men and women, trainees are likely to be 10th standard pass



Sources and notes: NCVT-MIS (trainee-level data)

The underlying mechanisms, therefore, are likely rooted in social norms, institutional sorting, and employer expectations rather than educational mismatch. Unless women-only ITIs actively break such segregation patterns by offering more technical trades to women trainees, this interplay will continue to generate a self-perpetuating equilibrium, where vocational training in the pre-labour market, mirrors labour market segregation rather than offsetting it.

> **Analytically, this near-complete segregation follows predictable patterns rooted in gendered divisions of labour. Trades involving physical labour, machinery, and fieldwork are coded as male domains, while those involving clerical, or care-related skills are coded as feminine.**

This form of segregation matters because it shapes the pipeline through which future workers enter different segments of the labour market. When the pre-labour market training system reproduces occupational boundaries, it locks women into trajectories that have low mobility, weak industrial linkages and limited potential for productivity growth. As a result, even when women gain access to vocational education, they do so in fields aligned with the 'care' and 'clerical' economy rather than the manufacturing and technological economy that drives structural transformation. The exclusion of women from capital and skill-intensive trades, where wage gains are typically higher, constrains both individual worker's trajectories as well as the aggregate reallocation of productive workers across sectors, and ends up dampening the demographic dividend. Unless ITIs actively disrupt these patterns by expanding women's presence in technical, industrial, and emerging green or digital trades, the gender divide in India's labour market will continue to mirror the divides within its skill training system.

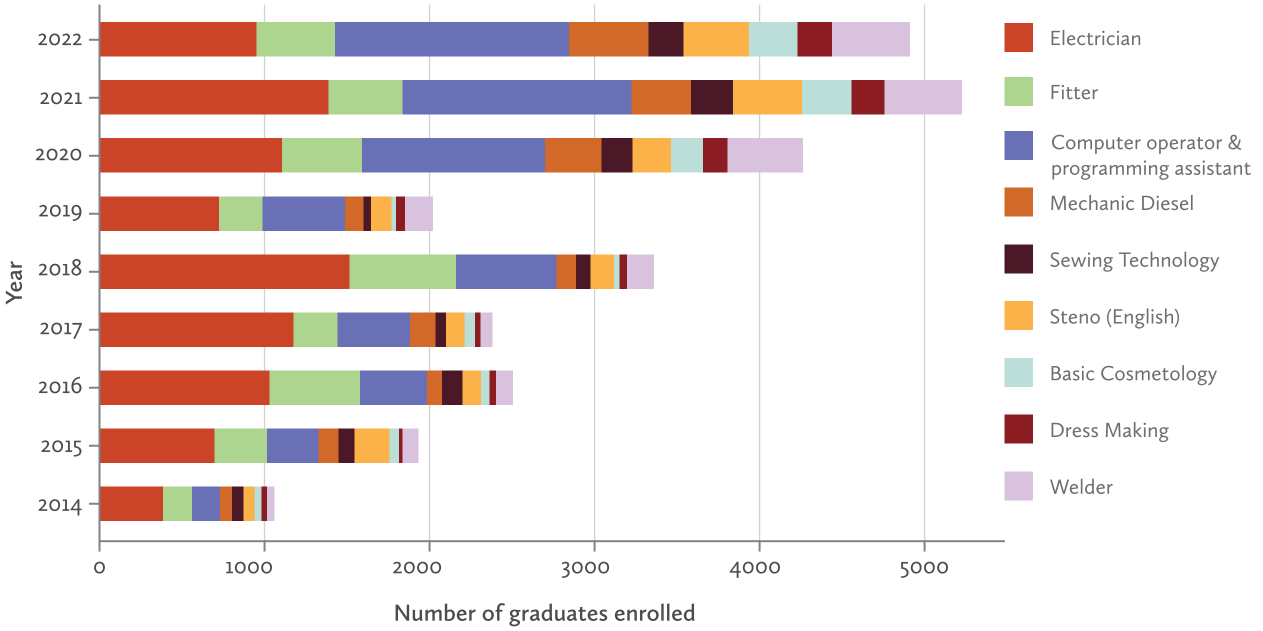
As opposed to gender, the caste-wise distribution of trade enrolments reveals minimal occupational segregation across social groups. Except for the overrepresentation of SCs in the Health Sanitary Inspector trade – a reflection of its historical linkages with sanitation work, the overall trade composition of the top 10 trades remains strikingly similar across caste categories. This relative homogeneity, however, is less indicative of inclusion by design and more a by-product of the low prestige historically attached to vocational education in India. Industrial Training Institutes, positioned at the margins of the education hierarchy, attract students from across caste backgrounds precisely because they occupy a social space detached from elite aspirations. The weak social signaling of ITI credentials, coupled with their limited linkage to white-collar status, erodes the incentive for caste-based segregation. As a result, ITIs exhibit a more caste-neutral pattern of participation, stemming from the fact that vocational training itself has remained a low-status, non-contested domain within India's broader educational system.

Segregation by educational background within ITIs reveals an interesting paradox. More than a pattern of exclusion, this is a reflection of structural and aspirational distortions in India's skill ecosystem. Figure 5.17 reveals that while graduate-level entrants to ITIs remain numerically small, their numbers have risen across the 2014-2022 period. The stacked bars show a growing band of graduate-qualified trainees spread across a variety of trades, including both traditional mechanical ones (e.g., Welder, Mechanic Diesel) and newer digital/clerical ones (e.g., COPA). This gradual shift in the composition of trainees is partly a reflection of the growing number of graduates in the country as we saw in the earlier chapter, as well as potentially a signal of the broken college to employment pipeline.

In contrast, we observe that among 10th pass enrollees, the trade choice has remained remarkably stable (Figure 5.18). Over the years the dominant trades remain Electrician, Fitter, Electronics Mechanic, Mechanic (Motor Vehicle), each consistently capturing large shares (often collectively above 70-80%). The proportions shift only marginally, indicating that the trade-structure for 10th pass trainees has essentially stayed frozen. Theoretically, this reveals a dual failure: supply-side rigidity that limits adaptation to changing sectoral demand, and demand-side segmentation that discourages diversification to newer, 21st century skills. Together, these trends show that India's vocational system increasingly serves as a refuge from unemployment rather than an institutional mechanism that enables structural transformation.

To summarise the discussion so far – our analysis shows that on one hand expansion of ITIs have coincided with a fall in ITI quality (with variation

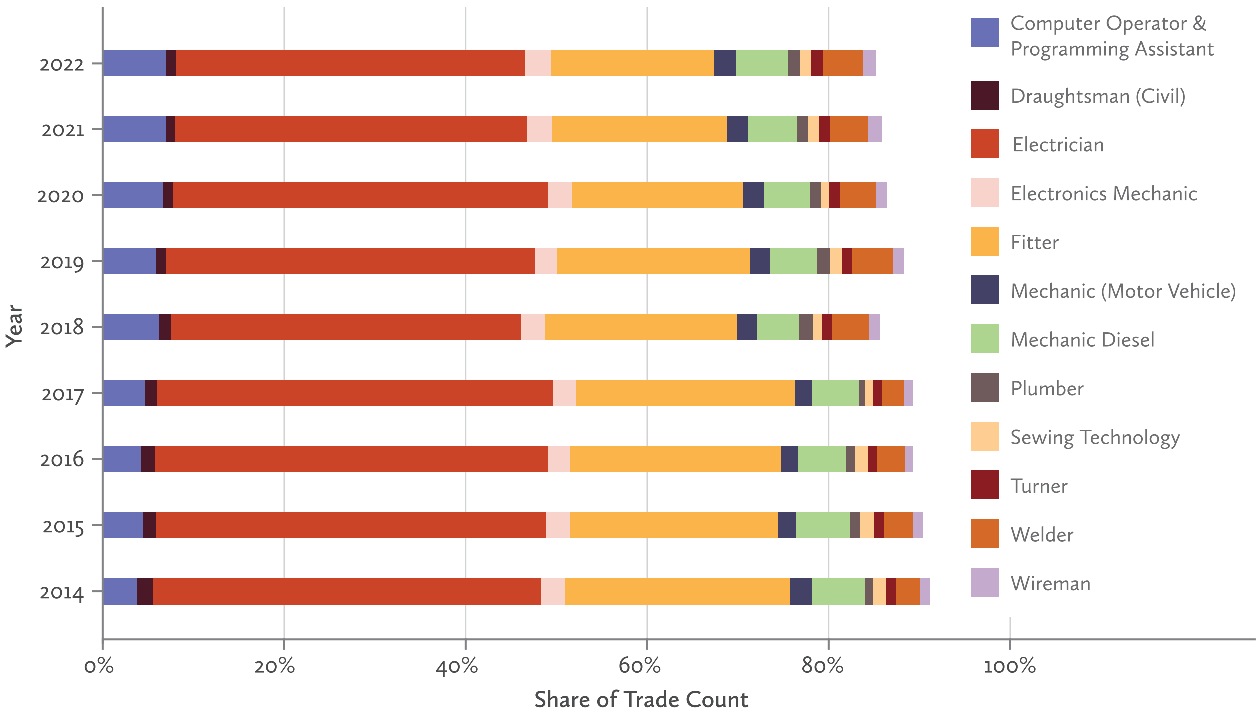
Figure 5.17: Steady increase in graduate enrolment in ITIs



Sources and notes: NCVT-MIS (trainee-level data). Data refers to only graduates.

across geographies), and on the other, it mirrors the country's uneven structural transformation, especially through the lens of gender segregation in manufacturing vs non-manufacturing trades. Both these observations call for another spatial question: if ITIs are meant to be bridges into employment, are they located closer to where employment actually is? We compare ITI presence with the enterprise landscape using Economic Census data and with state manufacturing employment shares (from the labour force surveys). The geography of ITIs shows at best a very weak relationship with the geography of manufacturing. This disconnect is also reflected in the post-2005 boom where private ITIs expanded outside the dense industrial corridors indicating that ITIs were perhaps fallback institutions for low-attainment or low-opportunity districts rather than as targeted anchors for local production systems.

Figure 5.18: Trade choice has remained unchanged with dominant choices being Electrician and Fitter



Sources and notes: NCVT-MIS (trainee-level data). Data refers to only 10th standard pass trainees.

> The geography of ITIs shows at best a very weak relationship with the geography of manufacturing.

5.6 ITIs and their linkages with the manufacturing sector

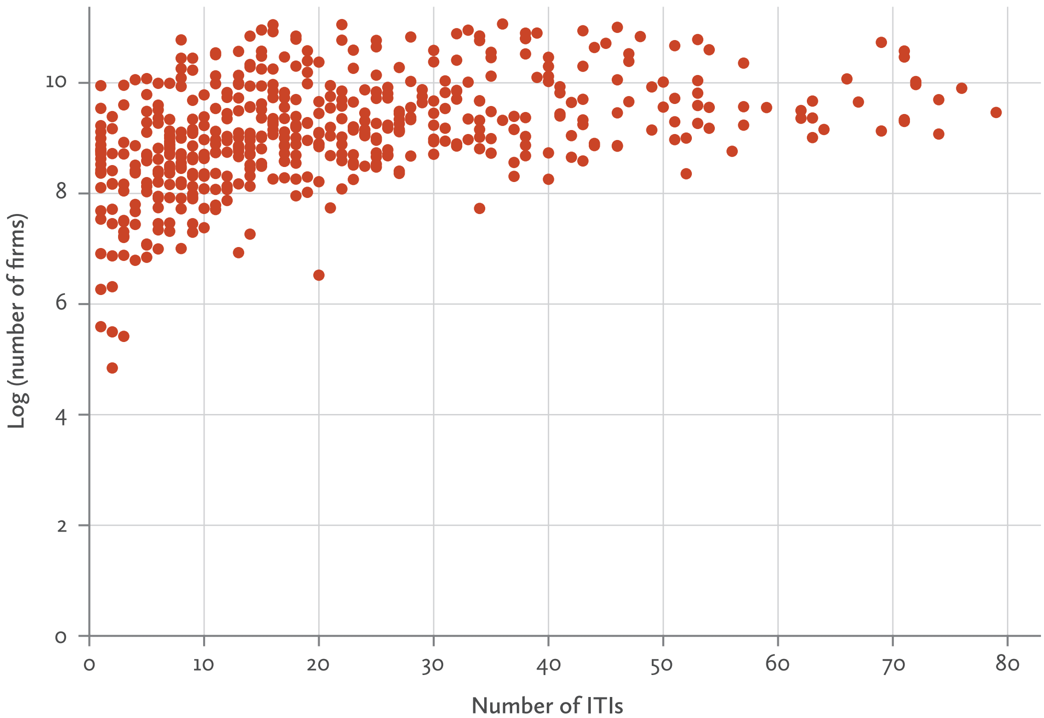
The weak spatial linkage between ITIs and manufacturing industries becomes clear when we compare the number of ITIs in each district against the number of registered manufacturing firms (logged) (Figure 5.19). Each point represents a district. We do not observe any systematic relationship between the two variables. While the fitted line slopes slightly upward, the correlation is economically insignificant. In effect, the presence or absence of manufacturing activity does not appear to have been a meaningful factor in where ITIs are located.

This pattern reinforces the earlier point that the post-2005 expansion, dominated by private ITIs, did not gravitate toward India's established industrial corridors. Instead, ITIs may have expanded in districts with limited industrial presence, weak firm networks and few opportunities for apprenticeship or placement. If ITIs were functioning as demand-driven institutions embedded within local manufacturing networks, one would expect a tighter clustering: districts with more firms should attract more ITIs, and those with fewer firms should have fewer. The scatterplot in Figure 5.19, in contrast, shows a near-random distribution. Without proximity to firms, the feedback loop between employers and training providers weakens, placement opportunities shrink, and curricula risk becoming detached from industry needs. The observed disconnect therefore helps explain why, despite rapid expansion, the system struggles to generate meaningful employment (NITI Aayog 2023). In short, the spatial logic of ITI growth has not aligned with the geography of employment, further contributing to the fragmented and uneven nature of India's vocational training landscape.

Disaggregating the Economic Census to medium and large establishments does not change the picture either. If anything, the expectation of co-location is stronger here: medium (50–99 workers) and large (100+) plants are the ones most likely to demand formally trained labour at scale, run apprenticeship programs, etc, and yet, the scatters remain widely diffused. Several districts with visible counts of mid-to-large plants have modest ITI footprints; conversely, places with multiple ITIs often show very few establishments of scale. The implication is clear: the ITI expansion phase did not evolve with a spatial logic of being in proximity of manufacturing industrial belts.

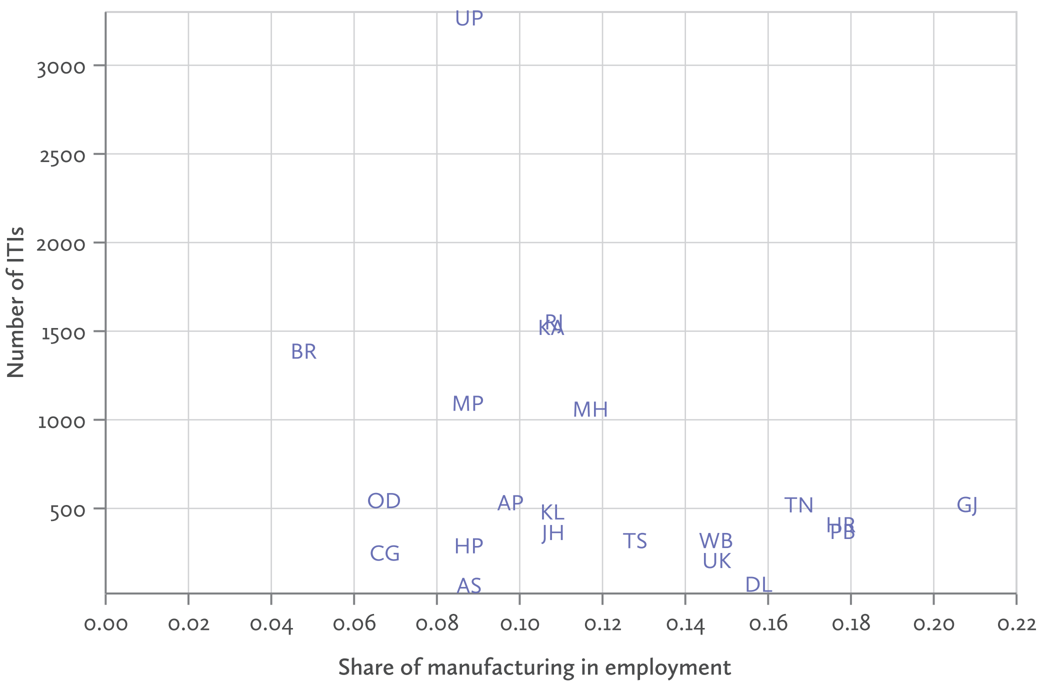
The state-level plots using PLFS manufacturing employment shares (Figure 5.20) reinforce this

Figure 5.19: No systematic relation between number of manufacturing firms and number of ITIs in a district



Sources and notes: NCVT-MIS (trainee-level data).

Figure 5.20: A state's share of manufacturing employment and its number of ITIs unrelated to each other



Sources and notes: NCVT-MIS (Trainee-level data) and PLFS 2023-2024

observation. The nearly flat fit between employment share in manufacturing and count of ITIs is largely driven by larger, labour-surplus states that built extensive ITI networks for reasons of coverage, not for supplying skilled labours to nearby industries. In fact, once Uttar Pradesh and the Union Territories are removed, the fitted line tilts mildly negative: states with higher manufacturing employment shares do not systematically have more ITIs, and several industrially strong states appear below the line. This is precisely the opposite of what a demand-led training infrastructure would look like.

Taken alongside the earlier evidence on ownership (public/private) and location (rural/urban), the pieces fit together. The post-2005 surge, powered by approvals for private ITIs to mushroom, multiplied the number of institutes in rural settings, bolstered the long-run shift toward rural siting. That shift expanded nominal access, but it also placed many new ITIs at a distance from potential industry networks. It is not merely a question of locating where jobs are, but also of the quality of training, since strategically locating ITIs can enable plant visits, guest teaching, equipment donations, and, crucially, apprenticeships. At the same time, Figure 5.7 showed that the private wave was also the lower-quality wave, exacerbating the impact of spatial misalignment.

There is a second layer to the mismatch between ITI and industry location: the nature of India's enterprise structure. Much of manufacturing remains small, informal and subcontracted. In such settings, the dominant training technology is still on-the-job learning mediated by labour contractors and/or kinship networks, not formal intake from ITIs. Even in districts with mid-to-large plants, the presence of informal recruitment processes weakens the return to building collaborations with ITIs. In fact, Box 5.1 highlights the importance of both these cases: spatial linkage with industry and the importance of social networks in finding dignified industrial employment.

Box 5.1 Does ITI training lead to employment? Narratives from two field sites

| Based on fieldwork by Srishti Yadav and Dontha Prashanth

During their fieldwork, Srishti Yadav and Dontha Prashanth spoke to dozens of young men and women in Rewari (Haryana) and Karumanchi (Andhra Pradesh) respectively, who are either studying or have completed courses from ITI. The narratives shared by the respondents confirm and complement our observations in this chapter, specifically when it comes to the linkage between ITI training and the labour market. Analytically, the observations from the two field sites can broadly be mapped to a set of necessary and sufficient conditions. First, jobs need to exist. For ITI training to meaningfully translate to employment, the presence of an industrial and manufacturing belt in the nearby areas is critical. Second, even when jobs exist, and even when skills matter, social networks rather than ITIs themselves mediate entry into work.

In Haryana's Rewari, where the industrial belts of Bawal, Gurgaon, Manesar, and Bhiwadi sit within commutable distance, the link between ITI training and employment is noticeably stronger. A young man named Manish offers one of the clearest illustrations of such a case. After dropping out of a BA degree that he felt led nowhere, he enrolled in the Electronics trade at the Government ITI in Rewari. His description of the course is detailed: theory classes taught in Hindi, practical sessions using tools, and design classes where students drew components by hand. He insists the training made him feel genuinely prepared. When he later interviewed at GLS Alopath, a company making tetra packs, the interviewers asked him questions straight from his ITI coursework. He answered confidently, was selected the next day, and today holds a permanent position earning ₹23,500 with PF and other benefits. In his case, ITI training clearly mattered.

A similar pattern appears in the story of Satyam Kumar, a young man from Savitha Rani's household. Satyam had completed an ITI course in Mozabad years earlier, and recently he found work as a quality checker in the warehouse of Global Bees in Lohari. The job was contractual and modestly paid, but steady. Again, the crucial step was not the ITI certificate itself but a WhatsApp message in the village network, circulated by a local contractor. Satyam's father saw the message and pushed him to apply. The ITI gave him just enough technical credibility to be selected, but the pathway to the job was informal and relational.

Other narratives from Rewari echo these patterns. A motor mechanic ITI graduate from Kund, works with his brother in a nearby company, commuting by bus every day. His wages are not high (around ₹11,000) but the employment arrangement is stable. Kishore, still training as an electrician in Mahendergarh, sees a clear ladder ahead of him: after completing ITI he plans to join a one-year diploma at NFL in Panipat, where many electrician trainees get work experience and some are even absorbed permanently. The structure of opportunity exists because the region is located within the Delhi-Gurgaon-Meerut industrial region and absorbs technical labour in significant numbers. These young men do not enter high-status positions, but they enter jobs directly or indirectly related to their ITI trade, something far less common in Karumanchi. Even older individuals in Haryana sometimes show this continuity. Punit Yadav, who completed an ITI course in Mozabad in the 1980s, spent nearly twenty years employed in the HR department of a company. His job was not in a technical trade, but the ITI certificate and Class 12 qualification together were enough to make him eligible in a formal industrial setting at a time when rural youth rarely entered such roles. Over time, though, even he admits that ITI has lost its prestige among better-off families - "ITI and Polytechnic are for the not-so-serious. Those who can afford it send their children to coaching." His comment reinforces what we have observed across this chapter: that ITIs could be useful in some cases, but rarely aspirational, and whatever prestige it had, has faded away over time.

The narratives from Karumanchi are in sharp contrast to this. First, almost all ITI graduates here are SCs or STs, as opposed to mostly small land-holding OBCs in Rewari. Without a manufacturing belt nearby, the industrial demand that sustains ITI graduates in Rewari, simply does not exist in Karumanchi. A young man with a Diploma in Electrical Engineering, for example, is now working as a painter, earning ₹800 a day. He once assisted a civil engineer and briefly held a job that matched his training, but today he is entirely outside the technical field. Another ITI electrician works as a *beldaar*, again at ₹800 per day, and says openly that neither employment nor wages justify distant migration. One graduate put it bluntly: "Did ITI, but no jobs."

What is striking in Karumanchi is not the absence of skill but the absence of absorption. The technical training exists, the certificates exist, but the ecosystem that would allow them to be used meaningfully is thin. Without a manufacturing cluster or industrial corridor within reach, the

ITI operates more like a fallback educational track than a path to dignified employment. Many respondents, when asked whether they are working in a job related to their education, simply say "No." In fact, across both field sites, many ITI trainees see the certificate less as a route into technical industrial work and more as a stepping stone toward public-sector employment. The real aspiration, whether in Rewari or Karumanchi, is a government electrician post, a railway job, or a position in the army or police. For the youth in Rewari, when these ambitions fail, at least the men can still fall back on the nearby industrial belt, where ITI skills carry some weightage. In Karumanchi, however, even this fallback does not exist. In the absence of public employment opportunities, compounded with extremely low rates of success, trainees are left with either casual labour or unemployment.

Yet, even in this constrained setting, a few individuals do find better pathways, and again the mechanism is network-based rather than institutional. An ITI Electronics graduate who is today a contractual employee with the AP Electricity Board, a relatively secure position, described being helped by someone who encouraged him to apply and guided him through the process. A young woman pursuing MLT (Medical Lab Technician) training moved into a job because a cousin working in a hospital informed her of the opening. Another became a P.E. teacher after finishing Teacher Training Course, a course she chose partly because she saw older girls in her neighbourhood do it.

Across both sites, ITIs rarely function as an institutional bridge into employment. Instead, ITI gives young people a credential and sometimes a skill base, but the actual crossing into the labour market depends on whom they know, who informs them of openings, and who is willing to vouch for them. Haryana's advantage is structural: the jobs exist, the pathways are visible, and the density of industrial employment means a relative or neighbour already inside the system can help. In Karumanchi, first, the extent of such networks is to a lesser degree due to the caste location of the trainees, but counterfactually, even if networks were to exist to a similar degree, that in itself cannot produce jobs.

What emerges from these observations is a picture that confirms the findings from secondary, administrative data presented throughout this chapter. The ITIs are modestly functional institutions, whose impact is deeply conditioned by the economic geography and social networks. In the presence of industrial belts in Rewari, it has worked to some degree, while in Karumanchi it has not. And whether the ITI trainees end up as a warehouse worker in Lohari, or as a painter at a construction site in Karumanchi, the decisive factor is rarely the ITI's placement cell or the formal channels of job seeking. It is the invisible economy of networks - relatives, village contractors, WhatsApp groups, neighbours already working in a firm that turns training into livelihood.

One might ask whether capacity, not counts, is the right variable. That is, a few large, well-equipped ITIs in industrial states suffice. While Box 5.1 offers some qualitative evidence of this for selected industrial belts such as Haryana and NCR, this does not weaken our argument. Government ITIs, even when fewer, tend to be better performers and closer to employers while the expansion on the private side added many small units with insufficient equipment, low industry linkages and vacant instructor posts. In other words, where industrial states rely on fewer institutes, they also tend to rely on better ones. And conversely, where low-industrial states rely on more institutes, they rely on weaker ones. The spatial correlation is weak not only because the ITIs are likely in the wrong places; it is also because of the huge spatial variation in the ITI quality itself. Thus, the question of strategically locating ITIs of higher quality, and why it has not been done so far, remains.

The consequence of such spatial delinking for employability is straightforward. A training system that is not situated where industrial production is, and does not routinely co-produce skills with employers, will struggle to convert certificates into jobs. Earlier, we saw persistent vacancies on the trainee side, a plateauing of admissions since 2018, and a quality gradient that deteriorated in the expansion years. The weak spatial linkage helps explain why these stresses persist: where the local economy cannot absorb the skills on offer, graduates either use such certificates for government jobs, accept unrelated service jobs, or migrate in search of work that often does not match their trade, potentially settling for a much lower wage than they would have received from a well-matched job. This is evident in the placement records of ITIs as well. While data on campus placements is mostly not available, the observations made in Box 5.1 above highlights the lack of formal paths to employment for an ITI trainee. Further, the NITI Aayog 2023 report notes the extremely low rates of such placement opportunities. In fact, as we will see in Box 5.2 and Box 5.3 respectively, the lack of formal placements and lower returns to skill training, is a persistent feature of the broader landscape of vocational training itself and not just limited to ITIs.

Box 5.2 Vocational Training: Trade choices and employment linkages | By Garima Agarwal

The UDAYA (Understanding the Lives of Adolescents and Young Adults) data, featured in Box 4.1 in Chapter 4, contrasted youth educational aspirations with attainment outcomes. The survey, carried out in Bihar and Uttar Pradesh, interviewed five categories of adolescents: unmarried girls and boys aged 10–14 and 15–19, as well as married girls in the 15–19 age group. The first round interviewed these adolescents between September 2015 and January 2016 in Uttar Pradesh, and between January to July 2016 in Bihar. They were then approached again three years later, during 2018–2019, by which time their ages fall within the ranges of 13–17 and 18–22. Here, we focus on individuals aged 15-19 at baseline and use this survey to understand how young adolescents in Uttar Pradesh and Bihar have accessed vocational education. We further split unmarried girls at baseline into two groups depending on their marital status by the second round.

One-third of young adolescents had attended a vocational training course at some point.
Around 31% of respondents had attended a vocational training program, substantially higher than the reported 2% share from the PLFS 2018-19. While the shares were not vastly different across groups, there was slightly lower participation from unmarried men and married women compared to unmarried women. This is not surprising since young men are more likely to have access to formal education and married women may exit from both formal and informal education due to social norms and domestic work. In each wave, about a quarter of respondents who enrolled in vocational training courses up to one year before the survey reported not completing the course.

Choice of courses are gendered - men preferred computer training and electrical work, while women preferred tailoring or beauty parlour training.
Among unmarried girls, computer training was a major choice. Among respondents in the second round who attended a course in the last year, Computer Training was the top choice for unmarried men (64%) and the second most popular choice for unmarried women (36%) (Table 1). Tailoring was the top choice for married (74-82%) as well as unmarried women (48%). Further, in general, we observed gender-conformant behaviour with men choosing electrical work and women opting for beauty parlour training as the next most popular choices.

Despite graduates' self reported competency about acquired skills, only less than one-quarter were subsequently employed in the same trade.
While around 83-86% of respondents who completed courses in the last one year in each wave felt competent to use the skills they acquired in training courses, only 23% and 15% in the first and second wave, respectively, reported getting employment in the same trade afterwards. In fact, these shares are largely on account of self-employment - 16% and 9% in the first and second wave respectively, Given the job-oriented nature of this training, vocational training institutes are often expected to facilitate labour market entry for graduates as well. Only 10% of the sample

Table 1: Top choices for vocational training courses attended

	UM 15-19	UF 15-19	UF_M 15-19	MF 15-19	Overall
Others	19	8	4	6	10
Tailoring	1	48	74	82	41
Electric work	15	0	0	0	4
Computer training	64	36	14	7	39
Beauty parlour	1	7	8	6	6

Sources and notes: UDAYA wave 2. UM - Unmarried male, UF - unmarried female, UF_M - unmarried female, married in the interim of the waves, MF - married female. The numbers in the labels correspond to their age in the first wave. Total N = 1743 and survey weights are applied. Each cell refers to the column share of respondents in each course category.

reported such support from their centres in the second wave. Of these, around a quarter accepted a placement.* A higher share of men reported receiving such support and also accepted offers at higher rates. The top reasons for turning down offers included low salary and difficult workplace conditions.

Overall, of those who enrolled in vocational training in the last year at the time of interview in the second wave, 35% reported engaging in any paid work in the last 12 months. Men and unmarried women reported higher shares of paid work compared to married women.

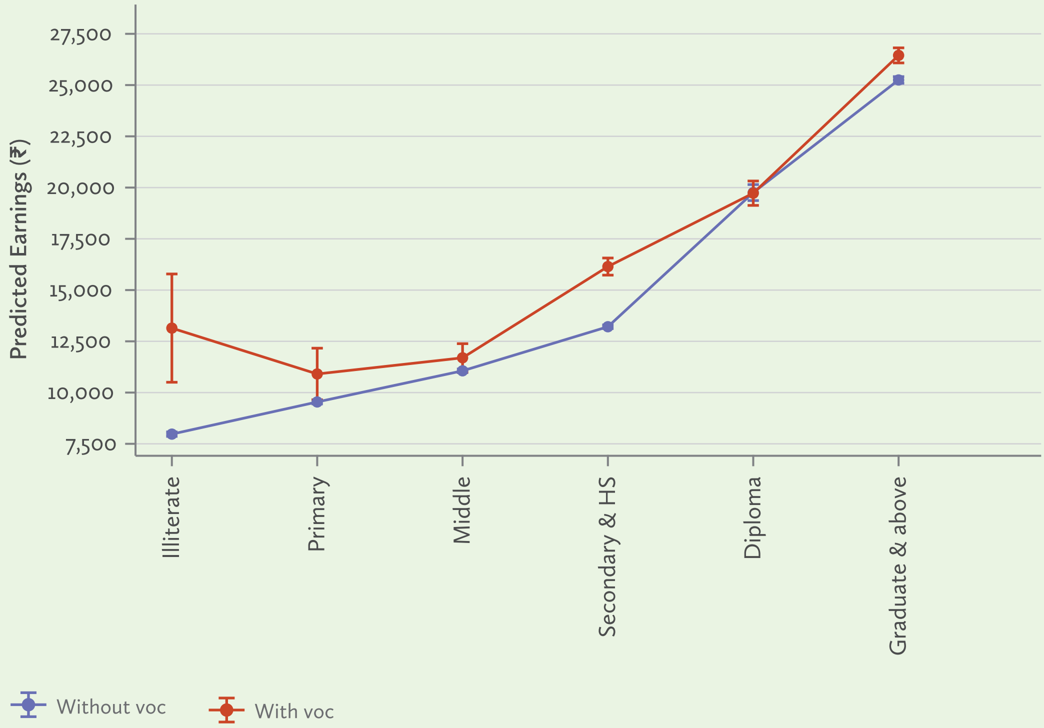
** The sample size is less than 100 for these estimates.*

Box 5.3 Estimating returns from vocational training | By Tamoghna Halder

The administrative records from ITI dashboards do not contain systematic information on placement outcomes, wages, or post-training trajectories of trainees. Instead, in order to get a reliable estimate of the impact of vocational training on wages, we draw on the PLFS. While it does not identify ITI trainees per se, it captures whether individuals have received vocational or technical training, and therefore makes it possible to examine the broader returns to vocational education. In fact, as discussed below, the characterisation of the PLFS sample on vocational trainees reveals certain similarities with the profile of ITI trainees, and thus for the specific purpose of understanding wage effects in the wider vocational ecosystem, we can use the PLFS as a reliable proxy.

The pooled post-Covid PLFS rounds cover nearly nine lakh individuals aged 15-59. Of this universe, only a very small proportion report receiving formal vocational or technical training, just around 3.4%, while roughly 22% report receiving some form of non-formal training, and the rest do not have any vocational training at all. Once we look at the trainee sample, we find that the age distribution of trainees is sharply concentrated among the young, which mirrors the ITI enrolments and reinforces the idea that vocational training in India functions largely as an entry-stage, pre-labour market mechanism rather than a mid-career upskilling strategy. Further, the educational profile of trainees aligns closely with what we see in ITIs. Formal vocational training is exceedingly rare among the illiterate (0.47% of trainees) and the primary-educated (2%), and only modestly present at middle-school levels (about 6%). The distribution peaks sharply at secondary and higher-secondary levels, which together account for more than a quarter of the trained sample. However, unlike the ITI sample, in PLFS the highest share of vocational trainees report graduates as the largest single group, at nearly 37%. That caveat

Figure 1: Returns to salaried employment, with and without vocational training



Sources and notes : PLFS rounds from 2021-22 to 2023-2024.

aside, PLFS seems to be a reasonable proxy to examine wage returns: it captures a vocationally trained population whose background is broadly comparable to that of ITIs, even if these are not institutionally identical.

We now turn to the central question: what do earnings look like for vocationally trained workers relative to those without such training? Figure 1 below presents the results of two parallel regressions. The first regression is estimated on the sample of salaried workers without vocational training, modelling log monthly earnings as a function of educational attainment along with controls for gender, caste, religion, and other standard covariates. The second regression applies the same specification to the sample of salaried workers with formal vocational training. The difference in coefficients across the two regressions, evaluated at each educational category, therefore captures the conditional wage premium associated with vocational training for that specific level of education.

The predicted values from these regressions, plotted in the figure above, shows the difference between earnings trajectories with and without vocational training. Among illiterate workers, the model suggests an apparently large premium, with predicted earnings rising from roughly ₹8,000 per month for the non-trained group, to over ₹13,000 for the trained. However, as noted earlier, illiterate individuals constitute only 0.47% of the vocationally trained sample. The cell sizes are so small that the associated standard errors are extremely high for the trained group, which means the estimated premium for this group cannot be interpreted substantively. The point estimate appears large purely because the regression is fitting a relationship on very sparse data and thus, even though the result is statistically significant, it cannot be taken as evidence that vocational training meaningfully boosts the wages of illiterate workers.

Once we move into the education levels that characterise greater shares of vocational trainees, a more reliable pattern emerges. At the primary and middle-school levels, the wage gap between trained and untrained workers is modest, and not statistically significant. The returns become more meaningful at the educational levels that dominate vocational training enrolments. For secondary and higher-secondary workers, predicted earnings rise from roughly ₹13,000 per month to over ₹16,000 with vocational training. This is the segment where skill formation begins to complement general schooling, making vocational training a recognisable signal of job readiness for technical or organised-manufacturing roles. The premium is almost 22 percent, and statistically more precise as well as significant than those at the bottom of the educational spectrum.

For diploma holders, vocational training aligns closely with the technical nature of jobs available to them, and the predicted earnings reflect no separation between the trained and untrained groups. Among graduates, the premium is again moderate but systematic. Given that graduates already possess relatively higher human capital, vocational training in their case possibly acts as a signal of 'hands-on' knowledge, and thus the slight premium attached to it, rather than a reward for transformative skill, unlike in the case of trainees with secondary/higher secondary background. The corresponding wage gaps, to summarise, reflect a positive, consistent, but not dramatic premium for vocational training.

We also run these regression separately for casual and self-employed workers. For casual, the base of vocational trainees is small (3.5%), and hence the results are not statistically meaningful. For the self-employed, which comprise 30% of the vocational trainees, we find a statistically significant penalty instead of a premium from vocational training. Taken together, the regression results do not reveal exceptionally high returns to vocational training; rather, they show that returns are conditional, segmented, and highly dependent on where in the educational hierarchy the trainee is located. The highest meaningful returns occur precisely in the strata that mirror the ITI educational profile: the secondary and higher secondary pool. This descriptive evidence from the PLFS, despite its lack of ITI identifiers confirms what one would guess – the premium that vocational training yields in labour markets, especially in salaried works remains weakly linked to training institutions.

5.7 Conclusion

Industrial Training Institutes were created to serve as a bridge between two foundational goals of post-independence India: reducing youth unemployment and generating the skilled industrial workforce needed for structural transformation. Their purpose was not merely to train individuals but to reshape the labour force in a way that could accelerate industrialisation, formal employment, and productivity growth. Yet, as this chapter demonstrates, several forces have fractured the connection between vocational training and the industrial economy.

Such a failure, however, cannot be understood through singular factors such as outdated curriculum, or even narrow institutional critiques. Instead, the empirical patterns point to a deeper system-level failure, where weaknesses within ITIs intersect with broader spatial, social, and economic structures. The analytical framework that emerges from this chapter, places the ITI system at the centre of a series of mutually reinforcing constraints that undermine both the employability of trainees and the broader developmental goals it was originally designed to serve.

At the macro level, India's weak structural transformation forms the overarching context within which ITIs operate. Unlike economies that successfully shifted large segments of the labour force from low-productivity activities into manufacturing, India's manufacturing sector has remained small, geographically uneven, and unable to absorb a growing youth population. This limited absorptive capacity means that even well-trained workers would struggle to find sustained opportunities in industrial employment. In parallel, the high spatial dispersion of manufacturing activity, where industrial firms and clusters are located only in certain clusters, creates a persistent geographical mismatch with ITIs that are often located outside these industrial belts. This spatial misalignment weakens apprenticeship possibilities, reduces employer–trainee contact, and makes placement difficult even when skills are aligned with industry needs.

Within this wider environment, the internal functioning of ITIs produces another layer of constraints. The system suffers simultaneously from low-quality instruction and low demand for ITI training itself. Beyond the traditional criticisms such as outdated training equipment and curricula, this report highlights high vacancy rates among instructors, and even among that limited pool, very few instructors have certification to teach at these ITIs. These imply that many trainees graduate with skills that are poorly aligned with contemporary industrial requirements. This produces a cycle of poorly prepared workers who struggle to gain traction in the labour market.

Equally consequential is the limited social demand for ITI training. Caste-based occupational hierarchies and the low social prestige associated with industrial and manual labour continue to shape educational aspirations in profound ways. For those from dominant caste, ITIs are likely not seen as a serious option as it is designed to lead them to non-caste aligned industrial labour, and for those from marginalised caste groups, higher education or a college degree is a pathway to respectable and dignified employment opportunity that puts them in an upwardly mobile trajectory. Therefore, the social location of ITIs within India's caste-structured labour market is therefore central to understanding their persistent underperformance. Even in terms of gender, high degree of segregation makes it difficult for women trainees to land a job in the manufacturing sector, further entrenching the weak structural transformation.

The downstream consequence of these intersecting failures is visible in the labour market outcomes of ITI graduates. A large share of trainees either remain unemployed, cycle through short-term informal work, or shift into low-productivity service roles with little connection to their training. The informal sector continues to act as the de facto absorber of youth labour, offering neither wages nor working conditions that align with the objectives of a meaningful skill development strategy. Youth unemployment, therefore, remains a persistent outcome of this systemic misalignment.

Crucially, these outcomes do not merely reflect the weaknesses within the ITI system; they feed back into and reinforce the broader structural constraints. High levels of youth unemployment despite the recent boom in ITIs, discourage policymakers from institutional investment in improving ITI quality. The continued reliance on informal sector absorption, coupled with a dominant practice of hiring via informal networks, especially in case of smaller and medium firms, diminish the incentive for firms to engage meaningfully with the placement cells of these training institutes. Spatial mismatches remain unaddressed because in any case, migration for informal work has become a dominant fall back option for most of the workforce. In this way, weak structural transformation and ITI system failures reinforce each other.

"The informal sector continues to act as the de facto absorber of youth labour, offering neither wages nor working conditions that align with the objectives of a meaningful skill development strategy. Youth unemployment, therefore, remains a persistent outcome of this systemic misalignment."

Understanding ITIs through this systemic lens underscores that reforms such as curriculum updates or short-term placement drives will not achieve meaningful change. What is required is a rethinking of the institutional, spatial, and social structures within which skill formation occurs. Without addressing these deeper constraints, ITIs will remain peripheral to India's long-term developmental trajectory, and youth unemployment will continue to signal the disconnect between educational intentions and economic realities.

Endnotes

1 This is a program under the Directorate General of Training (DGT) in India designed to train individuals to become skilled instructors for ITIs.

2 We also validate this claim by conducting a few test cases from a different part of the NCVT MIS portal.

06

Job search and the transition from college to employment

06 Job search and the transition from college to employment

6.1 Introduction

The transition from completing school or college and moving into employment is a crucial one at both the individual and the societal levels. At the individual level, a short transition enables young people to enter the workforce, start gaining experience as well as earn. At the societal level, a transition that is quick and to good jobs indicates a well-functioning labour market. However, the high rates of open unemployment among educated youth in India suggest that the school-to-work transition may not be occurring in a desirable manner. A large share of fresh graduates are in open unemployment soon after college, often for long durations, indicating a less than smooth transition from college to employment. However, this is also a difficult phase to unambiguously characterise. While exit from formal school or college is easily defined, characterising the transition involves identifying the process of job search but also the final outcome of the search. Empirically, the school to work transition can be measured in terms of the duration between the exit from school and entry into employment, or in terms of the processes by which young adults seek out suitable employment upon leaving school.[1]

In the context of low and middle income countries, two aspects further complicate the study of school to work transition.[2] First, a systematic understanding of the school to work transition is impeded by the lack of panel data that follows young individuals in the final stages of schooling and into their subsequent post-schooling outcomes, whether it is open unemployment, a transition into work or withdrawal in the labour force.

The second aspect that makes it difficult to understand the transition process, even with panel data, is the ambiguity in capturing the job search process. In labour statistics, job search is typically indicated by 'unemployment' defined as those who are currently not employed but are willing to work. The expressed willingness to work becomes the indicator of job search. However, in many contexts, unemployment or job search may not be openly declared. In the absence of good jobs in the private sector, many youngsters prefer public sector employment, with their 'waiting' being characterized as preparing for exams that qualify them for these jobs. In such cases, these youngsters may either report themselves as being students or as out of the labour force (and not as unemployed), where in reality they are waiting for suitable employment. This 'queuing' for jobs has become an increasingly important feature of India's youth (Mangal and Singh 2024; Jeffrey 2010).

Of course, the ability to wait is certainly not an option available to all. For poorer households, youngsters cannot afford to spend too much time waiting or searching for a suitable job. The time spent waiting is a cost in terms of the potential earnings lost. Even if these earnings may be relatively low, for poor households, it will still be a substantial share of the family income. Therefore, rather than waiting for the suitable job, many youngsters will instead choose to take up any employment that comes their way. In such cases, 'underemployment' may be one kind of a job search strategy. Underemployment is a situation where workers match with jobs that require far less skills or education than they are equipped with.[3] Consider, for example, someone with an engineering degree working as a delivery person, or someone with a college degree operating a low earning petty food vending business. In many cases, underemployment is a result of these individuals not having the luxury to wait for a job that matches their qualifications. Consequently, underemployment may be a way to 'get their foot in the door', from where they hope to get into their desired employment via multiple jobs and job-hopping. A large share of the population, particularly, the youth, engaged in self-employment is often a sign of this kind of an entry into the labour market.

When graduates are underemployed, i.e, matched with jobs that are below their qualification, their prospects in the labour market might be worsened. Employers might regard an individual working in a low-skill job (or a job that is below the individual's actual qualifications) as a sign of low productivity or inadequate capacity of the individual, and so may be reluctant to hire. On the other hand, employers may regard this as a sign of resilience and may value the on-the-job experience. We do not know much about which of these employers would value. In a field experiment in Burundi, for instance, Ndayikeza (2025) found that employers scored resumés of graduates with low-skill experience higher than resumés of graduates who had no work experience after college. There have been similar findings for women (Farber et al. 2016). In general, the evidence is mixed. In the Indian context, we do not know much about underemployment as a job search strategy. What we do know is that the job ladder is broken - there does not seem to be major employment trajectories that move individuals from informal, casual work into regular formal salaried employment (Sen 2024; Abraham and Kesar 2025) suggesting that perhaps underemployment may not be a viable route to better employment.

Finally, another aspect that conflates the measurement of job search or open unemployment is that women are often unlikely to identify themselves as openly unemployed. During the Covid-19 employment crisis, for example, while men who lost their jobs reported themselves as unemployed, women who lost their jobs were more likely to report as being out of the labour market (SWI 2021). For women, then, the job search process may actually be captured by those who are out of education but report themselves as neither in employment nor in education. However, it is difficult to substantiate whether these women are indeed 'willing to work' as per the traditional understanding of unemployment, or if they have chosen to opt out of labour market participation.

In this chapter, we examine the school to work transition from multiple perspectives and sources. While open unemployment only captures the tip of the iceberg when it comes to search /desire for employment, it is still an important and the most unambiguous indicator available. Keeping these limitations in mind, first, we look at the open unemployed from the official employment and unemployment surveys (EUS and PLFS), examining the trends in open unemployment, the relationship with age and education. We try to understand the school to work transition better by looking at cross-sectional comparison of changes in unemployment rate across the 20 to 29 year olds, and the differences by education level and other attributes. In the next section, we use a question on job search strategies that was recently introduced in the PLFS and was asked to those who report as unemployed to understand the major job search strategies among graduate youth and differences by social identity. From qualitative surveys of young men in Haryana, and visits to job fairs in and around Bengaluru, we get a more nuanced understanding of the role of social networks, youth aspirations and employer expectations. We also bring in time use data from the recently released Time Use Survey to understand how unemployed youth are spending their time. Finally, using panel data from CMIE's Consumer Pyramid Household Survey, we try to understand the duration of the job search process asking how long it takes for fresh young entrants to the labour market to secure employment. With the same panel data, we compare the job search strategies of waiting for a good job versus underemployment. Finally, based on interviews with government job aspirants in Bihar, we learn about their motivations and distrust for private sector jobs.

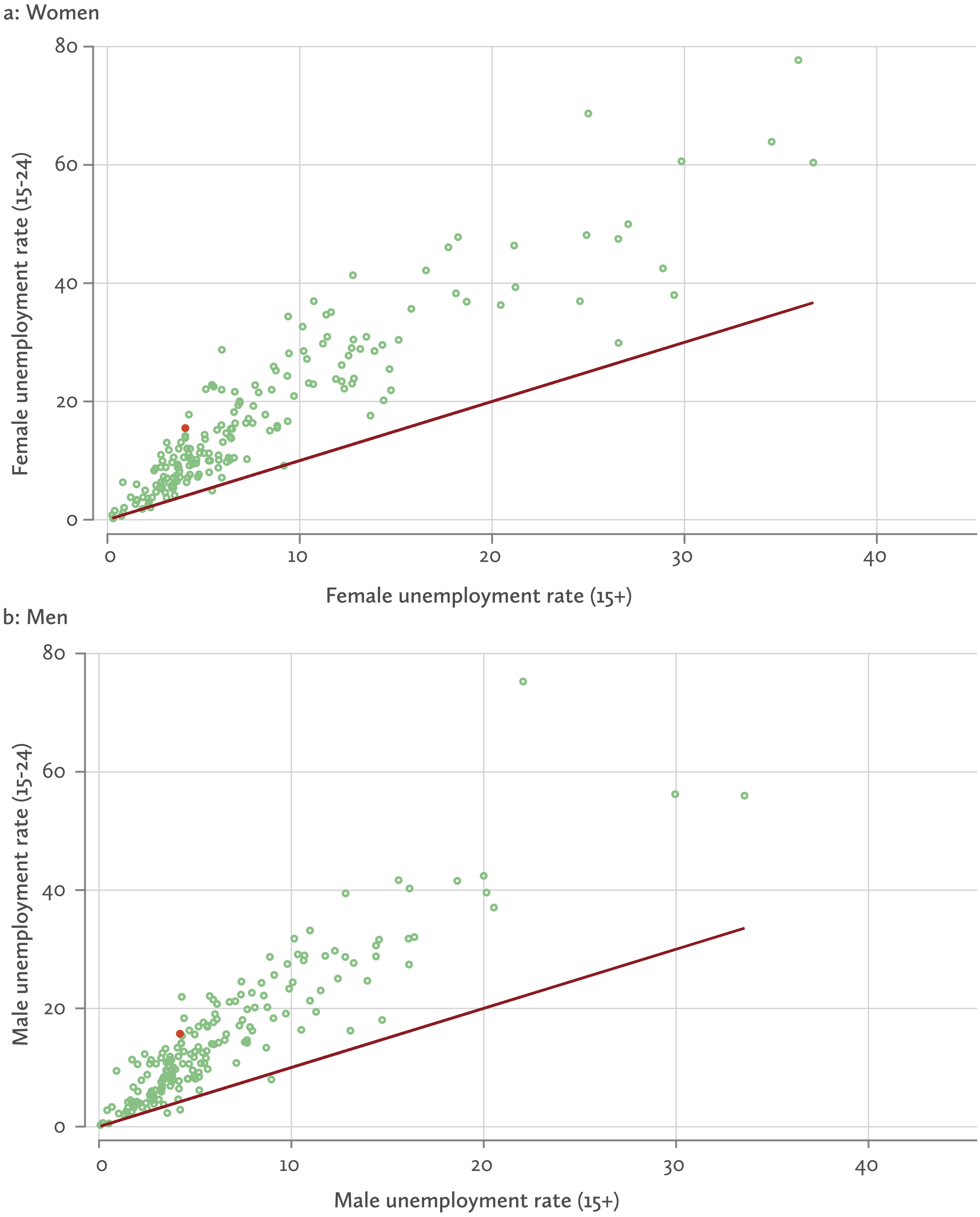
6.2 Youth unemployment in an international context

Youth and non-youth unemployment rates are closely linked. The former tends to be, in general, higher than non-youth unemployment rates. For instance, in OECD countries, in the early 1990s, a one percentage point increase in adult unemployment was associated with nearly two percentage point increase in youth unemployment. In transition economies, the corresponding number was estimated at 1.5 (O'Higgins 2003). In the two panels of Figure 6.1, we compare the youth and overall unemployment rates, disaggregated by gender, using cross-country data from the World Development Indicators (WDI) for 2023. The close positive link between overall and youth unemployment rates is itself revealing. Open unemployment is a clear reflection of lack of labour demand and high unemployment rates among adults and youth, in general, reflecting the aggregate demand constraints that both these demographics face. If overall labour demand is muted (reflecting in high unemployment rates), it is likely to impact youth unemployment too. Of course, we are not implying a causal relationship, but rather that these two phenomena are very closely linked. In fact, employers may actively prefer older (more experienced) workers and/or social networks may be more effective and stronger among older workers. This can also explain why older workers have slightly lower unemployment rates compared to the younger workers. In general, the pattern suggests that youth unemployment rates consistently exceed overall unemployment rates by a factor just under two, for both men and women. However, in India, this disparity is particularly high.

6.3 Unemployment among youth over time

Figure 6.2 shows the unemployment rate, disaggregated by the level of education and across age groups, for two time points, 1983 and 2023. What is clear is that youth unemployment is not a new phenomenon in India. As early as 1969, Blaug et al (1969) note that there were at least ten commissions set up in the decade between 1927 and 1937 to understand the problem of acute unemployment among the educated middle class. Neither is the phenomenon of high graduate unemployment. In 1983, unemployment rate among young graduates was around 35% and in 2023 too, this number was still high at around 40 percent.

Figure 6.1: In India, youth unemployment is four times non youth, much higher than global average



Sources and notes: World Development Indicators, 2023. The line is the 45 degree line of equality. The red dot represents India.

Figure 6.2: Graduate youth unemployment has been a persistent problem in India

a: 1983

	Less than 25 years	25-29 years	30-34 years	35-39 years	40 years and above
Graduate & above	35.02	12.15	3.09	1.12	0.51
Secondary	26.11	10.18	4.36	1.38	0.80
Primary or middle	10.98	4.87	2.76	2.35	2.20
Literate but below primary	5.97	3.18	2.12	2.44	1.97
Illiterate	3.82	3.17	3.26	2.60	2.57

b: 2023

	Less than 25 years	25-29 years	30-34 years	35-39 years	40 years and above
Graduate & above	39.33	20.04	8.94	3.25	1.09
Higher Secondary	16.33	7.01	3.33	1.65	1.09
Secondary	9.97	4.10	1.60	1.17	1.17
Primary or middle	8.98	3.40	2.37	1.91	1.42
Literate but below primary	7.60	0.63	2.70	1.80	1.68
Illiterate	8.09	1.06	2.17	1.67	1.60

Sources and notes: EUS 1983-84 & PLFS 2023-24. The number represents the unemployment rate pertaining to each cell.

As age increases, we see lower levels of unemployment among higher age groups, across all levels of education. We look more closely at these two aspects - the high graduate unemployment rate, and the declining rate with age, separately in the next section.

> What is clear is that youth unemployment is not a new phenomenon in India. Neither is the phenomenon of high graduate unemployment. In 1983, unemployment rate among young graduates was around 35% and in 2023 too, this number was still high at around 40%, more or less unchanged.

of too many graduates chasing too few jobs - an excess supply compared to demand. As Chapter 4 showed, since the 1990s, we have seen a mushrooming of higher educational institutions and a corresponding increase in tertiary enrolment, resulting in an influx of educated graduates. At the same time, growth of employment has been stagnant (SWI 2018).

6.3.1 Why is graduate unemployment particularly high among the youth?

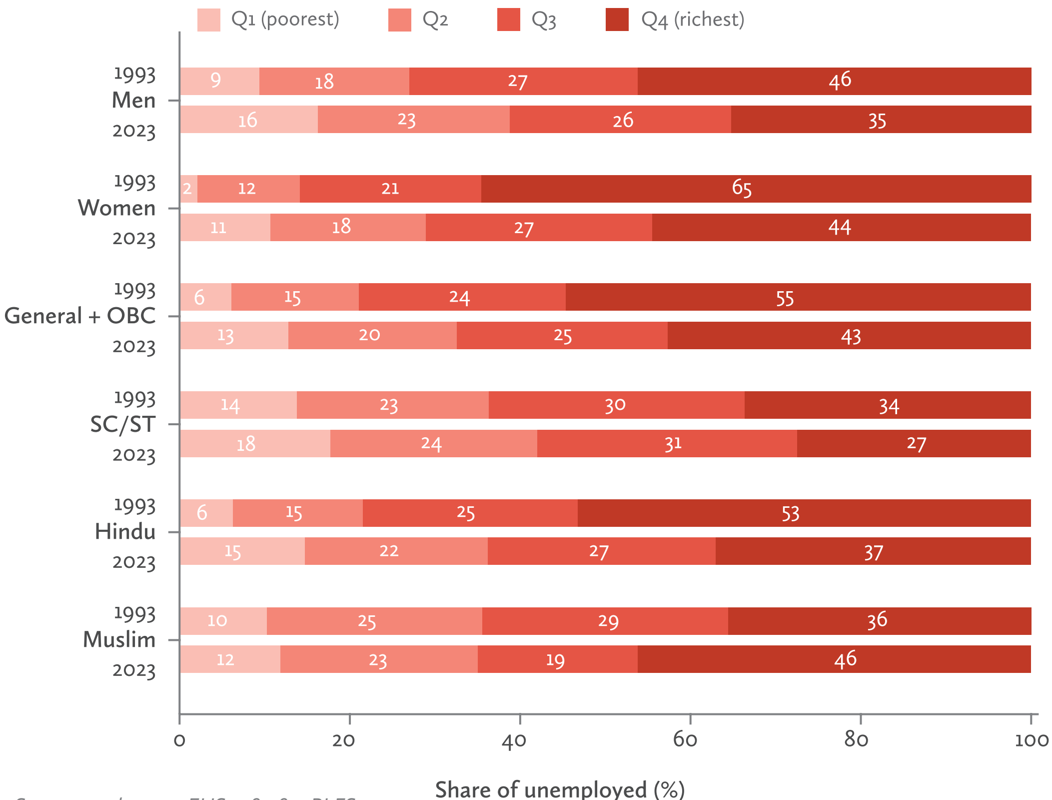
In high income country contexts, the evidence seems to suggest that higher education is associated with a faster school to work transition, although the duration varies from 9 months (in United Kingdom) to 34 months (in Italy) (Pastore et al. 2021). In general, higher levels of education is associated with shorter transition durations (see Nilsson 2019 for a review of evidence). However, we see that this relation is often not as straightforward in low income contexts. In Egypt, for instance, there is no correlation (Assaad et al. 2010), as well as in Mali where higher educated youth seem to spend longer time in finding employment.

There are multiple explanations for why graduate transition takes longer. One reason is that it is a case

Another explanation for the persistently high graduate unemployment rates could be that young people in their early 20s with some education prefer to wait for the right job. This includes spending time preparing for various competitive examinations including for public service employment at the central and state level. Or this time may be spent in skilling and upskilling in anticipation of better jobs.

One indication that unemployment has become more affordable comes from Figure 6.3. While a high likelihood of being young and being graduate are enduring features of the Indian unemployed, there is one aspect among this pool that has substantially changed over the years. This is the income of the households that they belong to. Over time, unemployment has become more prevalent even among the poorer households. In Figure 6.3, we show

Figure 6.3: Graduate unemployment is no longer restricted to upper income quartiles



Sources and notes: EUS 1983-84, PLFS 2023-24 the distribution of income quartiles among the pool of graduate unemployed, disaggregated by different groups. An income quartile, by definition, divides the total sample into four equal sized sections. We see that the size of each quartile is not equal, which tells us that certain income quartiles are under or over-represented in that subset.

We begin by first constructing income quartiles for the full sample of unemployed graduate youth. And then we see the quartile affiliation of the pool of unemployed young graduates, disaggregated by their gender, caste or religion, as shown in Figure 6.3. In 1993, among young men, 73% of unemployed graduates belonged to the richest 50% of households (quartile 3 and quartile 4) and the remaining 27% came from the bottom 50% of households. By 2023, what we see is a more 'equitable' distribution of unemployed young graduates across all the four quartiles. The share of unemployed graduates coming from poor households increased to nearly 40% by 2023.[4] We see a similar equalisation trend among women, General/OBC groups and Hindus.

Among SC/ST, the share of poorest households among young unemployed graduates does not change much over the years.

And interestingly, for Muslims, the distribution has changed in such a way that the unemployed graduate pool is increasingly from richer households.

What does this tell us about the nature of graduate youth unemployment? If we interpret open unemployment as a sign of waiting for a job, then this indicates that waiting, as an option, has become more available to relatively poorer households, compared to earlier years. As absolute incomes of households have risen, families are able to forego the additional income from one more working member for some time, giving the ability for graduates to stay unemployed and seek suitable jobs that match their qualifications and aspirations for a longer period. So graduate unemployment, from being an elite phenomenon, has become a more widespread pattern. Of course, as we saw earlier, ultimately graduate unemployment rates fall as individuals age.

For the graduate women who remain out of the workforce, whether in education, NEET or in unemployment too, we see a similar 'equalisation' of household quartiles in this group over time. Graduate women who are remaining out of the workforce no longer come from only the high income households, but are also likely to come from poorer households. There is no over-representation of graduate women from a given income bracket.

It could also be that labour demand is skewed towards older workers and employers do not wish to hire fresh graduates. There may be several reasons for this including concerns around employability of young graduates, their lack of experience or skill mismatch.

For instance, according to the India Skills Report 2025 (Wheebox 2025), only about 50 percent of graduates in India were employable. Although this is an improvement from 33% a decade ago, the fact that half of the graduate pool were considered unemployable, can also explain employers' hesitation to hire fresh graduates. It is likely that young graduates may use their time out of employment to acquire skills outside and hence become employable with age. Currently, however, we know little about employers' perspectives and their concerns regarding hiring of young graduates.

“By 2023, what we see is a more 'equitable' distribution of the unemployed young graduates across all the four quartiles. The share of unemployed graduates coming from poor households increased to nearly 40% by 2023. We see a similar equalisation trend among women, General/OBC groups and Hindus.”

Coming back to the problem of persistent and high graduate unemployment rate, we find this as a cause for concern for two reasons - the high incidence rate of unemployment compounded by the large scale of the unemployed. Firstly, as a result of burgeoning youth population (because of the age structure) as well as increased enrolment in tertiary education, the number of graduate youth have increased in absolute terms in the last few decades - from 5 million in 1983 to 63 million in 2023. And, among the unemployed, graduates now constitute an increasingly large share,

Table 6.1: As the number of graduates increased, so did the incidence of unemployment

	Graduates		Unemployed graduates	
	As a share of 20-29 year olds (%)	No. (in million)	As a share of 20-29 unemployed (%)	No. (in million)
1983	4%	5	13%	0.7
1993	6%	9	22%	2
2004	10%	19	32%	3
2011	16%	32	44%	4
2017	22%	49	46%	10
2023	28%	63	67%	11

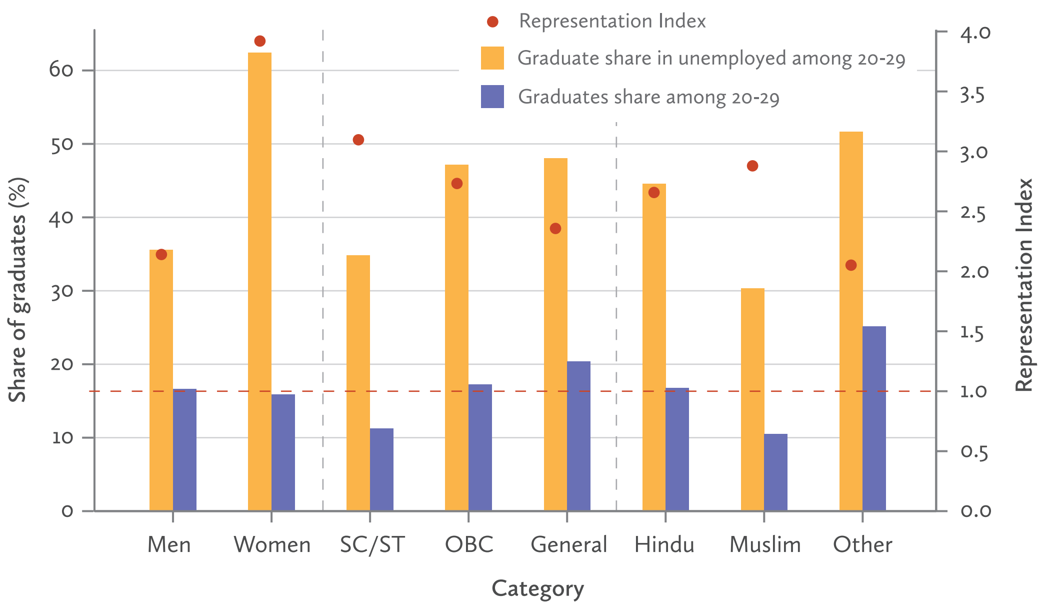
Sources and notes: NSS EUS and PLFS, various years

increasing from 13% to 67% (Table 6.1). Together, this means that a high unemployment rate among graduate youth translates to a very large number of young individuals.

The share of graduates has more or less steadily increased over the last few decades. However, between 2011 and 2017, we see a massive surge in the number of unemployed graduates from 4 million to 10 million. As you can see, this huge increase is partly coming from the increase in the share of graduates (from 22 to 28 million) as well as an increase in the graduates among the pool of unemployed (from 46 percent to 67 percent).

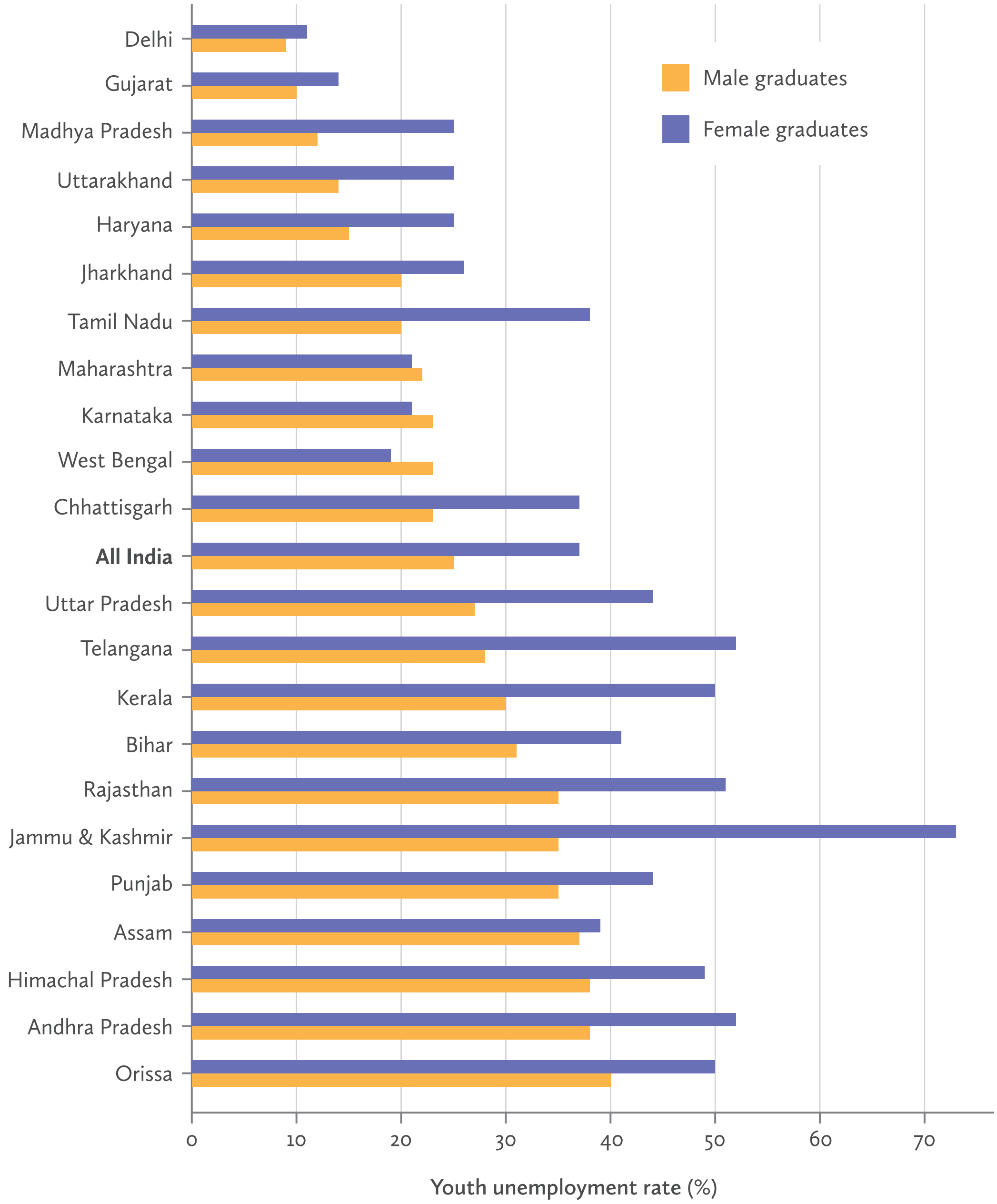
Note that this over-representation of graduates among the pool of unemployed is seen across all social groups to varying degrees (Figure 6.4). For instance, in 2023, of the women between the age of 20 to 29 years, less than 20 percent were graduates. However, among the unemployed women of this age, graduates accounted for nearly 60 percent, giving an over-representation by a factor of 3 (Figure 6.4). Graduate unemployment is also particularly high among Muslims and Scheduled Castes and Scheduled Tribes. This over-representation of the socially disadvantaged points towards further barriers in their entry into the labour market.

Figure 6.4: Graduate over-representation among the unemployed is most severe for women



Sources and notes: PLFS 2023-24. Representation index is the ratio of the share of unemployed graduates among 20-29 year olds to the share of graduates among 20-29 year olds

Figure 6.5: Large state level variations in graduate youth unemployment rates



Sources and notes: PLFS 2023-24

Finally, the graduate unemployment crisis varies across states. Delhi and Gujarat have the lowest levels of unemployment among graduate youth (men and women), while Orissa and Andhra Pradesh have among the highest.

> **"Firstly, as a result of burgeoning youth population (because of the age structure) as well as increased enrolment in tertiary education, the number of graduate youth have increased in absolute terms in the last few decades – from 5 million in 1983 to 63 million in 2023. And, among the unemployed, graduates now constitute an increasingly large share, increasing from 13% to 67%."**

Notably, the youth graduate unemployment rates seem unrelated to the size of the youth cohort, as we can see from the very similar levels of unemployment between Kerala and Bihar, states with the lowest and highest share of the youth population. And, in general female and male graduate unemployment rate seem to be highly correlated - states with high female graduate unemployment are also states with high male graduate unemployment, with the exception of some states like Jammu and Kashmir and Tamil Nadu.

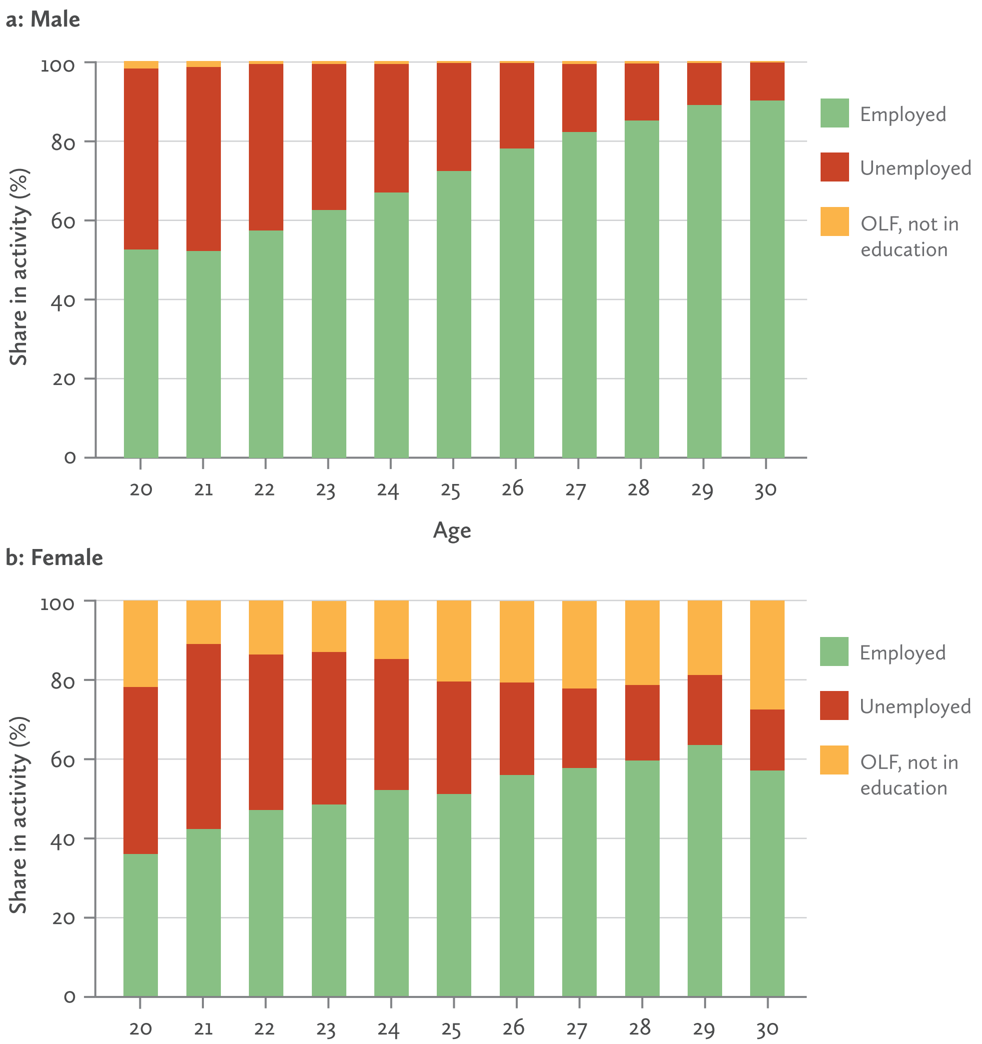
6.3.2 Graduate unemployment rate is lower with higher age

The second observation from Figure 6.2 is the fall in unemployment as age increases. This is a sign of two distinct dynamics. Remember that unemployment rate is measured as those who report being unemployed as a share of the total labour force where the labour force includes the unemployed and the employed. A falling unemployment rate with age may, on the one hand, indicate that as individuals grow older (maybe get more skills and develop more networks), they eventually secure employment, or that they stop waiting and join whatever employment comes their way. Alternatively, the fall in unemployment may also come about due to individuals no longer openly reporting unemployment and withdrawing from the labour force entirely. This happens when workers are discouraged and stop searching for jobs or expressing their desire for employment.

6.3.2.1 Unemployment and the transition to employment

In all of the above analysis, we have essentially been looking at the cohort of youth at a particular point in time. In order to really understand the school to work transition, ideally, we would have liked to track the same group of individuals from school, over a few years, as they seek jobs and eventually enter the workforce. In the absence of a longer panel that tracks the same group of potential workers over time, it is difficult to pin down the school to work transition and the rate at which individuals move out of unemployment into employment with age. However, we can get a partial understanding of the transition if we use the cross-sectional data and restrict to individuals within a narrow age range tracking their employment status in this short duration.

Figure 6.6: With age, young men are more likely to be employed and women are more likely to be out of the labour force.



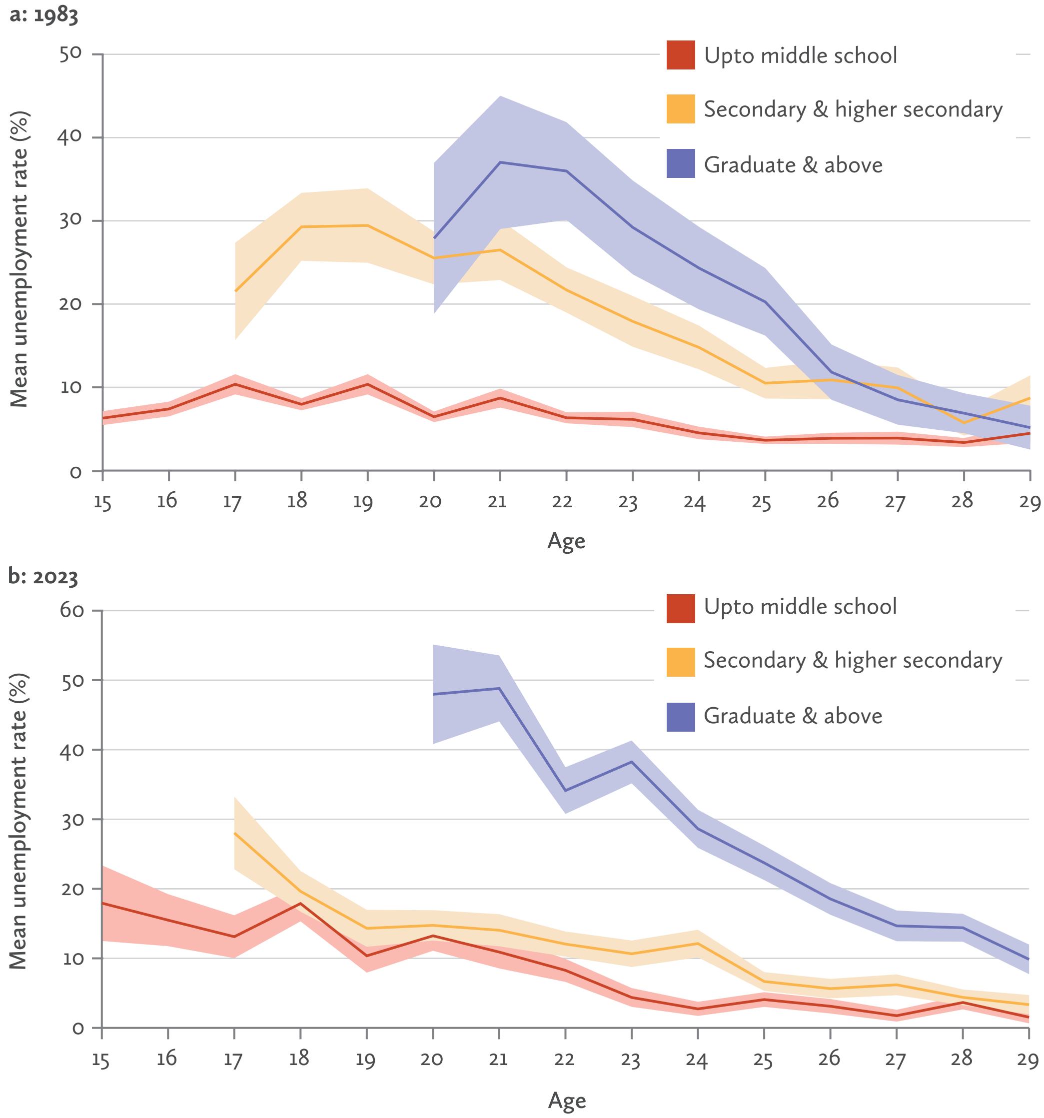
Sources and notes: PLFS 2021-22, 2022-23 and 2023-24

For this, we use multiple EUS and PLFS rounds to examine the relationship between age and employment status among three groups of youth - those with education up to the middle school level, those with secondary or higher secondary education and those with college degrees. We conduct an analysis of pooled PLFS rounds (2021-22, 2022-23, 2023-24). We compare unemployment rates across education categories by age between 1983 and 2023. The age brackets we use are 15 to 29 years for those with education up to middle school level, 17 to 29 for secondary and higher secondary and 20 to 29 for graduates.

Figure 6.6 shows the distribution for each age group across three categories - employed, unemployed and out of the labour force for reasons other than education for men and women. As can be seen, for men the proportion of individuals who are unemployed initially exceeds those who are employed. But there is a steady decline in unemployment and a rise in employment. For women, the picture is very different. Initially, unemployment does account for a significant proportion, but with age, unemployment declines and the proportion who are out of the labour force rises, with employment more-or-less stagnating after age 23 years. Therefore, open unemployment, as a measure of job search is more meaningful in the case of men and so for the rest of the analysis, the decline in unemployment rate is restricted to men, hereafter.

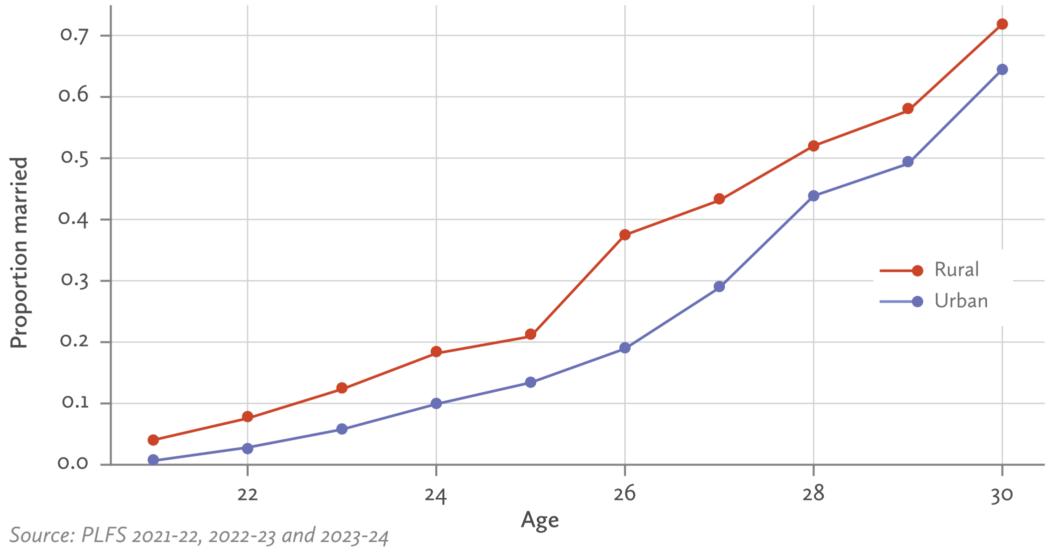
Figure 6.7 shows the relationship between age and the unemployment rate (UR) among men with education up to middle school (red), secondary and higher secondary (yellow) or college degrees (blue) for two time periods - 1983 and 2023. The UR is always higher for graduates than for those with lower levels of education and the highest (40 to 50%) for graduate men in their early 20s. We see a steady decline in the unemployment rate with age.

Figure 6.7: Unemployment rates steadily fall as men age, for both graduates and non-graduates, but the convergence has slowed down in recent years



Sources and notes: NSS EUS 1983-84 and PLFS 2023-24. Shaded area represents 95% confidence intervals

Figure 6.8: Proportion of men who are married in rural and urban areas



Source: PLFS 2021-22, 2022-23 and 2023-24

One difference between 1983 and 2023 is the convergence between the middle and secondary/higher secondary unemployment rates. A second difference across the decades is the behaviour of the least educated group. There is an upward shift in their unemployment rate. We see a significant fraction (around 20 to 30%) of even those with up to a middle school education remain unemployed for the first few years after joining the labour force.[5] Whether this is due to an increase in the ability to wait for better job opportunities due to a rise in household income or due to lack of any employment opportunities cannot be determined from this data. However, given that this group is unlikely to qualify for most formal sector jobs, and the fallback option of self-employment is always available, it is possible that the rise in the UR reflects the ability to wait.

We also verify that the above trends hold by estimating the relation between age and unemployment rate using a simple regression model controlling for a range of individual and household characteristics that can impact the probability of unemployment (see online Appendix for details of the regression model). These include marital status, caste, religion, rural or urban location, the type of employment of the head of the household, the MPCE quintile and the state of residence. For graduates we also have a control for whether they have a technical or a general degree.

The regression framework allows us to identify other factors, besides education, that is associated with unemployment. An important factor appears to be the economic status of the household as proxied for by the MPCE quintile. As one moves up the quintiles, i.e., towards richer households, there is a gradual fall in the likelihood of being unemployed. Individuals from the top quintile are least likely to be unemployed. This is interesting because there are two countervailing effects at play here. Being from a relatively well-off household increases the capacity to wait for desired jobs (or study for competitive exams) thereby increasing the probability of reporting as unemployed. But it may also enable faster finding of work or setting up of own enterprises, thereby reducing unemployment probability. The fact that the overall impact is negative in every period suggests that overall the latter effect dominates over the former.

Compared to the General Category, young graduates from SC/ST households are more likely to be unemployed. Muslims, on the other hand, are less likely to be unemployed compared to Hindus. The type of employment engaged in by the head of the household plays a significant role. Individuals are more likely to report unemployment if the head of the household has a salaried job as compared to where the head is self-employed. Recalling the two effects mentioned in the previous paragraph, it appears that the waiting effect may dominate for this demographic group.

The regression analysis also reveals a few other important determinants of youth unemployment. Marital status has a large, significant and negative relation with the unemployment rate. For example, in 2023, young graduates who were married were 16 percentage points less likely to be unemployed than their unmarried counterparts. Since the probability of being married rises with age (Figure 6.8), we can surmise that some of the decline in the unemployment rate with age is due to rising probability of being married with the accompanying social expectation to be employed. Of course, since all these events are happening at once (job search, marriage etc) the cross-sectional data does not allow us to tease these factors apart.

However, we can estimate the rate of decline in the UR with age with and without controlling for marital status. For this, we use a continuous age variable rather than categorical as has been done thus far in the regression analysis. This analysis is restricted to three pooled PLFS rounds (2021-22, 2022-23 and 2023-24). Other controls discussed earlier are included in both models.[6]

As expected the coefficient on age is negative - as age increases, likelihood of unemployment falls. However, the coefficient is smaller after controlling for marital status falling from -0.045 to -0.031. So with each successive increase in age, there is a 4.5 percentage point decline in the probability of being unemployed, without controlling for marriage. This effect, however conflates two things - older men are more likely to be employed, and older men are also more likely to be married and marriage is associated with lower levels of unemployment. We separate out the marriage effect by introducing a marriage control. When we do that, we see a unit increase in age is still associated with a decline in unemployment, however, the relation is more muted with the decrease being 3.1 percentage points.

6.4 What are major job search strategies among young graduates?

The latest rounds of the PLFS, from 2021 onwards, provides some insights into the process of job search strategies. Prior to this, we actually know very little about how people go about searching for jobs in the Indian context. A lot of recent studies have looked at how digital platforms work in matching workers with employers and the inherent biases and other challenges (Chiplunkar et al. 2024; Fernando et al. 2023; Mahajan et al. 2025; Kelley et al. 2022). Studies that go beyond just digital search strategies are limited in their scope, often studying a few cities or regions or restricted to a particular job search (Mamgain 2018; Iversen et al. 2009; Banerjee 1984).

Intuitively, one can expect major job search strategies to be differentiated into three types, although as you will see, these are not often mutually exclusive. First is the most conventional method - direct applications which includes visiting worksites, approaching employers directly or responding to a posted advertisement. For young graduates, campus placements have emerged as an important way to enter the job market. Aside from the campus hiring, of late, job fairs have also become common as a way of linking workers with employers, and are increasingly seen in and around major cities.[7] Box 6.1 provides an ethnographic insight into the aspirations and experiences of young workers attending job fairs around the peripheries of Bangalore city.

Another strategy is the use of an intermediary, usually a job search platform like LinkedIn or Naukri, or a national exchange center. E-recruitment has become an important mode of hiring, and with the use of AI, it has also allowed employers to screen through a large number of applications, potentially bridging the information asymmetry between prospective workers and employers . Finally, in the case of self-employment (as against wage work), job strategies could include seeking financial support and/or applying for licenses to set up a business.

Box 6.1 Job Fairs – An insight into graduate aspirations, employer expectations and norms | By Pranav Kuttaiah

Job fairs—public recruitment events organized primarily by state agencies and skilling portals—offer a rare and valuable window into the workings of the school-to-work transition in urban and peri-urban India. Typically held in college campuses or public grounds and advertised through newspapers, WhatsApp, social media, and bulk messaging to registered job-seekers, these events aim to democratize access to formal sector jobs. However, the social life of job fairs tells a more complicated story. They reveal the disjuncture between educational credentials and employment outcomes, the role of family and social norms in shaping work decisions, and the blurred boundaries between formal, informal, and aspirational forms of labour.

Unlike elite recruitment pipelines which are largely opaque to researchers—campus placements or digital job platforms that cater to MBAs, engineers, or graduates from more reputed institutions— job fairs are open, observable events that primarily target what might be called the massified edge of formal education: 12th pass students, ITI trainees, and B.A., B.Com., or B.Sc. graduates from less prestigious colleges. Ethnographic observation at job fairs held in Bengaluru and surrounding districts such as Devanahalli, Mandya, and Tumkur reveal the various mismatches, hesitations, and invisible pressures shaping this phase of young people's economic lives. Recruiters at these fairs tend to represent HR and staffing firms serving sectors such as retail, logistics, sales, manufacturing, and security—occupations that increasingly blur the line between blue-collar and white-collar work. The range of job listings illustrates this ambiguity. At the lower end of the educational spectrum, 10th and 12th pass candidates are typically recruited for jobs such as packing, loading and unloading in logistics hubs, security guard roles, apparel manufacturing, airport ground logistics, and cargo handling. For ITI certificate holders, the most common opportunities are in the manufacturing sector—fitter, turner, mechanic, service technician roles. For graduates with generalist degrees such as BA, BCom, or BSc, the job roles become more amorphous. Listings frequently include titles like 'trainee', 'assistant', 'executive', 'operator', or even 'manager'—labels that suggest professional, upwardly mobile employment but are often used for roles in field sales, customer service, BPO and telecalling, or as salespeople in large showrooms. For BE and BTech graduates, specialized job options remain limited. A few listings appear in IT services, hardware support, and production engineering roles, but most of the other jobs listed are open to them as well—meaning they often find themselves competing for positions well below the level their degrees might suggest. Across all these categories, the educational requirements often serve more as loose filters than as real indicators of job content, and the social perception of roles as 'white-collar' or 'respectable' is frequently out of sync with the material realities of the work.

As one recruiter for car showroom sales explained:

> *"Among freshers, you have four categories of people. We call them A, B, C and D. A and B categories are all the premium colleges and institutes. Their expectations are for a minimum 5 lakh CTC package, because they have to also recover how much they paid for the college at least. These job fairs are only for C and D category people. Companies will generally not go to those colleges, because they do not have attendance or rules. So these students will try different things. Some may try government jobs. Some will do business. Like that, some come here and see what is there on offer. We do not have high expectations. If someone knows how to dress properly, and speak even 40% English, that is enough for us to hire. But even that is difficult to find here."*

The quote exemplifies a basic disjuncture: recruiters arrive looking for 'employable' candidates—those with minimal soft skills and willingness to work in high-pressure, low-growth jobs—while many graduates come with the expectation that their degrees will secure them a different kind of employment altogether.

Recruiters spoke often of high attrition and poor retention among young graduates who accept these jobs. This is not just about job conditions, but about the symbolic mismatch between what graduates believe a job should represent and what is actually on offer. Many graduates arrive at job fairs imagining work as a continuation of their educational upward mobility. When offered sales or delivery roles, they view these not as stepping stones but as signs of failure.

As one sales recruiter explained:

> *"Many people feel that they have achieved something great by becoming graduates. So if they are asked to do field work or something like that they will leave in a few months. It is easier for us to hire someone already in that job somewhere else, because we know that he understands what it is and that he has some personal reason to stay in that job. So we send recruiters to other*

showrooms to try and hire people often. These people who come here [to the job fair], today they might take the job, tomorrow they may decide they don't want [it], or that they will go do some Swiggy or Zomato delivery and make more money and not have to worry about boss and pressure."

Gig work, with its low barriers to entry, daily income potential, and autonomy, thus functions as both a safety net and a trap. For many, gig work becomes an alternative that is not just financially viable but socially intelligible—it offers flexibility, immediate income, and escape from hierarchical workplace relations. Recruiters see this as short-term thinking; undermining long-term employability. Job-seekers, however, are weighing not only wages, but social legitimacy and personal autonomy.

One HR manager put it bluntly:

"Poorer people will take the job, and they start working and learning and going ahead in life. Those with little more money or some more ego, they will not take this job, they will rather do delivery work and wait for some better job or do some higher degree. Then after five years, they see they are being offered the same job, and those who took the job earlier are five years ahead, they have grown, they are earning more. Getting this easy money for doing delivery is ok, but they don't know in five years there will be no growth for them. They should start with something and grow."

What this quote reveals is a disjuncture in temporal horizons. Recruiters think in terms of career ladders; graduates think in terms of risk, dignity, and short-term viability. But the decision to take or refuse a job cannot be understood as simply rational or economic. It is also shaped by the family, by social expectations, and by what kinds of work are deemed appropriate. One young man, a graduate attending a Bengaluru fair, narrated how he had been earning well running a sound and light rental business with two friends:

"I started doing it in college and realized that I could do it in other places too, and started travelling all over Karnataka doing it as a business with two friends. But my father did not like it. We have three rooms on rent and he drives an auto – he said there is enough money, don't go and do all this nonsense, go earn in some proper way. He wanted me to get a job where I would have fixed hours, come back home on time, and not be out late. He said otherwise it will be difficult to get me married, that if I keep travelling everywhere and meeting people I will get a bad name."

In this case, the son's earnings did not matter as much as the social perception of the work. For the father, a job was not just about income but about structure, respectability, and suitability for marriage. For many families, particularly those that are socially mobile, 'stability' and 'respectability' continue to define the idea of a 'proper job.' These ideas may override considerations of earnings or opportunity. They are also deeply gendered.

At job fairs in Bengaluru, women were often present in smaller numbers, and frequently accompanied by their parents. Interviews with them revealed a similar pattern: even where the young women were competent and enthusiastic, their job choices were constrained by the need to remain close to home, avoid late shifts, or work in socially acceptable settings. Recruiters acknowledged their potential but flagged the difficulty of retention. "They are brighter and more hardworking than men," one recruiter told me, "but attrition among them is very high because they have to stop working or take a break once they get married, or when family needs them. We cannot plan long-term with them."

Much of the debate on employment in India focuses either on macroeconomic job creation or on improving job-matching efficiency. But this binary elides the everyday realities through which people make—or defer—labour market decisions. What job fairs reveal is that entry into the labour market is not merely a technical process of connecting skills to openings. It is a socially negotiated process, shaped by affective attachments, family pressures, class anxieties, and moral visions of adulthood. The decision to accept or reject a job offer is rarely just about income or growth—it is about what kind of person the job allows you to be, how it fits into your life, and what future it seems to promise.

Table 6.2: Major job search strategies across different age groups

Efforts undertaken to search work	15-19	20-24	25-29	30+
Apply directly	31.8	57.9	59.6	48.1
Register with employment exchange	4.4	8.3	10.5	8.3
Register with private employment center	6.5	3.1	4.1	5.3
Seek financial help to start a business	4.6	1.8	1.7	4.3
Seek help from relatives, friends	32.4	16.2	12.5	19.3
Apply for permit or license to start a business	0.0	0.2	0.2	0.4
Others	20.3	12.6	11.4	14.3
Total	100	100	100	100
Share in total unemployed	**(13)**	**(44)**	**(27)**	**(17)**

Sources and notes: PLFS 2021-22, 2022-23, 2023-24 (pooled). `Apply directly' includes apply to prospective employers, place or answer job advertisements, or, check at factories or worksites

From PLFS 2021 onwards, individuals who were unemployed for the majority of the year (i.e., as per their principal activity status) were asked "what efforts were mainly undertaken to search work?". They are allowed to choose from one among seven possible strategies. Since we do not see any major difference in trends across the years, for the rest of this discussion, we have combined the 2021-22, 2022-23, 2023-24 rounds of the PLFS and restricted the analysis to the 20 to 29 year olds (who account for 70% of the unemployed) for all subsequent analysis. Table 6.2 shows the distribution of major strategies of job search, by age groups.

It is likely that individuals engage in multiple kinds of job searches (Mamgain 2018). However, because of the way the responses have been structured, multiple concurrent job search strategies cannot be captured in the responses to this question.

Since the 20-24 and 25-29 year olds constitute the larger share of youth unemployed, we are interested in their job search strategies particularly. From Table 6.2, we can see marginal differences between the younger and older workers in terms of search strategies. Younger workers are more likely to apply directly compared to older workers. Relying on social networks is the next most common strategy for both workers, although it is slightly more for older workers. They are also more likely to use channels that help them secure some kind of business or self employment (seek financial help or apply for a permit). This could be a reflection of the kinds of work the two groups are searching for. Older workers are more likely to want to enter or transition into self-employment while younger workers are more likely to seek either casual or salaried employment, and hence predominantly rely on the direct application strategy.

The use of employment exchanges remains fairly limited in the Indian context. In fact, based on a primary survey of around 2,000 unemployed workers between the ages of 18-45, Mamgain (2018) found that these traditional forms of search like employment exchanges have become less and less important. In chapter 7, we look at some data from the National Career Exchange and how it has fared over the years. The use of private employment centres (including online platforms) is surprisingly a marginal strategy. However, other studies based on primary surveys confirm that these non-traditional avenues - job fairs, portals and staffing companies have become important intermediaries in the recruitment process. Box 6.2 describes how the digital media has moved not just beyond a job search strategy but also as a source of employment for many youngsters. Note that it is not clear from the PLFS categorisation whether an individual responding to a job advertisement on Naukri or other online platforms would be categorised into 'apply directly' or into 'register with a private employment centre'.

Since we do not have an idea on what is the kind of job that is being searched for, it is difficult to make any conclusive statements about job search strategies and inter-group differences. In order to avoid conflating the search strategy with the type of employment desired, we examine the job search strategy for graduate youths alone under the assumption that graduates are most likely to be searching for salaried employment. In general, studies have found that women tend to apply more than men, although

Box 6.2 Digital publics and job market information | By Pranav Kuttaiah

In the Indian labour market, we might distinguish two traditional means of receiving job-market information. The 'impersonal' information made available to all via advertisements, online sources or newspaper listings that are, in principle, accessible to all, and the ' personal' knowledge circulated through close social ties—friends, family, caste and kin-based networks.

But what such a binary schema misses is a third, intermediate, less easily visible layer of job-related information. This 'third sphere' emerges from digitally mediated interactions with *quasi-familiar* contacts—connections maintained through platforms like Instagram, WhatsApp groups, and Facebook. It enables access to information from sources that aren't exactly strangers, but aren't close contacts either. These are not the strong, trust-based relationships of family, kin or close friends, nor are they the open-ended listings of public advertisements. Rather, they are mediated, semi-public, algorithmically surfaced interactions that build ambient awareness across loose networks.

Consider the story of Nazrul, a young man from a small village in Assam's Barak Valley. He spends much of his time scrolling through Instagram stories of friends, acquaintances and friends-of-friends who now live in Bengaluru. Nazrul is technically enrolled in a Bachelor's in Computer Science at a local college, but lectures are irregular, attendance is rarely enforced, and he admits he has learned little in two years. Many of the friends he follows dropped out earlier and moved to Bengaluru, where they now work as security guards, gig workers, or tradesmen. None of the jobs seem particularly aspirational—but they are the available pathways into the city, with its aura of mobility, income, and experience that college does not seem to offer. When asked what he plans to do after graduation, Nazrul hesitates. He's created a LinkedIn profile, watched YouTube tutorials on coding, and looked at online courses. But he doesn't know how to start, and his family prefers he find something closer to home. *"If I stay here, what is there?"* he asks. *"Maybe I can become a teacher or try for a government job, but everyone is trying. There are no seats. Maybe I'll go to Bangalore."* What kind of job? *"Something. Everyone finds something."*

Nazrul's story illustrates how the third sphere works—not as a formal conduit for job listings or direct referrals, but as a space where aspirations, impressions, and eventual decisions around employment are slowly shaped. He doesn't know exactly what jobs his friends are doing, but the visual and social cues of city life on Instagram subtly push him toward migration. It's in this middle ground—between formal listings and personal recommendations—that the smartphone and social media platforms play a transformative role. The third sphere, in this case, serves as a crucial informational substrate: not for direct job placement, but for imagining possibilities, building weak ties, and eventually deciding to move.

Although accessing 'impersonal' conduits of job information is theoretically possible from any location, qualitative evidence suggests that the use of such sources are almost always layered on other forms of what might be called 'tacit' knowledge about jobs and urban economies. The digital builds on, amplifies, and reconfigures what one already knows—or hopes to learn. Over time, as familiarity with the city and its economic rhythms grows, migrants increasingly use digital tools to navigate job opportunities more strategically. Having once worked as a delivery rider or security guard, they now search across apps and chat groups to compare wages, switch employers, or even refer others from their hometowns. Digital technologies rarely substitute for physical migration in accessing blue-collar jobs; or assessing the trade-offs in moving between white collar and blue collar work. Some even return to their villages while remaining embedded in city labour markets. One such individual, Ikbal, built a small security business in Bangalore after years of work. When he moved back to Assam to get married and care for his parents, he continued running the business remotely—coordinating logistics over WhatsApp and phone calls, and occasionally arranging for workers from his village to travel for work. His experience reinforces an important point: digital tools become powerful enablers of labour market participation only after an initial, physical foothold has been established. But once that is done, the third sphere becomes a key tool in maintaining translocal economic mobility.

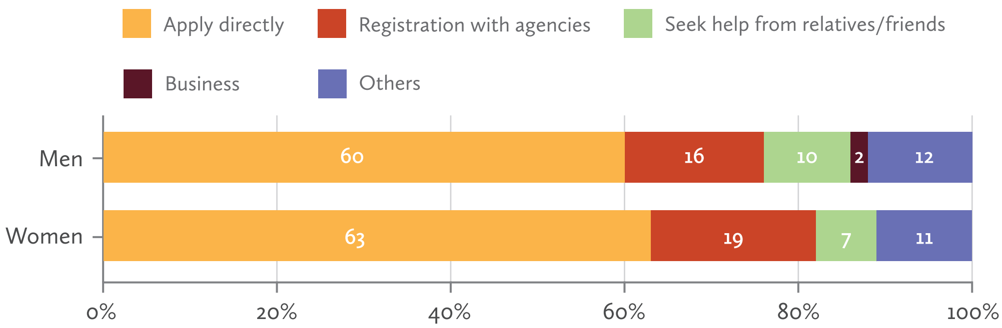
Just as the third sphere helps some people migrate, it also offers others a way to defer or avoid migration altogether. In the same village where Nazrul lives, several young men are active on Facebook Marketplace and OLX. They monitor listings for bikes, phones, tractors, e-rickshaws and furniture, looking for items they can purchase at below-market prices and resell at a profit—sometimes to relatives in nearby towns, sometimes to customers they reach through social media. One college student whose brother worked as a mechanic described how, over time, he learned which brands and parts of bikes were easiest to resell, began monitoring listings, identifying underpriced goods, and flipping them for a small profit, mostly to clients in neighboring towns. The skills he developed were not taught in school or college; they were acquired gradually through experimentation and digital exposure. As he grew more confident navigating online sales platforms, he learned to assess product quality, judge buyer interest, and even predict which posts were likely scams. These kinds of tacit skills—how to negotiate, what to sell, when and where—were learned socially, through observation and interaction, and were often shared among peers in group chats or discussed casually in comment threads. *"Pehle toh bas timepass tha,"* he said. *"Ab thoda samajh aa gaya hai"—"At first it was just to kill time. Now I've started to understand it."* These forms of digitally-mediated arbitrage are not full-time jobs. But they generate modest income and, crucially, allow people to postpone entering the wage labour market more formally. While some attend coaching classes or apply for government exam, others keep an eye on job apps and websites, even if they're not actively applying. In the meantime, Facebook and OLX serve as informal income streams, subsidizing the wait.

In this way, the third sphere does not merely replicate existing social structures—it reconfigures them. It creates a diffuse, low-cost infrastructure through which people make crucial job-market decisions: whether to stay or move, when and where to go, what to do, and how to sustain themselves in the interim. Its effects are rarely immediate or linear. Instead, they unfold slowly, shaping aspirations, reinforcing tacit knowledge, and gradually expanding what individuals believe is possible. By creating a scaffolding of weak ties, soft skills, and semi-structured opportunity, it allows young people to hover between inactivity and formal employment without committing to either. For some, this sphere becomes a stepping stone into migration and urban employment. For others, it enables the deferral of difficult choices, allowing them to survive—and sometimes thrive—without leaving home. What this suggests is that the relationship between digital technologies and job-market entry is neither deterministic nor incidental.

men tend to spend longer durations on job search (Faberman and Kudlyak 2019). From Figure 6.9 we can see that in the Indian context, search strategies between men and women are quite similar.

Strategies directed towards self-employment is a very small share among graduates confirming our initial assumption that job search for this group is largely for salaried employment. Predominantly, graduates, both men and women, rely on direct applications in their job search. Women are more likely to be using employment centres or exchanges. In general social networks are not the most preferred strategy for women due to the existing social norms and limited networks for women. Whereas for men, it is highly preferred and has even been found to be helpful in improving workplace productivity as it requires coordination and cooperation (Afridi and Dhillon

Figure 6.9: Job search strategies are similar among young graduate men and women



Sources and notes: PLFS 2021-22, 2022-23, 2023-24 (pooled). We have combined a few of the categories together for ease of interpretation. Registration with agencies includes registration with employment exchange or private employment centres; Business includes applying for license to start a business or seeking financial assistance to start a business

2022). Here interestingly, we do not see an overall gendered difference in the use of social networks. Box 6.3, in the context of rural Haryana, reveals how the use of social networks among young graduates, particularly in accessing public sector jobs, is mediated by caste hierarchies.

For graduate women, the important point to note from Figure 6.9 is the higher reliance on private agencies and employment exchanges to secure access to jobs. Particularly, for young graduate women from poor households, this is an important job search strategy.

Keeping in mind the very low levels of employment among graduate women, as well as the large share of aspiring workers (open unemployed) among the same group, this points towards how improving these institutions can go a long way in reducing the job search costs and increasing women's participation in the labour market.

Finally, since we do not have a long term panel, it is difficult to say anything about the relative success of each of these strategies.

Box 6.3 Jānkār and jack: Social networks and job search among young men in Haryana | By Srishti Yadav

Ravi (M, 22, Ahir) resides in a single storey house next to his family's fields in Khalilpur village, Rewari. Ravi attended Vivekananda Vidya Mandir Private School in nearby Chillar. He dreamt of joining the army to support his family; after completing high school he enrolled in the electrician course at the Government College Rewari ITI while simultaneously preparing for the army physical exam. Despite intensive training for over a year including a stint at an army training academy in nearby Balewā, Ravi could not clear the physical exam. Since he was busy preparing for the army, he also could not appear for the placements at his ITI. Instead, after graduating from the ITI, he joined GLS Elopak in Gurāwadā as a foil operator. The factory manufactures tetrapack cartons for liquid and food products. Ravi was hired as a permanent employee; he earns ₹23,500 per month including a provident fund contribution and other social security.

On all counts, Ravi believes that this is a good job—he is paid decently and the company treats its employees well.

I asked Ravi how he got the job. He reveals that he got to know about the job opening from a relative who was employed in the company. Ravi sent his resume and got a call for an interview, in which he was asked questions about his ITI course. The next day, he received an offer to join as a foil operator.

When you think about it, there is nothing straightforward about the job search process. Placements and advertisements in newspapers or in online job search portals, the 'official' sources of information or matching between firms and workers, offer relatively low rates of success.

So then, how do people find jobs? In the villages that surround the tier 3 city of Rewari, extended family and friends or *jānkār* are paramount sources of information, or *jānkāri*. *Jānkār* can be local to the village, or the friendships and acquaintances that are made through the course of schooling, higher education, and work. Take the example of Manoj (M, 40s, Jat) from Karauli.

Manoj's family, though locally powerful as large landowners with social ties with many (if not most) other dominant caste households in Karauli and nearby villages, and owners of various agricultural machines that they rent out, do not have many networks or ties in the modern economy. Aside from the social networks that are inherited, networks are gained when people enter institutions like educational spaces and workplaces.

Manohar's journey is also revealing in this respect:

Manohar (M, 32 years, Ahir) had completed a Bachelors in Political Science and more recently a Masters in History, both from Indira Gandhi National Open University (IGNOU). His father is a farmer and his uncle is retired from Haryana Roadways.

Manohar got his first job at the age of 21 in the dispatch and logistics team of MTech Developers, an auto-parts manufacturing company in Bhiwādī. He was referred through his brother-in-law, who worked in the same company. At 24, Manohar joined the Operations team of the Current and Savings Department at ICICI Bank, Rewari. His friend at MTech was preparing for a job interview at ICICI and Manohar decided to join him. Both Manohar and his friend got hired. At 26 Manohar joined Tapio Creations in Gurgaon as an accountant, where he earned ₹32,000 per month. At 27 Manohar left Tapio Creations to work as a clerk for the MLA of a neighbouring constituency. When asked how he got the job, Manohar said that he had "been in touch" with the MLA, and when the latter got elected to office in 2019, Manohar got the chance to be part of his team. At the time of the interview, Manohar's monthly take-home salary was ₹27,000 per month.

Not only did Manohar 'inherit' social networks from his family (his brother-in-law), he gained networks from his workplace, and actively sought to develop connections through his latest job switch. Manohar was willing to take a sizeable pay cut for work that yielded valuable political weight and connections.

Proximity to local offices of power is critical for the most coveted employment of all—a government job, or *sarkārī naukrī*. Preparation for various government entrance exams is made ubiquitous by the presence of a booming coaching hub in Rewari city. However, only being well-prepared is often not enough. For state-level government jobs, the widespread perception is that getting a job is near-impossible in the absence of 'approach' or '*jack*' i.e., connections to pay the requisite bribe for the position. The issue was leveraged by the BJP in its rise to power in the 2014 state legislative assembly elections, and has been a hot-button issue since (Moudgil 2021).

In 2024 as I probed deeper into sources for information and networks that enable access to formal employment, dominant and *dwija* (or twice-born) caste respondents also opened up about the role of '*jack*'. No respondent ever admitted to having gotten their job through

bribe, and most of those who raised the role of '*jack*' were households who had been unsuccessful in their attempts at securing a government job. Ashok (M, 50s, Ahir), who lost his 20+ year old job in the HR department of a private company in Bawal during Covid, recounted that he missed the government job exam cutoff in his youth by a whisker, and moreover that his family did not know about the system of social networks that regulates access to public sector employment: *"humein 'approach' kā patā nahin thā"* (we did not know about 'approach'). A Jat respondent from Karauli admitted that they had tried the 'approach' route and paid ₹10 lakh but it did not work and the money came back. The return of the bribe payment is an indication of the systematised manner in which the 'approach' route operates. Manoj from Karauli said, *"Why else did Chautala go to jail?,"* referring to the 10-year imprisonment of Om Prakash Chautala, leader of the Indian National Lok Dal (INLD), convicted for the illegal appointment of over 3000 junior basic teachers in the state in 1999-2000 (Firstpost 2013).

Two key insights emerge from the evidence on '*jack*' and public sector employment—one, that information and social networks that mediate this route are more scarce than the ability to pay, and are concentrated among the dominant and *dwija* castes. The second and related point is that all dominant and *dwija* caste households do not benefit equally from this system of differential access. However, their collective access is far superior to that of Dalit and non-dominant OBC households. The latter also lack the failsafe of homestead cultivation. So while young men and women across *jātis* aspire and prepare for public sector employment, regionally concentrated social networks and political assets enable the transformation of aspirations into reality for only a few 'lucky' ones.

> **For graduate women, the important point to note is the increased reliance on private agencies and employment exchanges to secure access to jobs. Particularly, for young graduate women from poor households, this is an important job search strategy.**

6.5 How do unemployed youth spend their time?

The Time Use Survey (TUS) 2024 is a useful database to help us understand how job seekers are using their time, on an average day. We look at the allocation of time across different activities among those who report their principal activity status (status for the majority of the year) as unemployed. The TUS collects information on what activities individuals are engaged in over half an hour slots between 4 AM in the previous day to 4 AM on the day of the interview. For each of these slots, TUS identifies broad activities that individuals may be doing including employment, leisure, care work, learning, and of relevance to us, job search.

Table 6.3: Only about 10% of openly unemployed spend non-zero time on 'job search'

	Employed	Unemployed
Not searching for Job	99.69	89.64
Searching for Job	0.31	10.36
Total	100	100

Sources and notes: Time Use Survey 2023-24

As per the TUS, 5.2 percent of 20 to 29 year olds report as being openly unemployed. Interestingly, among this pool of openly unemployed youth, only about 10% report spending time actively searching for jobs (Table 6.3). The average daily time spent on searching for a job is about 3 hours, with some variation between men and women - women spend about 150 minutes compared to men who spend about 180 minutes.There is also a very small share (0.31%) who are reporting time spent on job search despite being employed for the majority of the year. On-the-job search is common, according to the literature, at the lower rungs in the jobs hierarchy as lower wages stimulate greater efforts in searching for a job (Faberman and Kudlyak 2019). Of course, job search could also be via social media consumption, socialisation and hence not explicitly recorded as time spent in search per se.

Table 6.4 describes the average amount of time spent (in minutes) by the openly unemployed (disaggregated by zero and non-zero job search time). An interesting observation was that even among those who reported being principally unemployed, there were many individuals who reported having spent time on employment. This incongruence may arise from the fact that the principal activity status pertains to the year whereas the time spent is collected for the previous day. It is possible that individuals who are unemployed for the majority of the year have some employment, either for a day, or a week, or a month or more (but less than six months) in the course of the year. Among the unemployed, both those who spend zero time on job search and those who are spending time on job search, there is a substantial amount of time being dedicated to learning or studying. This is the case for both men and women. This is likely capturing young individuals who are preparing for competitive exams, another predominant job search strategy among Indian youth.

Coaching centres flourishing across the country are evidence of this as a dominant 'search' strategy. Is this

Table 6.4: Unemployed men and women spend more time on studying and socialisation

	UPA = unemployed				UPA = employed			
	With non zero job search		With zero job search		With non zero job search		With zero job search	
	Male	Female	Male	Female	Male	Female	Male	Female
Employment	204	229	276	197	464	290	518	406
Own use production	83	83	134	73	111	-	129	114
Unpaid domestic and care work	128	224	157	271	128	144	117	369
Self-care	783	800	766	762	711	921	733	714
Learning / studying	264	255	376	333	224	30	189	173
Searching for job	180	153	-	-	130	133	-	-
Communication (talking, gathering, chatting)	220	179	207	171	186	134	167	153
Reading and writing mail	57	35	92	54	0	30	79	49
Socialisation, culture, leisure	162	117	194	121	149	102	109	91
Mass media use	213	224	215	192	147	197	139	129

Sources and notes: Time Use Survey 2023-24. Numbers correspond to average time spent in minutes. UPA - usual principal activity status.

> **"Among the unemployed, both those who spend zero time on job search and those who are spending time on job search, there is a substantial amount of time being dedicated to learning or studying. This is the case for both men and women. This is likely capturing young individuals who are preparing for competitive exams, another predominant job search strategy among Indian youth."**

queuing for jobs signalling their aspiration for a better job or is it because of lack of jobs? Box 6.4 illustrates the lives of young public sector job aspirants in Bihar who spend their day in tuitions and coaching centres in the hope of securing public sector employment. What it illustrates is the story of young aspirants, who despite the high costs and uncertainty persist in their preparation, partly a result of the mistrust of private sector jobs and partly in the hope of higher earnings.

Further, we can also see that unemployed individuals spend relatively more time on reading and writing mails. In fact, this may be a form of job search which might not be explicitly getting captured under the 'searching for job' category. Mass media consumption is also relatively higher among the unemployed with zero time on job search compared to the unemployed who are actively searching. It is possible that a lot of strategies may be getting subsumed in these different activities of social media consumption and social communication. Box 6.2 captured how unemployed youth use online media not just for job search but also for part-time employment opportunities.

Box 6.4 Job search behaviour among public sector job aspirants: Insights from a primary survey in Bihar | By Chinmaya Kumar

A significant share of India's youth spend several years preparing full-time for competitive public sector examinations. This prolonged period of exam preparation often marked by economic dependence, limited social mobility, and delayed adulthood has become a defining feature of youth in states like Bihar, Uttar Pradesh, and Madhya Pradesh. Despite its scale, this phenomenon has received limited scholarly or policy attention largely because of the absence of reliable data.

Recent evidence, however, points to significant long-term costs of this pathway. Aspirants who invest heavily in exam preparation are more likely to experience lower employment rates, reduced earnings, and delays in marriage, when compared to their peers with similar education levels who do not take the same route (Mangal and Singh 2024).

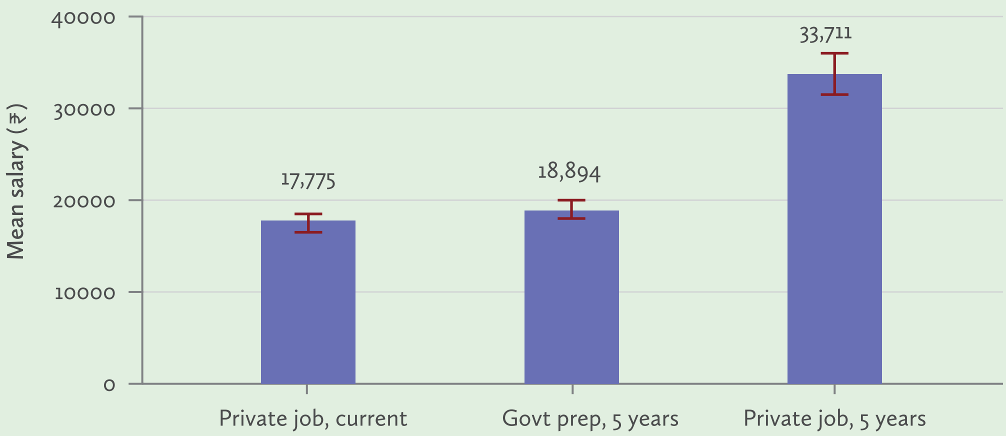
At the same time, a puzzling feature of this landscape is the low rate of transition from public sector exam preparation to private sector employment. Given the low probability of success in securing a government job and the high personal and economic costs involved, why do so few aspirants explore private alternatives in earnest? From a primary survey of public sector aspirants, we examine their perceptions of private sector jobs, what kinds of roles they are willing to consider, and what constitutes a 'good enough' private job to warrant switching tracks.

We spoke to 971 public sector aspirants across 12 districts in the state of Bihar between the months of March and April. We chose locations where they typically congregate - coaching institute hubs, private libraries, and study halls. All surveyed individuals had to be actively preparing for at least one public sector examination and must have attempted an exam at least once in the last year. The sample was predominantly male (93%) and Hindu (94%) with an average age of 23.4 years. About 66% identified as OBC, 12% as SC, and 1% as ST. About 20% belong to the General Category. Over 70% had either enrolled or completed at least graduation. The average monthly family income was ₹26,724.

Limited engagement in private sector job search
Many of our public sector aspirants had already spent multiple years preparing for exams, with an average of 4.1 exam attempts per person. They also incurred significant expenses: roughly ₹5,400 on coaching fees and ₹60,000 on accommodation and food each year. These costs are often borne by families with modest incomes—averaging just ₹26,700 per month.Given these costs, one of the most striking findings from the survey is the low level of active private job search among aspirants. When asked whether they were currently looking for a private job, a vast majority (about 91%) reported they were not. Only a small subset—fewer than 10% of the sample were engaged in an active search. This lack of engagement is particularly puzzling given the economic pressures aspirants face.

Among the small group that was actively looking for private jobs, the average expected salary was ₹17,714 per month. This expectation was somewhat lower than that of the larger group of aspirants who were not actively searching but were asked about what salary they expected to receive if they were to consider a private job - an average monthly salary of approximately ₹21,518. This gap suggests that those already looking may have adjusted their expectations based on market realities or personal experiences. Meanwhile, those who remain disengaged from the private sector may hold more aspirational or unrealistic salary benchmarks.

Figure 1: Estimated salary under different scenarios with 95% CI



Interestingly, the average time aspirants expected it would take to find a private job if they were to start looking is just under three months (2.6 months). This is notably lower than the average reported by those who were actively searching, around 4.5 months.

Widespread mistrust and fear of fraud in private sector job postings

When asked about the likelihood of fraud in various types of job postings, respondents expressed deep skepticism. A significant share believed that many job offers—particularly those they regularly encounter—were likely to be scams or involved hidden costs, such as upfront payments for recruitment. Online job advertisements were viewed with nearly equal suspicion as physical posters or pamphlets, with 54% considering them untrustworthy. Even referrals from friends or relatives were not immune to doubt, with 46% of respondents suspecting potential fraud. Such mistrust seems to act as a powerful deterrent; further reinforcing their preference for the perceived legitimacy and security of government employment, despite its high costs and low odds of success.

Perceived returns to exam preparation vs. Private experience

To better understand how job aspirants perceive the financial returns to preparing for government jobs versus working in the private sector, the survey included a randomized vignette experiment. Each respondent was randomly assigned one of three hypothetical life stories describing the career path of a college graduate over the same five-year period. This between-person design allowed us to isolate how individuals evaluate different career trajectories without direct comparison bias.

The first vignette featured an individual who spent five years preparing for government exams but eventually had to take a sales job due to financial pressures. The second vignette described someone who entered the private sector shortly after college and remained in that job for five years. The third vignette presented a more recent entrant into the private sector who had worked for only one year. After reading the assigned vignette, respondents were asked to estimate the current salary of the individual described.

The results are striking. On average, respondents believed that individuals who entered the private sector immediately after graduation would earn significantly more than someone who spent the same period preparing for government jobs before switching to private employment, approximately ₹33,711 compared to ₹18,894, around 80% higher cumulative earnings over five years. This suggests that aspirants are, at least in broad terms, aware of the opportunity costs associated with prolonged exam preparation.

However, this awareness does not appear to deter many from prioritizing government exam preparation over early private sector employment. Despite recognizing the higher financial returns from early private sector entry, aspirants still often choose to invest several years in exam preparation. This disconnect suggests that non-monetary motivations—such as job security, social prestige, or family expectations—may play a stronger role in shaping career decisions than earnings alone. It may also point to psychological barriers such as sunk cost thinking, overconfidence about success in future attempts, or limited exposure to realistic private sector opportunities.

Conclusion

Taken together, the findings suggest that economic considerations alone do not fully explain the reluctance to pursue private employment. Aspirants face a range of barriers—informational, social, psychological, and institutional—that limit their engagement with the private job market.

The findings from this survey provide a window into the complex and often overlooked economic lives of public sector job aspirants in Bihar. Taken together, the evidence points to a confluence of economic, informational, and social barriers that limit transitions out of the public exam preparation track. These findings, though suggestive rather than definitive, reflect the experiences and perceptions of public sector aspirants in Bihar. Nonetheless, they offer important clues about the underlying dynamics of youth unemployment and the aspirational logics that drive long-term exam preparation in India.preparation track.

6.6 How long does it take for a high school or college graduate to find employment in India?

While the earlier discussion in Section 6.3.2 gives us some insight into the age at which individuals are likely to have made the transition into paid work, it is an approximation given that we are not tracking the same individuals over their initial years, but rather different individuals at different ages. Nath and Menon (2025) use the panel design of the PLFS to track individuals for up to three quarters after they report unemployment. They find that only 17 percent find employment each quarter and women, the young (15-25 years) and graduates have job finding rates below the average. However, this analysis is not restricted to the youth alone and given the rotational design of the PLFS, it allows us to follow individuals only for up to a year, at most.

In general, cross-country studies, including the ILO's School to Work Transition Surveys (Matsumoto and Elder 2010) find that unemployment duration extends to longer than a year for a large majority of youth in all countries surveyed.[8]

Evidence for European countries shows that, one year after leaving school, many young people are still without work with the number ranging from more than 50% in Greece, Poland, Italy, and the Slovak Republic to 20 % in the case of Netherlands and Switzerland (Quintini and Martin 2006). Furthermore, for many young people, the first few years in the labour market are marked with frequent spells of unemployment. In Austria and Germany, where apprenticeship systems are fairly well developed and established, the school to work transition is much easier and marked by fewer or no spells of unemployment (*ibid*).

The Centre for Monitoring Indian Economy's (CMIE) Consumer Pyramid Household Survey (CPHS) panel data follows the same set of individuals over a longer period allowing us to get a better understanding of the college to work transition process. The CPHS is a panel wherein each household is interviewed three times a year, in three 'waves'. We use the People of India (POI) module which reports the employment status of all the individuals in the household on the day of the interview.[9] Additionally, the module also reports information on respondents' age, gender, and other demographic characteristics.

The survey categorises individuals' employment into one of four statuses- (i) employed, (ii) unemployed, willing and looking for a job, (iii) unemployed, willing but not looking for a job, (iv) unemployed, not willing and not looking for a job. For those who are employed, they are further categorised into self-employed, casual worker, permanent salaried worker, or temporary salaried worker. Of these, the category of particular interest to us is permanent salaried employment which corresponds to regular wage or salaried jobs with long term contracts (as opposed to short-term fixed duration contracts which would be classified as temporary salaried). We consider permanent salaried employment to be the principal aspirational job for young workers with high school or college degrees. Permanent salaried employment, on average, has highest earnings and most social security benefits compared to other employment categories (Abraham and Kesar 2025). CPHS also provides some information on the nature of occupation of the respondents. Using this, we construct a narrower definition of permanent salaried employment called 'white collar employment.'[10]

We use data from 2017 to 2024, although we construct two separate panels for the pre- and post-Covid periods to avoid conflating with pandemic-induced changes to the labour market. The first panel uses data between January 2017 and December 2019.[11] The second uses data between January 2022 and December 2024. The results, unless otherwise mentioned, correspond to a sample where both panels are pooled to ensure a higher sample size.[12] For our analysis, we focus on only men (see Abraham & Shrivastava (2022) for a justification) and on those who either passed high school (i.e., passed 12th standard or is a degree holder (undergraduate or postgraduate)). Since we are able to follow individuals for at most three calendar years, we frame our question narrowly as follows: what proportion of young men with either a high school or a college degree are able to find employment within a year of openly declaring themselves as unemployed?

To answer this question, we construct a moving balanced panel of men in the age bracket of 17 to 24 years. A respondent becomes a part of our panel the first time they report themselves as a student, out of the labour force, and with an education qualification of having passed at least the 12th standard.[13] Only when a respondent appears with a combination of all three characteristics, do they become a part of our sample. While we do not observe the exact period in which they finish their education, keeping the age between 17-24 ensures that the individuals are more likely to be 'fresh graduates' from either school or college. Further, we only work with a balanced panel for each of the pre and post-pandemic cohorts, i.e., upon appearing in the sample the first time with these characteristics, we ensure that we observe them in every wave thereafter. We allow additions to our sample till two waves before the last wave in each panel.[14] This allows us to observe every individual for at least one year.

In this sample, there are two possibilities. One is that an individual's status can move from 'out of the labour force' to 'employed' directly. Since we are only able to see an individual's status once every four months, this implies that these individuals took between one to four months to find employment.

The second possibility is that they move from 'out of labour force' to 'unemployed'. At this point, the clock for counting time till finding employment begins. To keep the analysis straightforward, we exclude from consideration any subsequent movement out of the labour force after individuals report being unemployed the first time. That is, they are considered to have continued interest in finding employment once they declare themselves to be unemployed in one wave. Similarly, we do not capture any movement back to either unemployment or out of the labour force after the individuals find employment for the first time. That is, we are only measuring the probability of finding employment, not retaining it. The exercise allows us to answer the simple question of how many male students find employment within a year from when they begin looking for employment.

We use three definitions of employment. The first, the broadest definition, covers all four types of arrangements- self-employment, casual wage, temporary salaried or permanent salaried. The second only counts a person as having found a job (as opposed to 'employment') if they find permanent salaried work. The third and strictest definition only counts white-collar permanent salaried work.

6.6.1 Who finds what kind of work within a year of entering the labour market?

Table 6.5 shows the proportion of male youth who found employment within one year of declaring themselves unemployed including those who went directly from being out of the labour force to being employed. Nearly half of both 12th Standard pass and college graduates found some kind of employment at least once within one year (Table 6.5). Of this, it is worth noting that the largest proportion (41%) found employment within one wave (i.e., less than 4 months). Figure 6.10 shows the distribution of the full sample (young men tracked over three years) by the number of waves (four month period) it took them to find employment. Of this cohort, while about 40 percent find employment within a year, what is notable from Figure 6.10 is that 41% did not find employment over the entire three year period despite declaring their desire to work. Thus, the distribution has a bimodal character, with a large proportion finding work immediately and almost as large a proportion not finding it for as long as we can observe them (Figure 6.10). A fast transition may on the one hand reflect a labour market with very little search friction that matches workers to employers efficiently, or it may be a reflection of the imperative to earn an income and contribute to family incomes. With the information we have, we cannot distinguish between which of these motivations prevail.

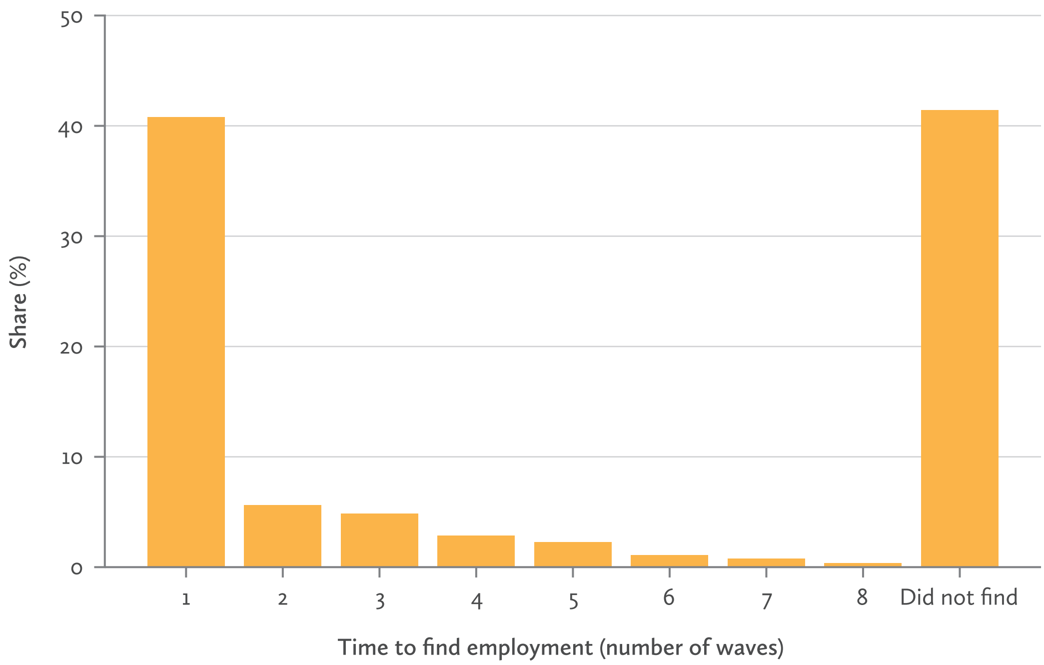
The ILO's School to Work Transition framework defines the transition not just in terms of the process or time taken, but also in terms of the kind of employment that people secure and job satisfaction. Of course, since satisfaction is not available in most standard labour force surveys, this

Table 6.5: Fifty percent of young graduates find employment within a year, but salaried employment is rarer

Education level	Any employment (%)	Permanent Salaried (%)	White Collar (%)
12th Standard Pass	51.9	4.0	1.5
Graduate & above	48.8	6.7	3.7
Overall	51.2	4.6	2.0

Sources and notes: CMIE-CPHS pooled sample

Figure 6.10: Young men either find employment within a year or do not find, even up to three years



Sources and notes: CMIE-CPHS pooled sample 2017-18, 2018-19, 2022-23, 2023-24

measure of queuing or being in transition is often not practically implementable. However, adding a quality of employment component becomes particularly important in low/middle incomes countries characterized by poverty especially since, in such contexts, there are economic constraints that deny most youth the ability to afford to wait for a suitable job.

We incorporate this concern by taking into account the kind of employment being secured. Note that in our two 3-year panels of young male individuals, among those who ever find employment, 32.7% find self-employment, 29.1% find daily wage work, 22.1% find temporary salaried employment, 8.8% find non-white collar permanent salaried work and 7.3% find white collar permanent salaried employment. In our sample of young men, we find that only 4% of 12th Standard Pass and 6.7% of college graduates secure some kind of permanent salaried employment within a year. If we consider white collar employment, only 1.5% of 12th Standard Pass and 3.7% of college graduates find white collar employment within a year. These numbers reflect a rather worrying scenario, where even with waiting for a year, finding a secure white collar job is an extremely rare event. Recall that only 7.3% of this population managed to find white collar employment at any time during which they were followed.[15]

Returning to the pooled sample results, a point worth noting is that the type of employment secured by young men is also closely related to the educational level of the father. Considering the entire period over which we observe our sample, i.e., not restricting to the one year period[16], and combining both the pre- and post-pandemic period, the proportion of individuals who found permanent salaried work rises with father's education level while the proportion finding daily wage work falls (Table 6.6).

This pattern is helpful in explaining the differences shown in Table 6.7. We note that a much higher proportion (50%) of young men whose fathers are only educated up to the 5th standard find work within a year, as compared to men with higher educated fathers (38%). This difference may arise because the latter are more likely to wait for an aspirational job as they can afford to as family incomes may be higher. There are, in fact, two countervailing effects to be considered here. On the one hand, the waiting period may be higher for sons of higher educated fathers due to aspirational reasons. On the other hand, they may also be more likely to find employment sooner due to network effects or social capital. These effects go in the opposite direction. We are not able to distinguish between them here. But consistent with both channels, we find that the probability of finding white collar employment rises with father's education level.

Another indication that a higher probability of finding employment of any kind within a year may reflect economic compulsions rather than a smoothly functioning labour market comes from looking at the

Table 6.6: Distribution of employment type by level of father's education

Father's education	Permanent salaried, white collar	Permanent salaried, not white collar	Temporary salaried	Daily wage work	Self-employment	Total
Up to 5th	3.06	6.77	22.32	36.45	31.39	100
Between 5th and 10th Std	2.61	11.44	18.15	42.23	25.56	100
Between 10th and 12th Standard	7.73	9.88	20.88	21.67	39.84	100
More than 12th Standard	21.47	9.01	24.86	6.96	37.71	100
Total	5.81	8.78	21.27	32.2	31.94	100

Sources and notes: CMIE-CPHS pooled sample 2017-18, 2018-19, 2022-23, 2023-24

caste-disaggregated data. Individuals from a SC or ST background are much more likely to find work within a year (57%) compared to individuals from dominant castes (45%), however this reverses when we look at white collar employment (3% versus 4.6%). These results persist in a regression analysis controlling for the individual and household characteristics presented in the online Appendix.

The school-to-work transition is poorly understood in the Indian context. The high rates of open unemployment observed in the PLFS data for educated youth may be a result of either waiting behaviour on part of the youth looking for aspirational job opportunities or it may be due to imperfect matching of labour supply to labour demand (due to information or other problems). While existing data are not adequate to resolve the issue one way or the other (and indeed both aspects may be true in different regions or demographic groups), we have used the available panel data to address a more limited question; what proportion of young individuals who have just finished their education, are able to find employment within a year of when they start looking for it.

While the above analysis gave us an idea about what share of young graduates find employment within a year, it is also useful to have some perspective on the average duration of unemployment in the Indian context. Of course, there are costs to waiting for suitable employment. Long spells of unemployment can potentially damage individuals' short and long term employment outcomes. It is also costly with many households having to deplete savings to tide over the lack of income. Finally, it can also have a mental and emotional burden on the waiting worker. Kannan (2025) uses the CMIE-CPHS panel to look at average unemployment duration and its main correlates identifying what kinds of individuals are likely to have longer unemployment spells.

Although Kannan (2025) uses the same CMIE-CPHS database as in the above analysis, he makes some significant departures. The CMIE-CPHS employment data is available only once every four months.

Table 6.7: Sons of less educated fathers find any employment earlier, but are less likely to find permanent salaried jobs

Father's education level	Any employment	Permanent Salaried	White Collar
Up to 5th	50.2	5.6	2.6
More than 5th, up to 10th	49.6	5.8	1.4
More than 10th, up to 12th	49.9	5.0	3.6
More than 12th	38.1	7.9	5.2
Total	46.4	6.2	3.4

Sources and notes: CMIE-CPHS pooled sample for young male graduates

Therefore, the employment status in the intervening months is implicitly assumed. To overcome this limitation, the author uses monthly reported income data for each individual to infer employment status from income data.

Unemployment duration is defined as the average spell length - the total number of months an individual is unemployed divided by the number of distinct unemployment spells. There is a tendency towards long periods of unemployment which is evidenced through a distribution of the duration of spells across short (0-4 months), medium (4-12 months), and long (greater than 12 months) periods. Kannan (ibid) finds that more than 60% of all unemployment spells are longer than a year indicating that long run unemployment is a pervasive issue.

A simple descriptive of average unemployment duration by education level indicates that individuals with higher education experience shorter spells. However, in the OLS regression examining the relation between unemployment duration and education, with individual and household controls (including age, caste, religion, relation to head and household income), the author finds a somewhat non-linear relation between education and unemployment duration. Compared to an illiterate person, education up to higher secondary is associated with a steady increase in average unemployment duration. However, while a college graduate experiences longer duration than an illiterate person, the increment is less than compared to an indivdiual with education below higher secondary. Longer unemployment spells are also experienced by job seekers with higher levels of education - partially reflecting the higher levels of aspirations as well as the means to wait, among this group. The fact that general category castes face longer unemployment spells also, to some extent, reflects the latter point. The relationship between age and unemployment duration is non-monotonic and varies substantially in both magnitude and direction across the life cycle. Younger ages are characterized by significantly shorter spells. Eventually at later ages, the rate of decline in unemployment duration slows down.

The study finds that as the duration of unemployment spells increase, the relative probabilities of entering self employment or salaried employment rise, while casual labour becomes less likely. Casual work is typically informal and readily available and functions as a fall back option that requires minimal search effort. Salaried position entails intensive search and matching process which takes longer to overcome. Studying the relationship between unemployment duration and re-employment earnings, it is found that employment in permanent salaried jobs yields the highest return to prolonged unemployment. This explains the wait among the educated individuals for whom the expected benefits justify the cost of job search.

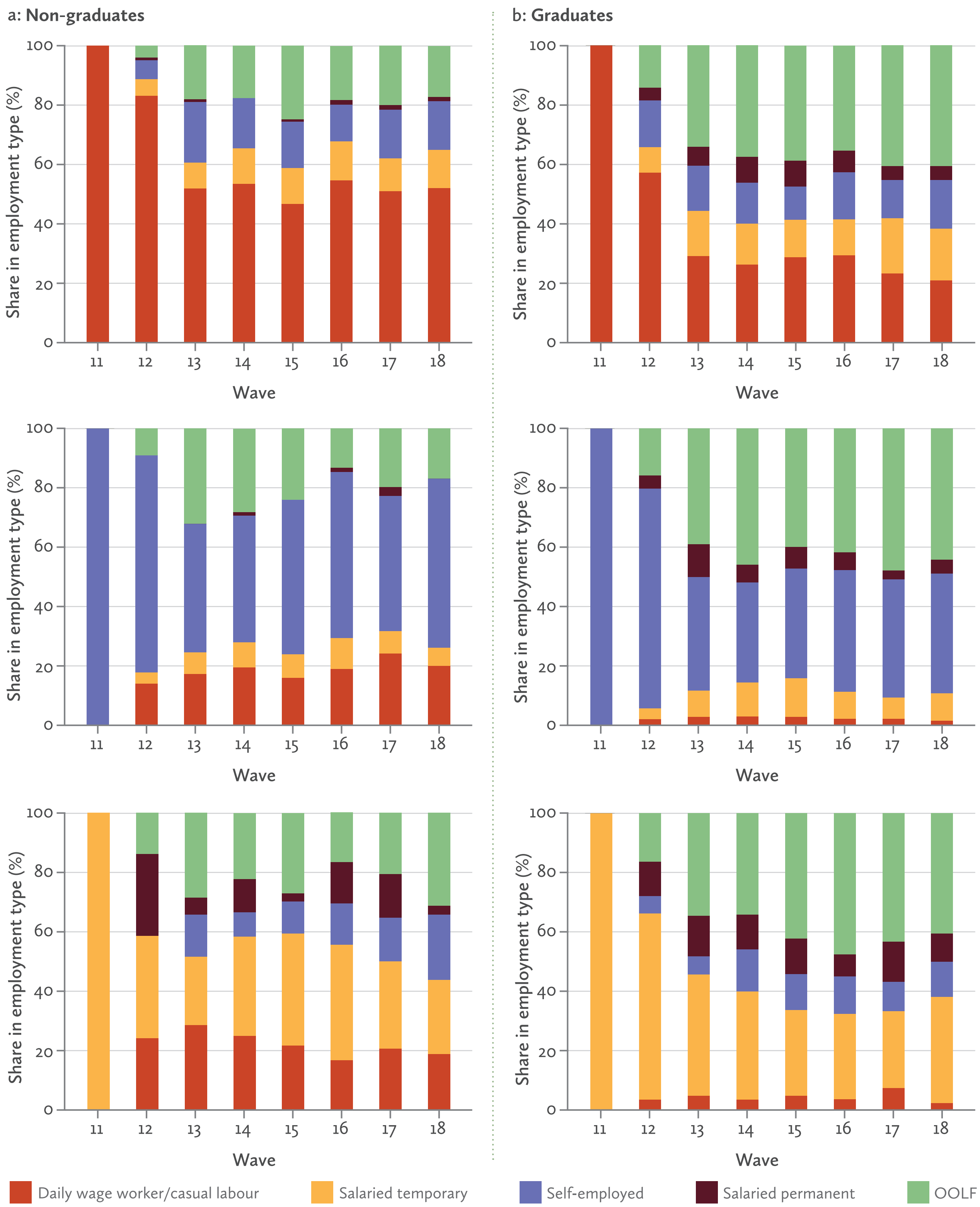
6.7 Underemployment as a job search strategy [17]

So far, we have considered the reporting of open unemployment as the indicator of job search or availability for work. In many cases, individuals may enter the labour market, in whatever jobs they get, in the hope of eventually moving into their preferred employment. This pathway involves the youth taking on other forms of employment such as casual work, self-employment, or temporary salaried work — after leaving school, then transitioning into permanent salaried jobs through these other forms. For many youngsters, this 'getting a foot in the door' approach may be strategic - they believe they can build networks and get on the job experience which will hold them in good stead in climbing the career ladder or it may be due to financial reasons where they need to earn some income to support themselves and their family. Motivations aside, such workers are often 'underemployed' working in jobs that require less skills and qualifications than they actually have.

> **"In our sample of young men, we find that only 4% of 12th Standard Pass and 6.7% of college graduates secure some kind of permanent salaried employment within a year. If we consider white collar employment, only 1.5% of 12th Standard Pass and 3.7% of college graduates find white collar employment within a year. These numbers reflect a rather worrying scenario, where even with waiting for a year, finding a secure white collar job is an extremely rare event."**

In this section, we continue with the same CMIE-CPHS panel focusing on those who report as students. However, the panel is restricted to the pre-COVID period (January 2017 - December 2019). We are interested in the proportion of youth in this sample who transitioned from student status to some other form of employment (excluding permanent salaried) and then eventually entered permanent salaried employment. In our sample, this constitutes 16 percent of the students, i.e., they enter into some kind of employment that is not permanent salaried. We observe their previous employment category before

Figure 6.11: Only a small share of young workers eventually enter salaried employment



Sources and notes: CMIE-CPHS

Table 6.8: Those with higher education are more likely to eventually enter permanent salaried employment

	Overall sample		Of those who become permanent salaried	
	Below 12th	12th and above	Below 12th	12th and above
Education				
Daily wage work	71.73	28.27	50.05	49.95
Temporary salaried	29.78	70.22	19.19	80.81
Self-employed	41.85	58.15	17.49	82.51
Father's education				
Daily Wage work	93.02	6.98	97.47	2.53
Temporary salaried	87.56	12.44	74.69	25.31
Self-employed	82.21	17.79	61.53	38.47

Sources and notes: NSS EUS and PLFS, various years

finding permanent salaried employment. This helps us understand their trajectory toward permanent salaried employment, utilizing an employment pathway rather than open unemployment. Note that we consider only the first entry into salaried employment via other employment categories and ignore subsequent exits or re-entry.

Figure 6.11 tracks the employment arrangements by workers based on their first employment after reporting unemployment since their last stint as a student, for graduates and non-graduates separately. It is evident there are very few transitions at any point into permanent salaried employment.

Within the sample that we consider of the 7.3 percent who became permanent salaried, that only 25 percent remained in employment in all the intervening waves. For the remaining 75 percent, there was some exit from the labour market, and the eventual entry into permanent salaried was via 'Out of the labour force'. Of those who transitioned into permanent salaried while remaining in some employment, 46% were employed as temporary salaried, 40% were self employed and the remaining 15% were daily wage workers. Comparing this to the overall distribution of employment arrangements among this sample that chose underemployment - 18.91% were temporary salaried, 33.73% were self employment and 47.36% were daily wage workers. Clearly, the transition to permanent salaried is least likely among the daily wage workers and more likely among the temporary salaried.

Within each of these employment arrangements, is there a particular demographic that is able to transition into permanent salaried employment? Among all employment categories, we can see that there is a relative overrepresentation of those with higher education among the sample who were able to become permanent salaried. This is particularly high in the case of self employed and daily wage workers. While the average self-employed cohort had about 58 percent who had education above 12th standard, among the sample that moved into permanent salaried, the share with higher education constituted 83 percent.

We see a similar over-representation of individuals whose fathers have been in higher education in the case of both temporary salaried and self-employed.

Broadly, it is highly unlikely for a young worker to enter permanent salaried employment via other kinds of employment. Irrespective of whether they wait (as unemployed) or use underemployment as a strategy, the consistent outcome is that only a very small share subsequently are able to get secure salaried employment.

6.8 Conclusion

The period between graduating or completion of schooling and the entry into employment is a very important phase in a young person's life both from an economic and social point of view. High levels of youth unemployment, particularly graduate unemployment are persistent aspects of India's labour market. Yet, on their own, these are not cause for concern. High graduate unemployment rates might reflect normal frictions in workers matching with suitable employers, and/or it might also be indicative of the affordability of waiting.

In a highly dynamic labour market, the first job of entry may not have huge implications for workers' career trajectories. They can find their way to a better job, or climb the 'job ladder' over the course of their employment. However, in the absence of this upward mobility within the labour market, the first job becomes a crucial determinant of a young worker's lifetime trajectory. There is some evidence to suggest the absence of this job ladder in the Indian context, underscoring the importance of the 'wait' process (Fields 2023; Abraham & Kesar 2025). Finally, in the absence of a job ladder, along with limitations on how long an individual can reasonably afford to wait, for many youth, self employment or informal employment becomes the point of entry into the labour market.

However, perhaps what is more worrying than the high graduate unemployment rates is the low rates of job finding, in particular the low transition of workers into good jobs. The labour market is typically characterised by a lot of path dependence - what you enter in and what you earn in your first job - matters in your lifetime career trajectory.

Endnotes

1 Nilsson (2019), for instance, describes it as 'that period of time during which an individual leaves school and finds stable employment'. The ILO school to work transition (n.d.) surveys define School to Work transition (SWT) as not just the movement from education to employment, but rather movement into secure fixed term employment introducing a qualitative element into the process of transition (Matsumoto and Elder 2010).

2 For this discussion, when we refer to school to work transition, we are referring to the transition from college (graduate) education into employment.

3 There are also other definitions of underemployment including a time-based definition - workers working fewer hours time or part-time.

4 Of course, one might argue that the universe of young graduates may itself not be equally distributed across income quartiles. Indeed, this is very likely to be true. But this only strengthens the argument. If the universe of young graduate is likely to have an over-representation of richer households, then the fact that the sample of unemployed young graduates has seen an increasing share of poor households over time tells us that even with income-specific selection into higher education, there is still an increase in the share of poorer young graduates among the unemployed.

5 These results remain robust in a regression framework where we regress unemployment with age and other correlates including household income, marital status,caste, religion, education of household head. Details of the regression are available in the online Appendix

6 We have verified that other controls do not have a significant effect on the age coefficient.

7 https://economictimes.indiatimes.com/news/india/18000-job-fairs-helped-place-2-22-cr-people-in-a-year-govt/articleshow/127769247.cms?from=mdr

8 The ILO SWT surveys were conducted in Indonesia, Nepal, Sri Lanka, Viet Nam, Azerbaijan, China, Egypt, Islamic Republic of Iran, Jordan, Kosovo, Kyrgyzstan, Mongolia, Nepal and Syrian Arab Republic

9 For more details on how employment is defined in this survey and how this compares to official data sources (see Abraham and Shrivastava 2022)

10 For those in the workforce, the Nature of Occupation variable has the following categories: Agricultural Labourer, Businessman, Home-based Worker, Industrial Workers, Manager, Non-Industrial Technical Employee, Organised Farmer, Politician/Social Worker/Activist, Qualified Self Employed Professionals, Self Employed Entrepreneur, Small Farmer, Small Trader/Hawker/Businessman, Support Staff , Wage Labourer, White Collar Clerical Employees, White-Collar Professional Employees and Other Employees. Of these the following three were considered to be 'whitecollar salaried employment'- Manager, White Collar Clerical Employees, White-Collar Professional Employees and Other Employees.

11 We begin the analysis in 2017 since some of the employment variables we require get added to the survey questionnaire only in the last wave of 2016. We work with the next wave to have clean calendar years in the analysis.

12 The main results are substantively the same if analysed separately for the pre- and post-Covid panels. (see online Appendix).

13 The variable 'Nature of occupation' lists the respondent as 'Student'. The variable 'Employment Status' lists the respondent as 'Unemployed, not willing and not looking for a job' or 'Not Applicable'. The variable 'Education' lists the respondent as '12th Std. Pass' or 'Graduate' or 'Ph.D / M.Phil', 'Post Graduate'.

14 For the pre-pandemic sample, additions are allowed till the last wave of 2018. For the pandemic sample, additions are allowed till the last wave of 2023.

15 The above results are pooled from two panels, one before and one after the pandemic. In the online Appendix we report these results separately for the pre- and post-Covid panels. The findings are substantively the same. The main point of difference is that, while a higher proportion of graduates found any employment with a year post Covid, the proportion finding salaried employment fell.

16 We observe individuals for 1-3 years, depending on when they enter our sample. All individuals are observed for at least one entire year.

17 This section is based on work with Shiuli Vanaja

07

Policy: Pathways from learning to earning

07 Policy: Pathways from learning to earning

7.1 Introduction

So far, we have taken a retrospective approach, looking at the last forty years to understand how India's youth have fared in the labour market, over multiple generations. In this chapter, keeping in mind the lifecycle perspective detailed in the conceptual framework in Chapter 1, and the empirical insights from subsequent chapters, we turn the lens forward to identify policy priorities. If we are to create good jobs for the large share of graduating youth, how many jobs does this entail in the future, keeping in mind the population size? What are some of the existing policies and how do they fare? What kinds of policies do we need to address emerging challenges, based on the various phases of the school to work transitions, as identified in the conceptual framework. We engage with some of these questions, but before that, we briefly discuss recent dynamics in our labour market.

7.2 Recent trends in the labour market

Despite strong global headwinds, the last half decade has seen resilient economic growth in the Indian economy. After contracting sharply during the pandemic, growth rates subsequently made a sharp recovery. The momentum has continued with growth being led largely by private consumption and fixed investment (Anand 2025; World Bank 2025). During this period, the employment rate has steadily grown by 5 percentage points for men and 15 percentage points for women. To some extent, one could say that these last few years bucks the historical trend of jobless growth, i.e., GDP growth without job creation. India's overall workforce has increased from 433 million (338 million men and 94 million women) to 573 million (387 million men and 186 million women) (Table 7.1).

In the post-Covid period, between 2021-22 and 2023-24, employment rates rose from 71 to 74 percent for men and from 26 to 34 percent for women, an increase in the workforce from 490 million to 573 million.

However, the sectoral allocation of this employment shows that the majority of employment creation has been in agriculture. Of the 83 million jobs added between 2021-22 and 2023-24, 40 million have been in agriculture, with women accounting for a large share (38 million).

What about the overall structure of the workforce? For men, the overall structure of employment has remained more or less unchanged except for a more recent increase, post Covid, in the number in salaried employment, as well as in unpaid work. Salaried employment growth, particularly in white collar jobs, has been generally sluggish post pandemic as noted by others too (Marcellus 2025).

For women, the rise in employment has been led by own account work (Figure 7.1). The number of women in own account employment grew nearly four-fold over the last six years, from 16.4 million to nearly 60 million, corresponding to a 16 percentage point increase compared to their share in 2017. Women in unpaid family work increased by about two times. Within unpaid and own account work, the sharpest increase is seen in the case of own account work in agriculture (data not shown).

Finally, looking at the trends in earnings during the same period, casual wage earnings have increased steadily, as has self employment earnings for men. However, salaried earnings and self-employment earnings for women have stagnated.

Why is this structural slowdown worrying? Figure 7.3 contrasts the sectoral allocation of employment, with the sectoral allocations of output (measured by GVA), investment (Gross Capital Formation (GCF)), capital stock (Net capital stock (NCS)) as of 2023-24. Agriculture contributes to only 15% of gross value added but accounts for 43 percent of the workforce. Services sector, contributing more than half of output, investment and capital accounts for only a third of

Table 7.1 Major labour market indicators

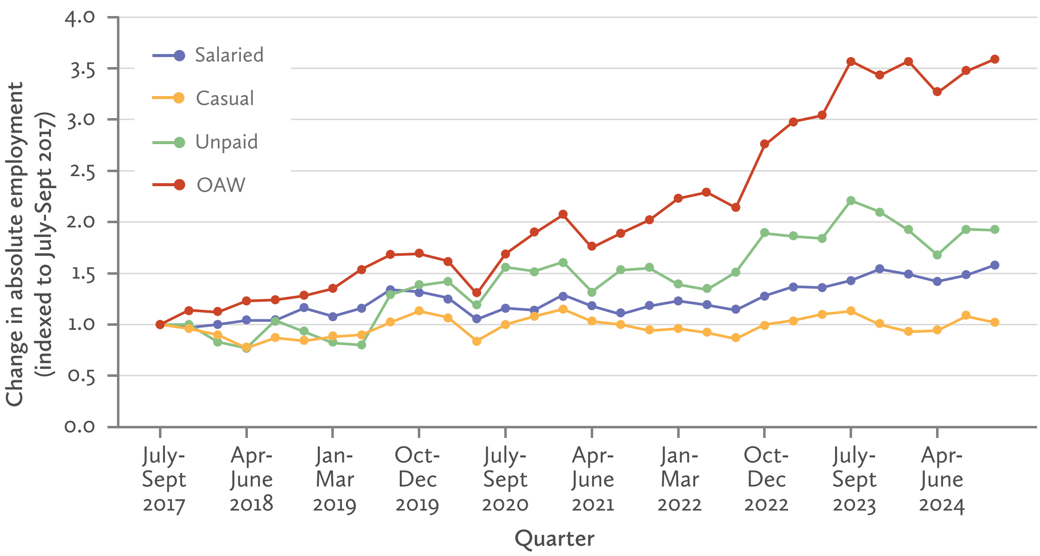
	WPR (%)		Size of workforce (in millions)			Agriculture (in millions)		Non-agriculture (in millions)	
	Male	Female	Male	Female	Total	Men	Women	Men	Women
2017-18	69	19	338	94	433	133	50	205	44
2018-19	68	20	343	97	440	128	48	215	49
2019-20	69	24	357	122	480	140	69	217	53
2020-21	69	26	357	126	483	139	74	218	52
2021-22	71	26	363	126	490	136	74	228	52
2022-23	73	31	349	128	477	124	77	225	51
2023-24	74	34	387	186	573	138	112	250	73

Employment arrangement (% share in workforce)

	Men					Women				
	Regular salaried	Employer	Own account	Unpaid	Casual wage	Regular salaried	Employer	Own account	Unpaid	Casual wage
2017-18	24	2	42	8	24	24	1	22	28	26
2018-19	25	3	42	7	23	25	1	24	26	24
2019-20	25	3	43	8	21	23	1	24	31	22
2020-21	23	3	43	8	22	20	0	25	33	21
2021-22	24	3	42	9	22	20	1	28	32	19
2022-23	24	4	41	8	23	19	1	31	33	17
2023-24	25	5	40	9	21	19	1	34	32	15

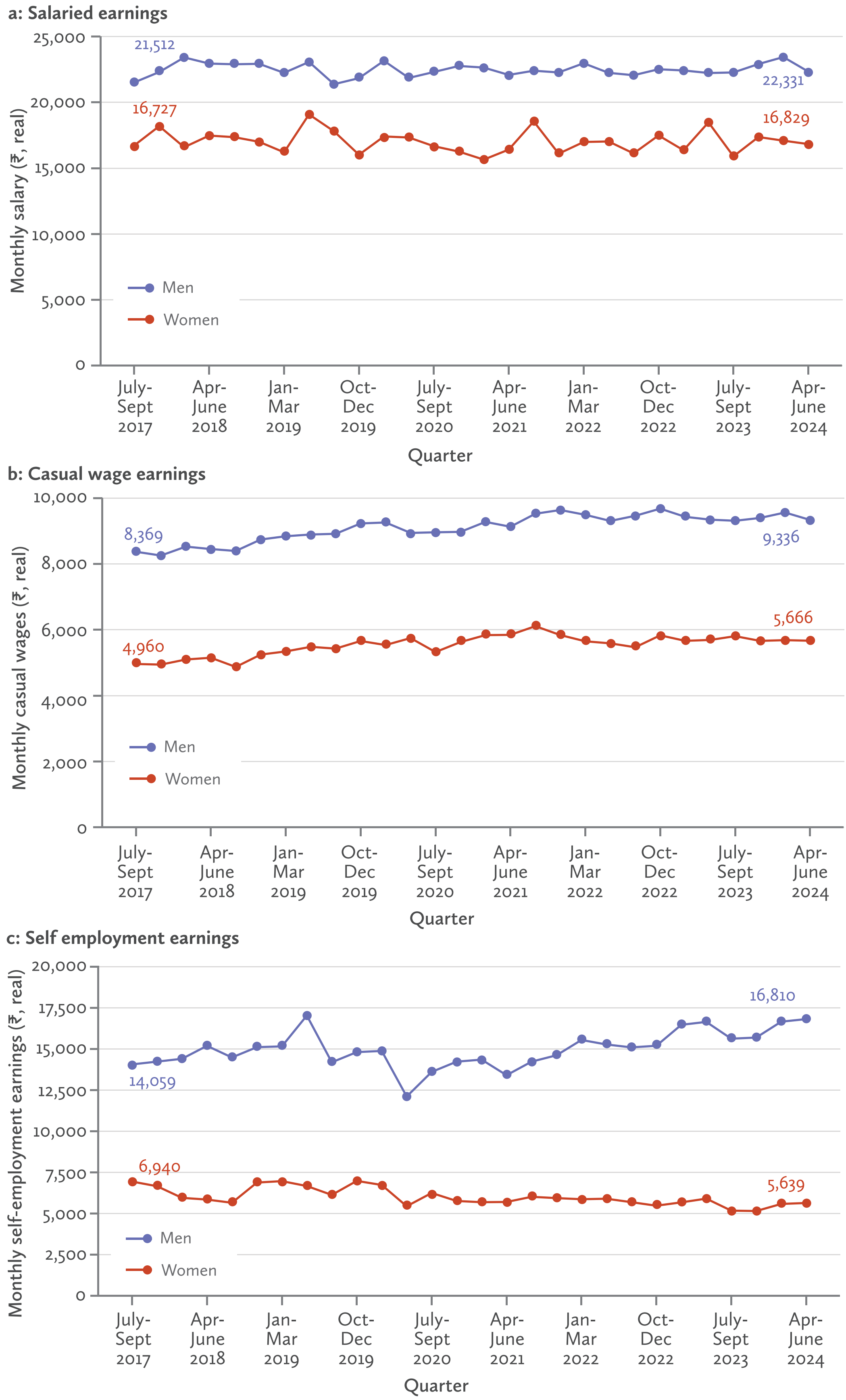
Sources and notes: PLFS, various years

Figure 7.1: Nearly four-fold increase in the number of women in own account work



Sources and notes: PLFS Quarterly data

Figure 7.2 : Stagnation in earnings



Sources and notes: PLFS quarterly surveys. Deflated using CPI rural and urban, base year Apr-Jun 2024.

employment. Similarly, manufacturing, accounting for a quarter of value added, investment and capital employ only 13% of the workforce. This misallocation of resources - labour and capital - is not a new phenomenon in India and has been the underlying feature of the Indian economy that continues to this day, being further exacerbated by the recent increase in the share of workers in agriculture.

Figure 7.3: Sectoral allocation of output, capital, investment and employment highlights the chronic misallocation of resources

Sources and notes: EPWRFITS. In 2011-12 constant prices.

7.3 Quantifying the job creation challenge[1]

Between 2004 and 2023, India's working age population grew at an average annual (compound) rate of 1.8 percent. During the same period, the workforce grew at 1.5 percent. The gap between the growth of the working age population and workforce indicates that employment generation did not keep pace with population growth. This is the first challenge we are confronted with - creating adequate jobs for a growing population.

During the same period, the number of graduates (of all ages) grew at an annual average rate of 5.8 per cent. Graduate employment grew at 5.3 percent while graduate salaried employment grew at 5.5 percent. This is the second, and related target which is to ensure secure and remunerative jobs for a large and highly educated workforce.

In order to quantify the job creation challenge for the youth into the future, we need to have an idea of the approximate size of this pool of young potential workers. This means knowing the projected size of the overall youth population and the share that would be in education.

Educational enrolment follows a broadly linear trend as we saw in Figure 4.5 in Chapter 4. Using this, we estimate a projected enrolment rate for India till 2036.[2,3] We estimate the pool of employable workers by subtracting the projected in-education youth population from the total projected youth population. In 2022, the not-in-education youth population was estimated to be approximately 250 million, which is projected to decline to 196 million by 2036, reflecting the combined effects of demographic contraction and rising enrolment. Since almost the entire cohort belonging to the 15-19 age group is projected to still be in school by 2036, we leave out this cohort from the rest of our analysis and focus only on the 20-24 and 25-29 age groups.

Within this, how many would be graduates? Based on a linear extrapolation of enrolment rates, the proportion of graduates is set to increase from 26 percent to 38 percent between 2023 and 2036 for men in the age group of 20-24 years, and for those in the age group of 25-29 years, from 30 percent to 42 percent. The corresponding change for women is from 22 percent to 33 percent, and from 24 percent to 35 percent, respectively.

Besides the challenge of a large educated and aspirational youth employable pool, another persistent challenge, in the context of the youth, has been the low levels of women's workforce participation. Keeping these two challenges in the foreground, we construct four distinct scenarios reflecting different desired outcomes for women and the educated youth. For each of these scenarios, we lay out the job creation challenge that lies ahead.

Table 7.2: Employment and Salaried share assumption as per BAU scenario

Gender	Age Group	Graduates: Employment Rate	Graduates: Regular Salaried Share	Non-Graduates: Employment Rate	Non-Graduates: Regular Salaried Share
Women	20-24	0.28	0.68	0.21	0.16
	25-29	0.29	0.72	0.25	0.11
Men	20-24	0.59	0.5	0.86	0.26
	25-29	0.8	0.57	0.95	0.21

Sources and notes: NSS, EUS and PLFS

Table 7.3: Highest achieved regular salaried proportions by state: 2004-2022

Gender	Age Group	Graduates: Highest Value	Graduates: State-Year	Non-Graduates: Highest Value	Non-Graduates: State-Year
Women	20-24	0.98	Karnataka – 2021	0.68	Tamil Nadu– 2018
	25-29	0.94	Karnataka – 2017	0.4	Punjab – 2018
Men	20-24	0.86	Tamil Nadu – 2018	0.83	Delhi -2021
	25-29	0.82	Delhi- 2018	0.79	Delhi- 2021

Sources and notes: NSS EUS and PLFS. States with very small sample size (<50) have been excluded.

Scenario 1: Business-as-Usual (BAU)

The first scenario represents the business-as-usual (BAU) path in 2036, i.e., existing (2022) employment rates and structure of employment (i.e., regular, casual, self-employed) to continue at the 2022 level even in 2036. This implies: for the 20-24 (25-29) age group, an employment rate of 28 (29) percent for graduate women, of whom 68 (72) percent are in regular salaried employment. Table 7.2 shows the corresponding assumptions for non graduate women, and graduate and non graduate men.

If we extend these estimates to 2036, this implies 36.3 million salaried jobs in 2036 to employ the youth cohorts. This is an addition of just 1 million to the 2022 level of 35.3 million. However, remember that under this scenario, a large share of graduates would continue to be in casual wage or self employment.

Scenario 2: Aspirational Employment Structure

The second scenario introduces a more aspirational benchmark. We identify the highest achieved share of regular salaried employment across major Indian states since 2000 which serve as a set of normative targets. However, the share of regular salaried employment for non-graduates is assumed to remain at the 2022 level. Table 7.3 summarises these aspirational benchmarks.

Keeping employment rates at 2022 levels, but salaried share of graduates at aspiration levels, what does this entail in terms of job creation? The projected total number of salaried jobs needed for the youth (20-29 years) in 2036 rises sharply to 46.7 million. Of this, 10.5 million regular salaried jobs would have to employ women and the remaining 36.2 million would cater to men. Note that despite a higher aspirational regular salaried proportion for women (94-98 percent) compared to that for men (82-86 percent), the total number of jobs required for men is much higher in this scenario owing to the low women's employment rates.

Scenario 3: High Female Work Participation (Gender-Sensitive with Aspirational Job Structure)

This scenario builds on Scenario 2 by integrating the possibility of a rise in women's employment. Along with an aspirational proportion of regular salaried employment, women's employment rate is also increased to an aspirational level. We use the highest workforce participation rate (WPR) ever observed for

Table 7.4: Highest achieved women's employment rate by state: 2004-2022

	Graduates		Non-Graduates	
Age Group	Highest Value	State-Year	Highest Value	State-Year
20-24	0.47	WB -2023	0.51	HP - 2004
25-29	0.57 *	HP - 2004	0.74	HP-2011

*Sources and notes: NSS EUS and PLFS. *The state of Chhattisgarh recorded a slightly higher employment rate of .58 in 2011 but we do not consider this because many of these graduate women were employed in agriculture (non-agricultural employment rate was much less at .49). Instead, we consider the next highest value achieved which is in Himachal Pradesh where aggregate employment rate and non-agricultural employment rates were similar.*

women and apply this benchmark nationally (Table 7.4). For non-graduates, we continue to assume that the employment structure remains the same as in 2022.

The projected number of regular salaried jobs required for the youth (20-29 years) in 2036 under this scenario is 57.4 million indicating a much steeper rise from the 2022 level for both age groups. The entire increase of 10.7 million jobs in this scenario compared to scenario 2 is owing to the higher women's WPR assumed in this scenario. This scenario underscores the scale of the employment challenge if even a moderate increase in female workforce participation is to be accommodated through decent employment opportunities.

Scenario 4: Aspirational Regular Salaried Employment for both Graduates and Non-Graduates with Aspirational female WPR

Finally, the fourth scenario extends the aspirational lens by introducing aspirational proportions of regular salaried employment not only for the graduates but also for the non-graduates. As in the previous scenario, we maintain the aspirational women's WPR for both graduates and non-graduates. The rationale for including this scenario is that India's employment challenge is not confined to graduates alone; non-graduates will continue to be a sizable proportion of the youth entering the labour force in the coming decades. Scenario 4 represents the most ambitious pathway, one that highlights the magnitude of transformation required if India is to provide dignified, secure, and equitable employment opportunities to its entire youth population.Table 7.3 (earlier) presents these aspirational benchmarks.

The projected number of regular salaried jobs required for youth (20–29 years) in 2036 under this scenario rises to a massive 103.2 million. This represents the most ambitious projection in our analysis, with 68 million more jobs than what existed in 2022.

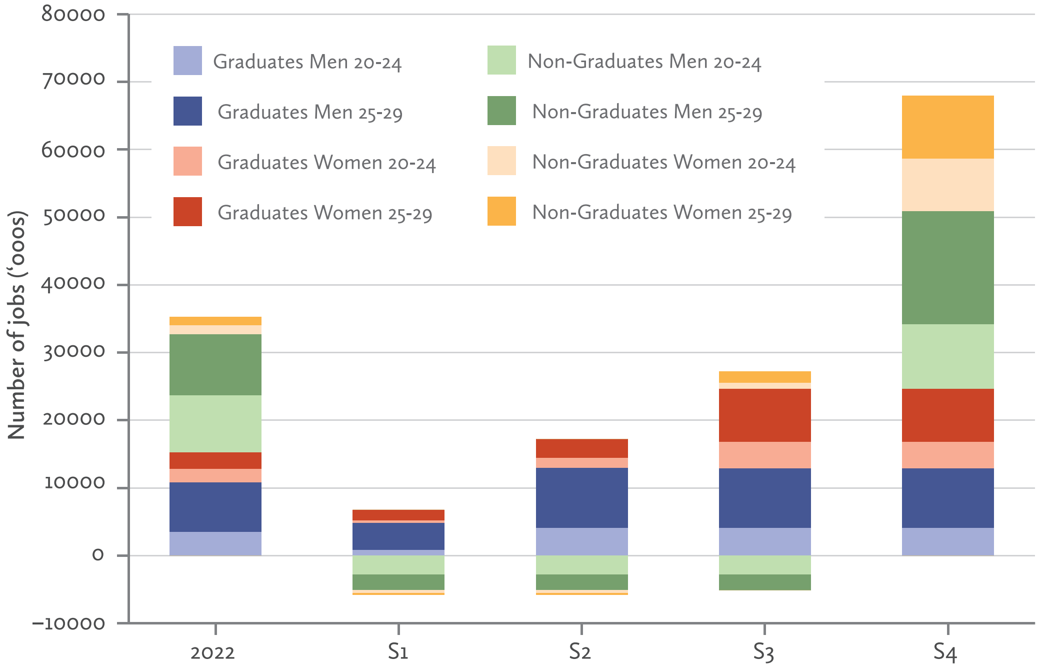
Net addition to jobs

The estimated increase in regular salaried employment that is required by 2036 under the various scenarios discussed above, are summarized and compared in Figure 7.4. This graph shows the total number of regular salaried employment in 2022, and the projected addition to the 2022 levels by 2036 under the four scenarios, disaggregated by gender and education. Remember that in 2022, of the total 35.3 million regular salaried jobs, 15.3 million were held by graduates and 20 million by non-graduates.

Taken together, Figure 7.4 and Table 7.5 demonstrates three key dynamics. First, the total employment challenge varies enormously depending on the scenario, ranging from stagnation under Scenario 1 to a near tripling of jobs under Scenario 4. Second, the distribution of jobs across gender is highly uneven, with young educated women being productively employed only under more ambitious scenarios. Third, since despite a rise in the proportion of graduates, the majority of youth in the labour market in the next decade will still be non-graduates, policy interventions would have to go far beyond improving the employability of graduates. In effect, the graph shows that the degree of inclusivity in labour market outcomes is contingent on the level of aspiration policymakers are willing to pursue.

Given our current rates of salaried employment generation for graduates (5.5 percent), these projections may seem modest. However, this growth rate has to be sustained and extended to a larger pool of workers (women in Scenario 2 and 3, and non graduates in Scenario 4) in order to ensure good and remunerative jobs for a large section. Keep in mind that the current salaried employment generation has come with increasing casualisation and stagnation in

Figure 7.4: Estimated increase in jobs under each scenario



Sources and notes: Calculated using MoHFW population projection and EUS/PLFS estimates.

Table 7.5: Number of jobs to be created under each scenario

	Number of salaried jobs to be created (millions)	Addition from 2022 level	Annual salaried employment growth rate (%)
Baseline (2022)	35.3	-	-
Scenario 1	36.6	1.3	0.26
Scenario 2	46.7	11.4	2.02
Scenario 3	57.4	22.1	3.53
Scenario 4	103.2	67.9	7.96

Sources and notes: Calculated using MoHFW population projection and EUS/PLFS estimates

earnings. This too will need to be addressed besides mere employment generation.

Where could new regular salaried jobs be created?

Having outlined the scale of additional regular salaried employment required by 2036 across different scenarios, we now examine the industrial composition of such employment. In other words, if the economy is to generate the projected number of jobs, in which industries are these likely to be created? One way to answer this is to identify those industries that have historically had high salaried employment shares.

Graduates: Among young graduate men, regular salaried jobs are concentrated in Computer programming and related activities, financial services, retail trade, public administration, and education with the industries being more or less between the two age cohorts. For graduate women, as we saw in Chapter 3, education and health are important sectors along with Computer services, retail trade, and public administration.

Non-Graduates: Among non-graduate men, retail and wholesale trade, and land transport are the most important industries for regular salaried employment. Two other important industries are Food and beverage service activities for the 25-29 age cohort, and manufacturing of garments for the 20-24 age cohort. For women, health and education continue to be among the top four industries generating regular salaried jobs for non-graduate women, Activities of households as employers of domestic personnel (house helps) emerge as another major industry for non-graduate women along with agriculture and the manufacture of garments.

In addition, the findings in Chapter 4 and Chapter 5 offer avenues for salaried employment generation. Colleges are functioning without adequate teachers and skilling institutions without adequate trainers. Filling existing vacancies (in public and private institutions) can not just generate salaried employment but also strengthen these important institutions.

Box 7.1 Time use patterns among age cohorts | By Subhasree Ghatak

One of the most stubborn and persistent challenges in India's labour market is the low rates of employment of women, particularly in secure, salaried employment. Several reasons have been ascribed, including the constraints of care and domestic work, that disproportionately fall on women, limiting the time and energy they have available for paid employment.

To what extent have these disproportionate burdens perpetuated across generations? To answer this question we use the Time Use Survey and examine time use patterns across different cohorts. Of course, time use patterns may differ across cohorts. Our intention here is to see how, within a cohort, male-female differences in time use compare with those of other cohorts.

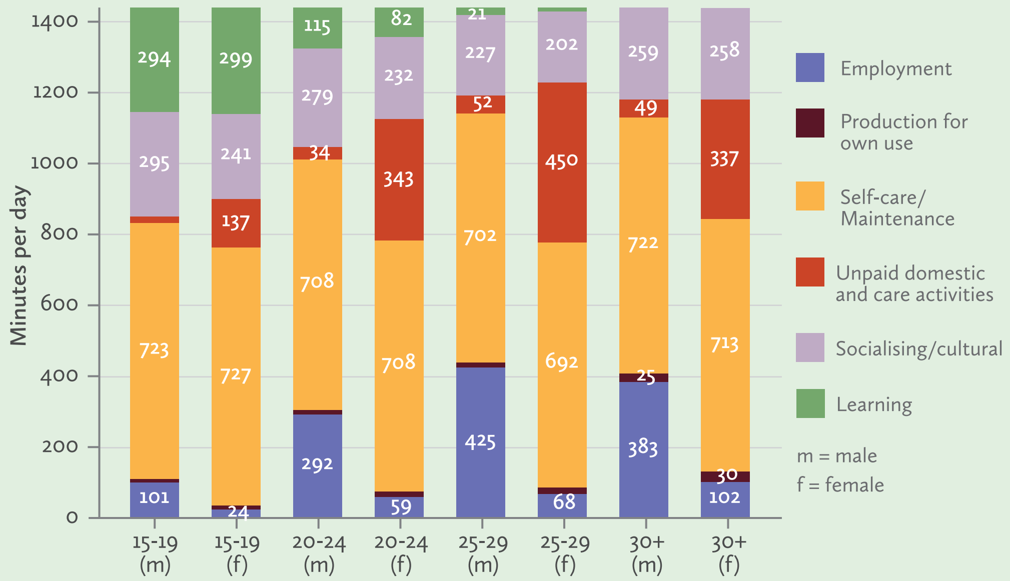
We look into the time use patterns between the youth and the non-youth population in a regular day in India.

We consider only major activities and see how different cohorts spend their day. Not surprisingly, time spent in learning is a major component in the 15-19 age bracket, decreases in the 20-24 bracket, and is almost negligible in higher age brackets. The average time spent in learning by girls is slightly higher than boys in the 15-19 bracket with a gap of 5 minutes. However, this gap reverses and widens among the 20 to 24 year olds indicating that at higher levels of education, girls spend less time on learning.

With respect to employment and related activities, time spent increases with an increase in the age bracket across gender. However, gendered differences persist, and irrespective of the cohort, men spent nearly four times more minutes on employment than women. The average time that a 25-29 male spends in employment is the highest at 425 minutes daily.

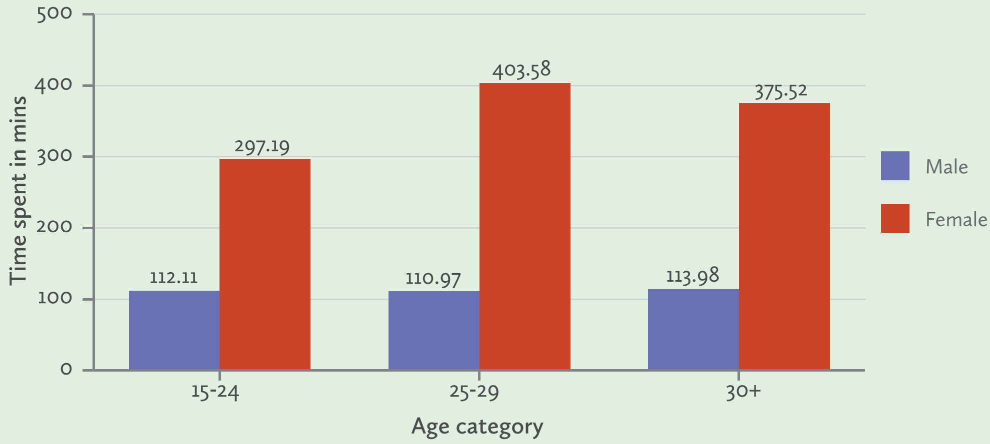
There are no significant gendered differences in time spent in the two categories of socializing and cultural activities and self-care and maintenance. The average time spent in these activities falls in the 25-29 age bracket for both men and women on account of increased time in employment and unpaid domestic and care activities.

Figure 1: What does a regular day look like?



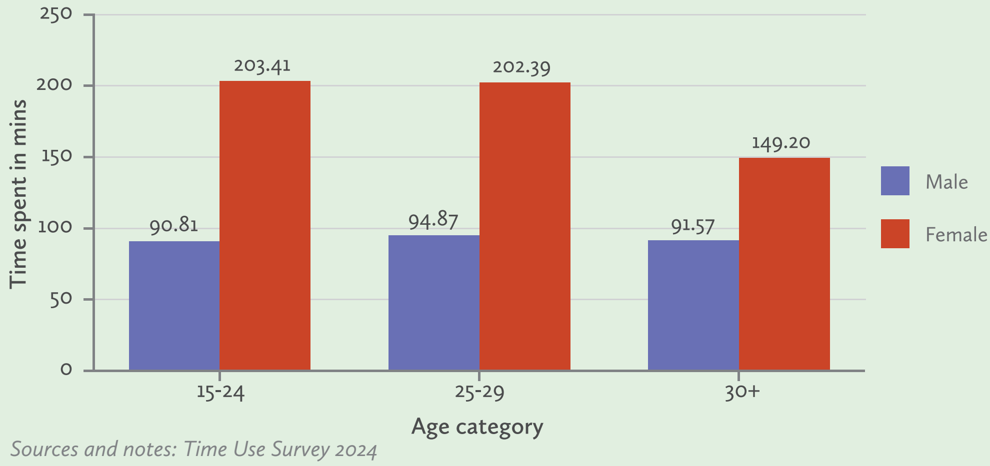
Sources and notes: Time Use Survey 2024

Figure 2: Time spent in domestic work



Sources and notes: Time Use Survey 2024

Figure 3: Time spent in care work



Sources and notes: Time Use Survey 2024

The study of time use patterns reaffirms the widely evidenced literature on the disproportionate burden of unpaid domestic and care work that is borne by women across all age categories. It suggests that even in the younger generations, these differences have persisted. Despite the fact that both men and women in the 25-29 age bracket have the highest average time in unpaid domestic and care work in comparison to the other age groups, there is an immense gap amounting to 398 minutes daily, with men's average at 52 minutes and women's average at 450 minutes.

The graph above does not condition for participation. So those who spend zero minutes on an activity are included when computing average time spent. We now look at these differences conditional on participation. First, we bifurcate unpaid work into unpaid domestic activities and unpaid care work. The components of unpaid domestic work include food preparation and arrangement of meals; cleaning and maintaining own dwelling and surroundings; decoration, maintenance and repair of household furnishings, textiles and footwear, overall household management and pet care. The components of unpaid work include childcare and instruction, care for dependent adults, help to non-dependent adult members, travelling and accompanying related to unpaid caregiving services.

Across all age categories, i.e., 15-24, 25-29 and 30+, women spend significantly more time in unpaid domestic work than men and does not seem to differ by the age cohort.

Conditional on non-zero minutes spent on learning, we find that boys in the 15-19 age bracket spend 252 minutes in formal education as compared to 241 minutes spent by girls. The numbers for the 20-24 age brackets are 238 and 229 minutes respectively. Girls, on the other hand, spend more time on homework and additional study across both the age brackets.

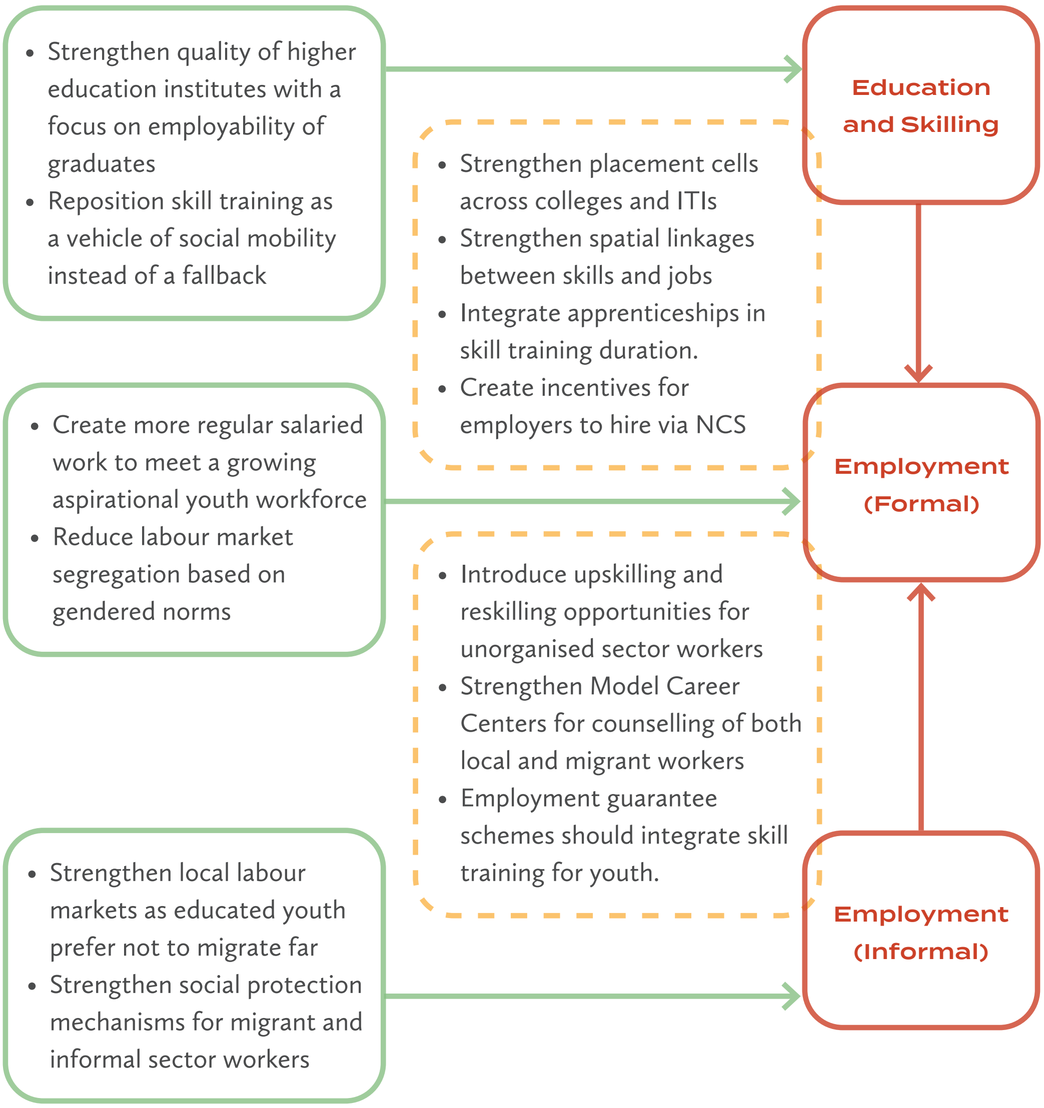
7.4 Conceptualising youth employment policy from a lifecycle perspective

The schematic that follows provides a simple way to organise the policy challenges that shape youth transitions from education to work. Using the lifecycle-based conceptual framework introduced in Chapter 1, we highlight three key sites of policy intervention: education and skilling, formal employment, and informal employment.

The first set of policy interventions relate directly to strengthening outcomes within each of these. In education and skilling, the policy priority is on improving the quality and relevance of education and skill training. This includes strengthening higher education institutions with a stronger emphasis on employability, and repositioning skill training as a pathway for upward mobility rather than as a fallback option for those who cannot access college education. The intention is to ensure that the education and training system produces graduates whose skills are aligned with labour market needs. This requires working with industry and upgrading of curriculums. Of course, this is not to diminish the intrinsic role of education, but rather to enhance its instrumental role in expanding economic opportunity and improving employment outcomes.

For formal employment, the policy priority should be to create and expand the availability of good jobs. Creating more regular salaried work is critical in a context where a large share of youth aspire to find stable employment but are constrained by limited opportunities. At the same time, despite substantial progress in the last four decades, labour markets are still segmented along social and gender lines. Reducing gender- based segregation in occupations and employment opportunities therefore becomes an imperative to increase labour force participation for women.

Figure 7.5: Policy interventions from the perspective of school to work transition



Informal employment continues to absorb a substantial share of young workers and will continue to do so in the future. While these jobs may not be the ones that India's youth would necessarily aspire for, strengthening local labour markets is important since, as we saw in Chapter 5, many educated youth prefer not to migrate far from their home states for informal work. Social protection mechanisms for migrant and informal workers also need to be strengthened so that workers are not exposed to extreme vulnerability.

Alongside these direct interventions, policy priorities should focus also on the transitions across these three, with formal employment being the socially desirable and aspired arrangement of work. A major transition occurs between education and formal employment. Strengthening placement cells in colleges and ITIs, improving spatial linkages between skill providers and job opportunities, integrating apprenticeships within training programmes, and creating incentives for employers to hire through the National Career Service can improve the matching of workers and jobs.

A second transition concerns movement from informal to better arrangements of employment. Upskilling and reskilling opportunities for workers in the unorganised sector, along with stronger Model Career Centres that provide counselling and job search support for both local and migrant workers, can help facilitate this mobility. In fact, employment guarantee schemes should also integrate skills training in some capacity, to enable opportunities for young workers to move out of such fall-back options of employment.

The policy discussion that follows in this chapter, takes this schematic as a framework and builds on specific individual pieces such as skills, job search, and social protection.

7.5 Education, skilling and employability

7.5.1 Conceptualising the skilling question in the Indian context

Many excellent recent studies have taken stock of India's skills landscape and made policy recommendations (Mehrotra et al. 2025; Mehrotra 2021), Skills for the Future report (Kapoor et al. 2025). It is not our intention here to summarise this literature. Rather, the aim is to provide some conceptual clarity on the question of skills, provide concrete recommendations on how to generate better data on existing skills and put forward a framework within which the skills policy landscape can be thought about.

For most of human history learning took two distinct forms. A small minority received what we would today call "formal education", usually in religion, philosophy, rhetorics and related disciplines. The vast majority learned their skills by doing work, i.e. what we call `on-the-job' training or learning-by-doing. Starting in the 19th century when the process of knowledge accumulation greatly accelerated with the industrial revolution, skills required for various productive activities started requiring some off-site formal training in addition to learning by doing on the job. The earliest equivalents of today's technical and vocational training institutes emerged in the 1820s and 30s in England, and rapidly elsewhere. In India too, such efforts date back to the mid-19th century.

A fundamental challenge in the provision of skilling lies in the inherent conflict between who provides the skills training and who stands to gain from it. A trained worker is valuable not just for the firm that trains them, but also for other firms that can potentially hire this worker. Therefore, skilling or training creates spillovers or positive externalities for other firms. Firms which have trained workers cannot prevent them from leaving and joining another firm. It follows, then, that private firms will tend to under-supply training and hope to recruit workers with a minimal level of training.

The obvious policy response is to either provide skilling as a public good via public vocational training programs or to create a market in skill provisioning. Both approaches can work provided off-site curricula keep pace with the nature of skills demanded. In line with this, in the last two decades, India has seen a huge increase in off-site Technical and Vocational Education Training (TVET) institutions such as ITIs and short-term skilling centres. But serious questions remain about their ability to deliver the required skills that are being demanded in the labour market, as we saw in Chapter 5 and in other studies (Makkar and Lamba 2024; Iftikhar 2025; Sharma and Mehrotra 2025).

But in addition to building better TVET systems, we also need to work on an attitude shift in society as regards the fundamental questions- what counts as knowledge and what is dignified work? These questions go to the heart of social divisions in Indian society, based on caste, class and colonial legacies. The prestige or value placed on different kinds of knowledge - indeed the fundamental question, what counts as knowledge - is attached to larger social questions of who counts as a full person. Here India is triply disadvantaged. First, like many other societies, we suffer from what has been called the `head versus hand' hierarchy, where higher status is given to mental work over work that requires physical labour. Worse in India that hierarchy is also encoded in caste, where mental labour is assigned to privileged caste groups and the physical labour assigned to marginalised caste groups. This creates two types of incentives. Dominant castes are unwilling to do work that has a manual component due to fear of loss of status, and so are the marginalised castes who see it as continued stigma. Third, imposed on top of the caste hierarchy is a colonial structure - still largely in place - that creates a two-tiered system in everything from engineering to the military.

A detailed examination of prevailing social hierarchies and their impact on choices made by individuals is outside our scope. We raise this issue to make the point that any TVET policy in India will need to give thought to making such training aspirational. Part of the solution is surely in ensuring that TVET results in well-paying formal jobs. But this may not be the whole solution.

In this respect, it is worth mentioning several national and international movements that have raised the question of "epistemic justice" or equal status for different knowledge traditions. In Latin America, this has taken the form of indigenous peoples' movements. In India, the *lokavidya* (peoples' knowledge) movement is an attempt to bring such knowledge into political and policy consciousness. India's informal knowledge traditions, including its industrial clusters, represent a large resource that needs to be actively nurtured and put to more productive use.

7.5.2 Empirics of skill measurement

Informally acquired knowledge and skills are everywhere but not always recognised or acknowledged. As we saw earlier, labour surveys report around 90 percent of workers as not having received any formal technical or vocational training. But what is even more striking is that even the category of `on-the-job training' is sparsely populated with less than 10% reporting such training. The single largest category of response is `none' (70%).[4] When combined with the low levels of formal schooling (often taken as a proxy for skills), this paints a picture of a heavily unskilled labour force.

But before we accept this data uncritically, it is worth asking the question - can a worker be employed in a firm or run a microenterprise in the private sector without any skills? The answer should be obvious. How then, should we interpret the surprising fact that 70% of workers report receiving no training of any kind, formal or informal? The answer lies in the way we are asking questions. Building on informal skills requires us to first measure them with some accuracy. We offer some suggestions in this regard later in this discussion.

> **“A fundamental challenge in the provision of skilling lies in the inherent conflict between who provides the skills training and who stands to gain from it. A trained worker is valuable not just for the firm that trains them, but also for other firms that can potentially hire this worker. It follows, then, that private firms will tend to under-supply training and hope to recruit workers with a minimal level of training.”**

But this is not a problem limited to informal workers alone. Measuring skills is generally difficult. One or more of the following are usually taken as a proxy for skill: productivity, wages, years of formal education, duration of training, and ease of replaceability with machines. But there are significant conceptual difficulties with each.

A few examples should suffice. The prevalence of low wages and low productivity in the informal sector is often used as proof of its low skill base. But the relationship between skill, productivity, and wages is determined by institutional and structural factors. The exclusion of the vast working majority from the formal sector results in high levels of competition in product markets between microentrepreneurs who are forced to start their own business due to lack of jobs, and between workers in the informal labour market. Since measures of productivity such as value-added per worker rely on market prices, and severe competition in the product market puts downward pressure on prices, this means firms in more competitive markets appear less productive than firms that enjoy market power.

More broadly, the formal-informal earnings gap can result not just from worker characteristics (such as formal education) but also from firm size, degree of competition in the product market, and the capital-labour ratio. In an economy with surplus labour even skilled workers may earn low wages due to low bargaining power (Knorringa 1999; Leibl and Roy 2004). Further, gains from productivity accrue to employers as higher profits or, if the product market is competitive, to buyers in the form of lower prices instead of to workers (Heintz 2006).[5]

That years of formal education are not a good proxy for skills is also obvious in the Indian context. If we look around and attempt to identify skills, we find them in the most modest of places - the neighbourhood sweets shop, the computer repair shack, and, of course, any farm. On the other hand, studies find that while youth are increasingly qualified on paper, many still lack the skills of practical application, critical thinking, and adaptability needed to thrive in real job environments. Yet, economists and policy-makers routinely confuse skills with formal schooling. Finally, with the advent of machine learning and large language models, it has become clear that replaceability with machines is not something that only manual occupations are exposed to.

Much more work is needed to understand how apprenticeships and on-the-job training work in the informal economy (see Box 7.2 for a discussion on India's apprenticeship scheme). The problem in studying such labour market institutions is that our methods of inquiry are not appropriate. For example, informal training systems are often integrated into ordinary life and work. There is no identifiable place or time where learning happens. The recipients of such training do not recognise it as such, and hence do not respond affirmatively in surveys. The amount of training or learning is not easily quantifiable and no formal documentation exists. Often there are no explicit fees, though implicit costs such as foregone wages during apprenticeships and the opportunity costs of the trainer's and trainee's time exist. The processes may also be embedded in relations such as family, caste, gender, and community relations that are perceived as "non-economic." All this requires an ethnographic approach which economists are generally reluctant to undertake. Hence most of our knowledge of such institutions comes from economic anthropologists (Barber 2004; also see examples in Basole 2012).

Box 7.2 Apprenticeships

For any young person stepping into the workforce, the bridge between skills learnt in the classroom and actual work experience is often the hardest to cross. Skills training can give someone the knowledge, but apprenticeships give them the practice, the exposure, and critically, a foot in the door with an employer. India has made significant progress to strengthen this bridge through the National Apprenticeship Promotion Scheme (NAPS) launched with the intention of encouraging more employers to take on apprentices and to make it easier for young people to register and find placements.The scheme also provides financial support to employers to offset the cost of training.

Looking at the data from the NAPS portal between 2020 and 2025, we find that registrations have grown substantially, peaking around 2022-23 with over 20 lakh candidates signing up in the 14-32 age group alone, implying more young people are aware of apprenticeships and are pursuing it (Table 1).

However, there are signs of concerns especially in terms of inclusion and equity. When we disaggregate the data by caste, we find disparities across categories. Candidates from the General category register for apprenticeships in far greater numbers than SC candidates. Evidence presented in Chapter 5 shows that within the skills infrastructure, especially in ITIs, the relative representation of SC students is higher than that of General Category students. However, the apprenticeship numbers suggest that students

Table 1: Number of apprentices, over time

Age Group	2020–2021	2021–2022	2022–2023	2023–2024	2024–2025
14–32	1,353,069	2,062,015	1,951,425	1,265,488	1,325,044
33–40	124,917	179,971	114,583	67,830	47,000
40+	27,376	65,634	35,480	15,648	8,544

Sources and notes: NAPS portal

from the General Category opt for apprenticeship at a higher number. This implies, SC candidates are entering the skills pipeline in significant numbers, but participation in apprenticeships is much lower.

A possible reason for observing this trend could be that those accessing skills training from the General Category can afford to spend some more years as apprentices. For SC students, forgone earnings of apprenticeships is very relatively costly and unaffordable. The policy implication therefore, is to reduce the time-cost of apprenticeships, by integrating it within the skill training duration itself. This would serve two functions - ensuring equity and inclusion while strengthening skill acquisition by incorporating a hands-on component.

Table 2: Caste-based disparities in apprenticeship registrations

	14-32	33-40	40+
General	522,711	32,858	7,985
OBC	380,000	13,224	2,955
SC	158,181	7,012	1,059
ST	64,531	2,521	428

Sources and notes: NAPS portal

7.5.3 Employability and skills

The assumption in the foregoing discussions is that the acquisition of skilling could improve employment outcomes including security of and earnings from employment. However, whether it is formal education, or vocational training, what has become of increasing concern, not just in India, but across the world too, is the question of employability - 'trained' and 'qualified' workers lacking in basic workplace skills or not being 'job ready'.

However, employability as a concept is amorphous and it is difficult to pinpoint a measure of workers' job readiness or suitability. Some insights come from the India Skills Report (ISR) (2025). The report is a collaboration between Wheebox, CII, AICTE and others, and tracks employability trends, hiring intentions and skill demands across India. The report is based on nationwide assessments and surveys conducted by Wheebox to estimate a Global Employability Test metric among final-year undergraduate and postgraduate students, covering lakhs of students. The areas assessed include English, arithmetic, critical thinking, digital literacy, personality and general knowledge and evaluates a student's job readiness through a structured, 90-minute assessment.[6] The report also engages with nearly 150 companies.

According to the report, youth employability has risen steadily over the last five years. In 2025, 57% of youth were employable, an increase from 45.9% in 2021. Female employability, in particular, has increased from 41% to 68%. These figures show progress, but challenges remain. The ISR finds the employability deficit to be particularly acute in specialized domains like IT and Banking, Financial Services, and Insurance (BFSI). The National Skill Development Corporation (NSDC) further quantifies this shortfall, estimating a staggering deficit of 29 million skilled workers needed to meet the nation's economic targets.

To find out what kind of workers companies need, Wheebox collects information from more than 150 companies in different fields like IT, banking, manufacturing, retail, and healthcare. Employers are showing lower interest in hiring freshers, with hiring intent falling from 22% (2024) to 14% (2025). Most companies prefer candidates with 1–5 years of experience due to their readiness and lower training needs. Mid-level professionals (6–10 years) are also in demand in IT and pharma. Fresh graduates are increasingly expected to have internship experience or vocational skills. This underscores the need for educational reforms that integrate hands-on learning.

While youth are increasingly qualified on paper, many still lack the skills needed to thrive in real job environments. This means that despite holding degrees, students often struggle with practical application, critical thinking, and adaptability. Many are not equipped with the digital, analytical, or communication skills that modern jobs require. Employers frequently report that candidates lack hands-on experience, teamwork abilities, and readiness to face workplace challenges.

The industry's definition of "employability" goes beyond technical competence. Firms increasingly demand transversal skills, often referred to as non-cognitive or soft skills, which are difficult to teach but essential for workplace productivity and adaptability. These include digital literacy, complex problem-solving, critical thinking, teamwork, and professional attitude. The high value placed on qualities like punctuality, dependability, and sincerity suggests that for many entry-level roles, particularly in the services sector, attitude is viewed as a compensatory asset that can overcome a deficit in technical expertise (Neroorkar & Gopinath, 2020).

Box 7.3 Do young workers exhibit higher turnover than older workers? Evidence from payroll data from a third-party staffing agency |

By Krishna Priya Choragudi

A challenge that employers frequently cite is the high rates of attrition and the difficulty in retaining workers for long periods. High attrition rates further dampen employer incentives to invest in workers' skills including in training and upskilling. We know very little about attrition and retention rates in the Indian context. We use anonymised payroll data from a large staffing agency to see if younger workers experience higher churn or turnover relative to older workers.

Spanning April 2018 to February 2020, the data covers over 1.4 million worker-month observations for workers employed in the retail sector. Each employee is observed for as long as they remain continuously employed with a particular client company, allowing us to track their retention month by month and analyse how long they stay before exiting. Young workers aged 15–29 years make up nearly half the sample (48%), and older workers aged 30–60 years account for the remaining workforce.[1] We find that young workers consistently exit much earlier and have higher turnover risk than older workers and the gender differences remain the same across age groups.

Although the age distribution in the sample is fairly balanced, the workforce is overwhelmingly male: only about 9 percent of all employees are women. Within the young cohort, women account for 13 percent of workers, whereas among older workers they make up just 6 percent, indicating that the workforce becomes increasingly male-dominated with age.

Young employees have shorter tenures compared to older employees

Tenure distribution reveals age-based differences. The longest tenure we observe is 23 months (April 2018 to Feb 2020). However, since we have truncated the dataset, this does not mean workers could not stay longer. Differences between young and older workers mostly reflect real differences in how quickly they leave. Since we do not know the contract length for each worker, if some workers, especially younger ones, were hired on short-term contracts, they will appear to 'leave early' in the data even if they simply completed their contract rather than choosing to exit. This analysis assumes that young and older workers are hired on similar types of contracts and for roughly similar lengths of time. If this assumption holds, then the

Table 1: Young workers stay, on average, for a shorter period than older workers

	Gender	Mean tenure (in months)	Median tenure (in months)	SD
15-29 years	Female	11	10	7
	Male	13	13	8
	Total	13	13	8
30-60 years	Female	15	16	8
	Male	17	20	7
	Total	17	20	7

Sources and notes: Payroll data from April 2018 to February 2020

observed differences in tenure reflect differences in churn or exit behaviour.

Young employees stay, on average, 13 months, whereas older employees stay 17 months (Table 1). The seven-month gap in median tenure between young and older workers is significant: reaching 20 months of continuous employment is common for older workers but relatively uncommon for younger workers. Given that the median duration reflects the time at which half the cohort has exited, young workers reach the halfway point of separation far sooner than older workers.

The gender differences, longer tenure among men than women, remains consistent across age groups. Young women stay approximately 11 months, whereas older women stay 15 months, a gap of four months. Young men stay 13 months, compared with 17 months for older men. For both men and women, moving from the young group to the older group increases tenure by almost four months. Standard deviations are similar across age groups, suggesting that the dispersion of job durations is not markedly different; rather, the entire distribution for young workers shifts leftward, indicating earlier exits across the board.

Kaplan–Meier (KM) survival estimates

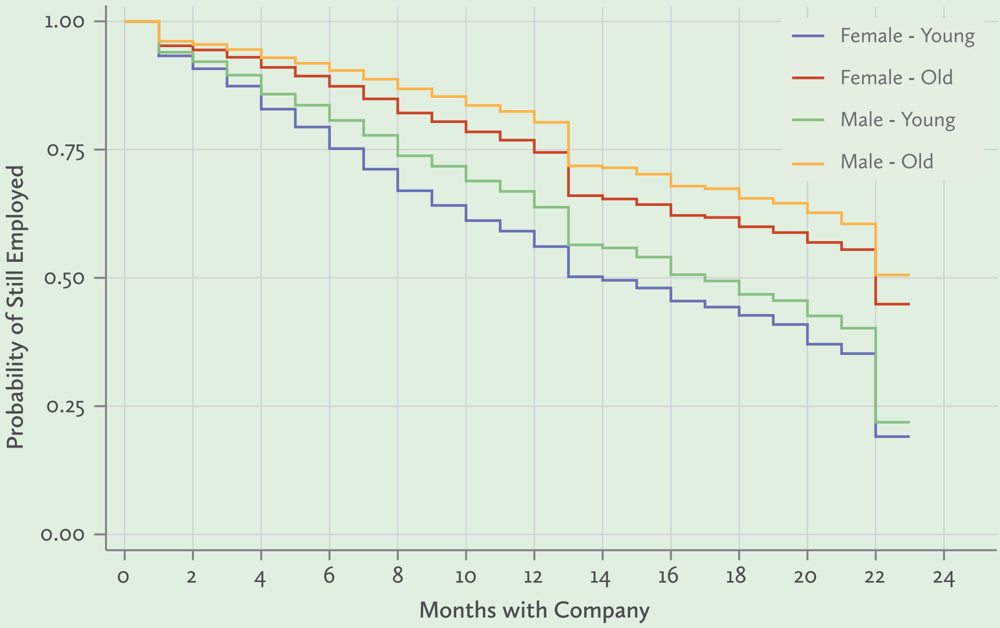
KM estimates are useful here because workers may be still employed when the data ends in February 2020. Instead of counting these workers as having left or removing them from the analysis, we keep them in as "still working," which gives a more accurate picture of how long people stay and how churn differs across groups. Survival analysis, therefore, provides an intuitive measure of turnover, depicting the probability that a worker remains employed for a given number of months while correctly handling the censored nature of the data. Kaplan–Meier (KM) survival curves (Figure 1), estimated separately for each age group, show that the survival function for young workers declines more steeply at every duration threshold.

The older cohort maintains higher survival probabilities throughout the observed duration. The difference in median survival time is useful here: the KM survival curve for young workers falls to 0.5 around 13 months, meaning half of them have exited by that point, while the older cohort reaches the same point only around 20 months. This confirms that older workers are substantially more likely to stay with a company at any given point in time. The survival curves also show that age, rather than gender, drives most of the differences in retention. Although men stay longer than women within the same age group, these differences are outweighed by the much larger gap between young and older workers.

To conclude, this note provides consistent evidence that young workers experience substantially higher churn than older workers. Young employees have lower mean and median tenures, exit earlier across retention bins, and exhibit steeper survival curves throughout the duration of employment. These patterns hold across gender and within youth subgroups.

1 There are no observations for workers aged 15–19, so the youth group effectively consists of those aged 20–29 years.

Figure 1: Young workers, both genders, exit much faster than older workers, they have consistently lower survival curves.



Sources and notes: Payroll data from April 2018 to February 2020

7.5.4 A policy framework for skilling

We can think of facilitating effective skill generation in three different ways. First, better and quicker matching of workers to jobs so that the early years in the job market are not wasted but rather the potential of the worker is realised via learning by doing. Second, enabling small firms to impart training to workers through subsidies on apprenticeships, and third developing better off-site training that supplements on-site training effectively.

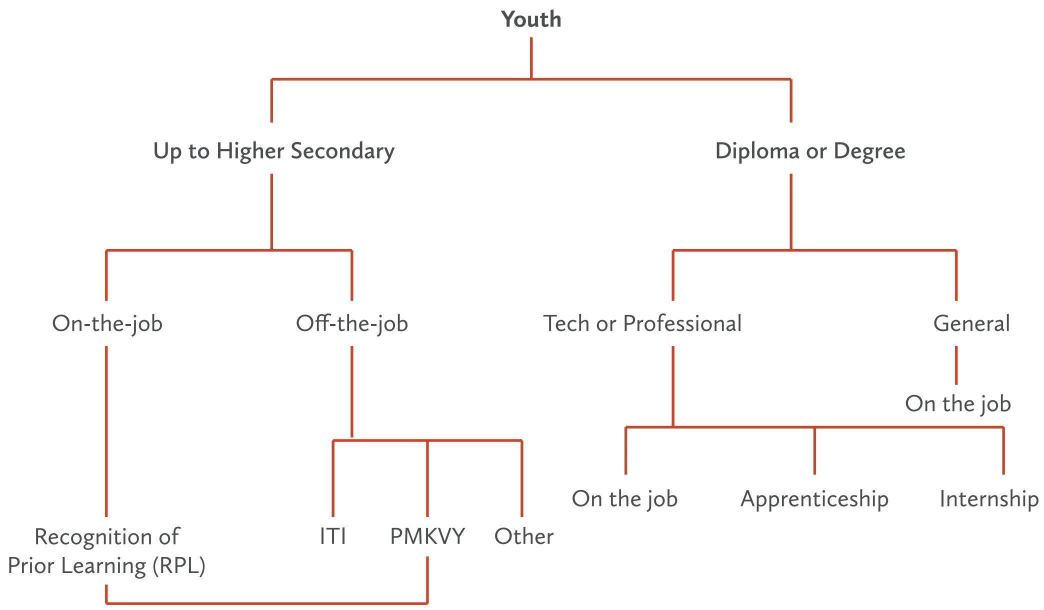
Figure 7.2 provides a framework to think about skilling of different types of young workers. The focus is on fresh employees or workers with prior informal sector experience transitioning to formal employment, not on career ladders and lifelong learning. Broadly, we divide young workers into those who have received some schooling beyond the higher secondary level (i.e. diploma or degree holders) and those who have not (the majority of young workers are in the latter category).

In both categories, as we have noted earlier, on-the-job training is likely to be the main mode via which young workers acquire skills. For less educated workers, the policy approach to recognising and formalising their informally acquired skills is Recognition of Prior Learning (RPL), which is part of the PMKVY. Here the principal challenge is to ensure that RPL actually translates into formal sector opportunities. Mehrotra et al (2025) provide some suggestions in this regard.

Off-the-job or off-site training for less education workers takes three main routes: ITIs, short-term skilling via PMKVY and other private certificate courses in various trades and skills. In order to ensure effective placements out of these courses, curricula need to be frequently evaluated against market demands, effective links need to be forged with employers and a strong regulatory framework is needed to evaluate performance.

Off-site training for diploma and degree holders of technical or professional variety is ideally part of the degree itself, further buttressed by internships and apprenticeships. While this works well for prestigious technical institutes, the same is not the case for lower tier institutes and colleges. The race for higher education has resulted in a rapid rise in enrolment in both technical and general (but mainly general) degree programmes without a concomitant creation of aspirational jobs or a maintenance of educational standards. In the wake of the education bubble, and with increasing excess capacity in engineering and other colleges, there is a need to take stock of standards here as well. A manufacturing revolution cannot occur without fixing the technical diploma and degree system.

Figure 7.6: Skilling by worker educational categories



Finally, the majority of degree holders possess general and not technical/professional qualifications. Whether these are acquired for the marriage market or in order to qualify for various public examinations need not concern us here. The outcome is of greater importance: that the majority of general degree holders do not appear to have any skills or are "unemployable." This is, in some ways, the most difficult policy challenge. Any serious reform of the TVET system will eventually ensure that far fewer young people choose general degree programmes, because these will no longer be the only ticket to aspirational formal jobs. But meanwhile, several millions of young workers who have exited the higher education system without skills need to be an urgent focus of policy attention.

A few points are worth emphasizing by way of conclusion. First, it seems clear that a supply-side approach that focuses on imparting skills is not adequate by itself. Skilling requires a complementary policy framework that enables formal firms to expand and create jobs.

Second, the public sector may be better at generating general skills (English, Maths, logical thinking) and reliable workers (disciplined, healthy, insured against shocks), not necessarily at imparting specialised skills which change rapidly with market conditions. However, given India's social hierarchies, publicly funded and low-cost technical and vocational education may still be required specially for individuals whose social networks do not allow them to easily secure formal employment. In addition to publicly funded institutions, we may need to work out models whereby such individuals are offered public scholarships for availing privately provided training.

Third, whether public or private, our TVET system needs much better coordination with firms, especially at the local level. The vision should be that every small town in India has adequately staffed technical training institutes (public or private) that coordinate with local employers to offer relevant programmes.

Fourth, skilling is costly and has positive externalities. The cross-country evidence shows that employers need incentives to provide training. How can we incentivise firms to use idle capacity for training, subsidise fresh hires and offer apprenticeships? To take one example, in South Korea in the 1970s, the government forced large firms to pay for training or train beyond their needs to benefit small and medium enterprises. Lastly, proximity to the global productivity frontier is key to skilling. We need to start with tradables and spill over to non-tradables.

We end with a basic question. Does India have a "skills problem" or a "jobs problem"? In other words, is the binding constraint on providing gainful and productive employment to India's youth, the lack of such jobs or the lack of skilled youth? No doubt, the answer will differ from sector to sector, some being more skill constrained and others showing weaker job creation. But the larger point here is that skills do not necessarily lead to jobs, but jobs are necessary to develop skills.

> **“Does India have a “skills problem” or a “jobs problem”? In other words, is the binding constraint on providing gainful and productive employment to India’s youth, the lack of such jobs or the lack of skilled youth? The larger point here is that skills do not necessarily lead to jobs, but jobs are necessary to develop skills.”**

7.6 Linking employers and workers: National Career Services

The National Career Service (NCS) is an online platform launched by the Government of India in 2016 to match workers with potential employers, provide skill training and counselling services and other employment services. Over the past years, participation in NCS has increased sharply, reflecting growing reliance on public employment infrastructure among jobseekers. Total registrations on the platform have risen more than seven times since 2018-19, with a sharp increase post-pandemic. Currently, NCS has more than a crore active users, with the majority being youth below the age of 34.

NCS is embedded within the broader architecture of India’s active labour market policies. It connects jobseekers not only to vacancies but also to Model Career Centres (MCC), job fairs, counselling services, and skill development programs.[7] In fact, workers registered in e-Shram have the option to register for NCS and find formal employment through the portal, and thus in principle, NCS provides a pathway for transition not only from school to work or skill to employment, but also for transitioning within and into the formal sector. In principle, NCS offers an integrated interface that links information, placement, guidance and training. Therefore, if registrations continue to increase at this pace, in the next decade NCS can emerge as a critical point of contact between young workers and the formal employment ecosystem.

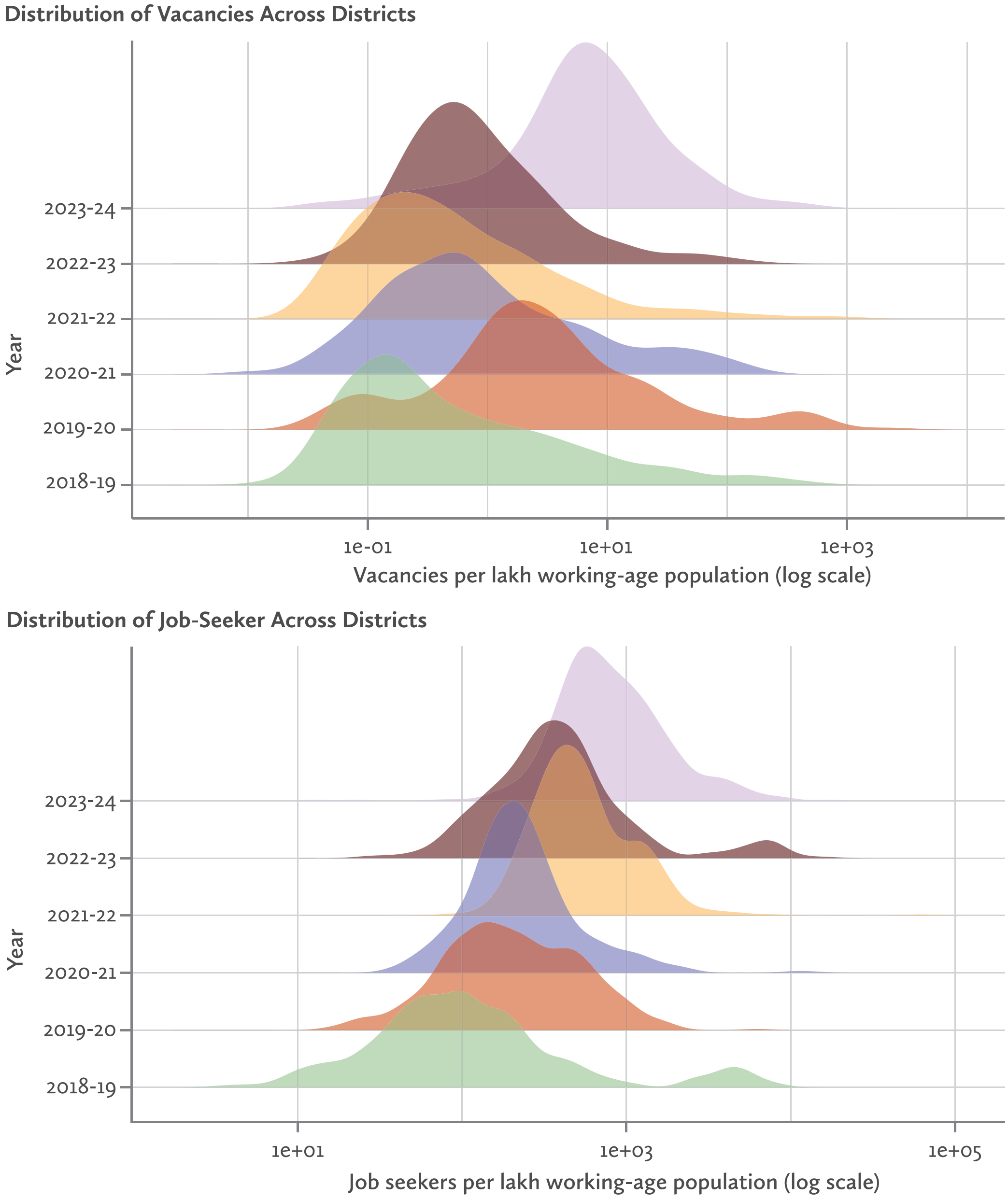
While rising registration reflects growing demand for formal employment, it also raises an important question – are vacancies keeping pace? To examine this we utilize district level data from the NCS portal, for several major states between 2019 and 2024. Distributions of registered vacancies per lakh working-age population across districts, show a sharp leftward shift since 2020-21 (Figure 7.7). A leftward shift indicates a fall in the average number of vacancies posted, across districts. Vacancy distribution both shrinks and shifts left during the pandemic and exhibits only partial recovery thereafter. Although some districts regain modest levels of hiring activity, the overall distribution remains compressed, with a large mass of districts experiencing extremely low vacancy rates. However, since 2023-24, there has been a rightward shift indicating that more vacancies are posted via NCS.

At the same time, distribution of jobseekers per lakh working-age population, whether during or after the pandemic has shifted gradually but steadily to the right, with the median shift decisively to the right from a median value of 100 to 1000 jobseekers per lakh. Districts across the country register substantially higher volumes of jobseekers and more so in the recent past.

The job vacancies posted in the NCS portal does not reflect the actual number of vacancies created in the economy. It rather reflects the take-up of the NCS portal among employers. On the other hand, recent integrations with the e-Shram portal may have resulted in a net higher user base for NCS. However, even with this caveat, the combination of the figures presented above clearly highlights two important facts. First, that rising educational attainment and changing aspirations have increased demand for regular salaried employment, particularly among young workers. In fact, the number of active users of private job portals such as Naukri, is broadly comparable with the number of registered jobseekers in NCS. NCS already provides a robust infrastructure that links to a range of career services and training programs providing the institutional scaffolding required for the jobseekers.

The same however, is clearly not true of employers. As observed in Chapter 5, many employers, especially those operating at a smaller scale are often reliant on informal channels of hiring, including posting on local Whatsapp groups. Social networks continue to be a dominant mode of matching in the labour market. Therefore, from a policy perspective, the administrative priority is to expand NCS reach among employers.

Figure 7.7: Distribution of vacancies and job seekers across districts



Sources and notes: National Career Services portal

To create an incentive structure for employers to post vacancies, or hiring through the NCS system, one potential pathway would be to directly integrate employer-facing schemes such as the Employment Linked Incentive Scheme (ELIS) with NCS, making NCS registration and vacancy posting a default gateway for availing hiring subsidies. Another potential channel that district administrations could actively use is to draw insights from the NCS data to broker sector-specific hiring drives, linking local firms with curated pools of jobseekers and apprentices, thereby transforming NCS from a listing platform to an active public recruitment intermediary.

It is important to note that the lower take-up of NCS among the employers currently, does not diminish the value of NCS as an institution. On the contrary, NCS actually offers policymakers a real-time view of labour market stress, spatial disparities, and transitions from skilling system to employment. The platform captures not only where jobseekers are located, but also how intensely districts are competing for limited formal opportunities. Further, in Chapter 6 we saw that women, more than men, rely on employment exchanges. Therefore, the NCS can serve as an important platform to ensure higher and smoother transitions for women into the workforce. With the right policy focus, NCS can evolve from just a job-matching platform to one that facilitates skill acquisition and supports firms in sourcing employable talent. In doing so, NCS can help reduce labour market frictions and ensure that a growing number of India's aspirational youth can access pathways into productive employment.

7.7 Public employment programs as social protection and skilling interventions[8]

The evidence from eShram presented in Chapter 2, underscores a central feature of India's contemporary labour market. When regular salaried jobs are scarce, young workers rely on a combination of informality and migration to navigate spatial and sectoral mismatches in job creation. However, these labour market adjustments operate alongside a second, equally important set of mechanisms such as publicly provided social protection and employment guarantees. While migration reflects how workers respond to uneven economic opportunity, social protection schemes such as guaranteed employment, reflects how the state responds to persistent employment shortfalls.

Public employment programmes are particularly important in this context because they often function as fallback mechanisms when market-based employment fails to provide adequate livelihoods. Unlike migration, which redistributes labour across regions, employment guarantee schemes absorb labour locally. Specifically for young workers who are either unwilling or unable to move, such schemes may provide much necessary cushion as it enables the youth to afford delaying migration. In a demographic-dividend phase marked by large cohorts of young entrants, the scale and composition of participation in these schemes provide valuable signals about the intensity, duration, and location of labour market distress.

This section therefore turns to two closely related policies. The Mahatma Gandhi National Rural Employment Guarantee Act (NREGA) (now replaced by the Viksit Bharat - Guarantee for Rozgar and Ajeevika Mission (Gramin)) and urban employment guarantee schemes (Rajasthan). Together, they offer a perspective on how employment distress among youth is distributed across rural and urban areas, and how it has evolved in recent years. Patterns of participation by age group shed light on whether these programmes are functioning as temporary fall-back or as more persistent sources of employment for young workers. At the same time, comparing rural and urban employment guarantees allows us to examine whether labour market pressures are higher in cities relative to rural areas, particularly for the younger workforce.

In examining these policies we ask two questions. First, what role has NREGA come to play in absorbing young workers in the post-pandemic period, especially in states with already poor economic performances and also facing sustained job creation constraints? Second, what does the emergence and uptake of urban employment guarantees suggest about the nature of urban youth precarity and the limits of informal urban labour markets? Addressing these questions is essential for understanding how social protection fits into India's broader strategy for managing its demographic transition.

Persistent reliance on NREGA among Youth from Poorer States since 2019

A central difficulty in analysing youth participation in NREGA is that raw counts or participation rates are not comparable across districts. Districts differ widely in age structure and in their overall reliance on NREGA, so higher youth participation may simply reflect a younger population or greater scheme intensity rather than youth-specific distress. To account for this, we normalise the share of workers participating with their share in the population, as shown below.

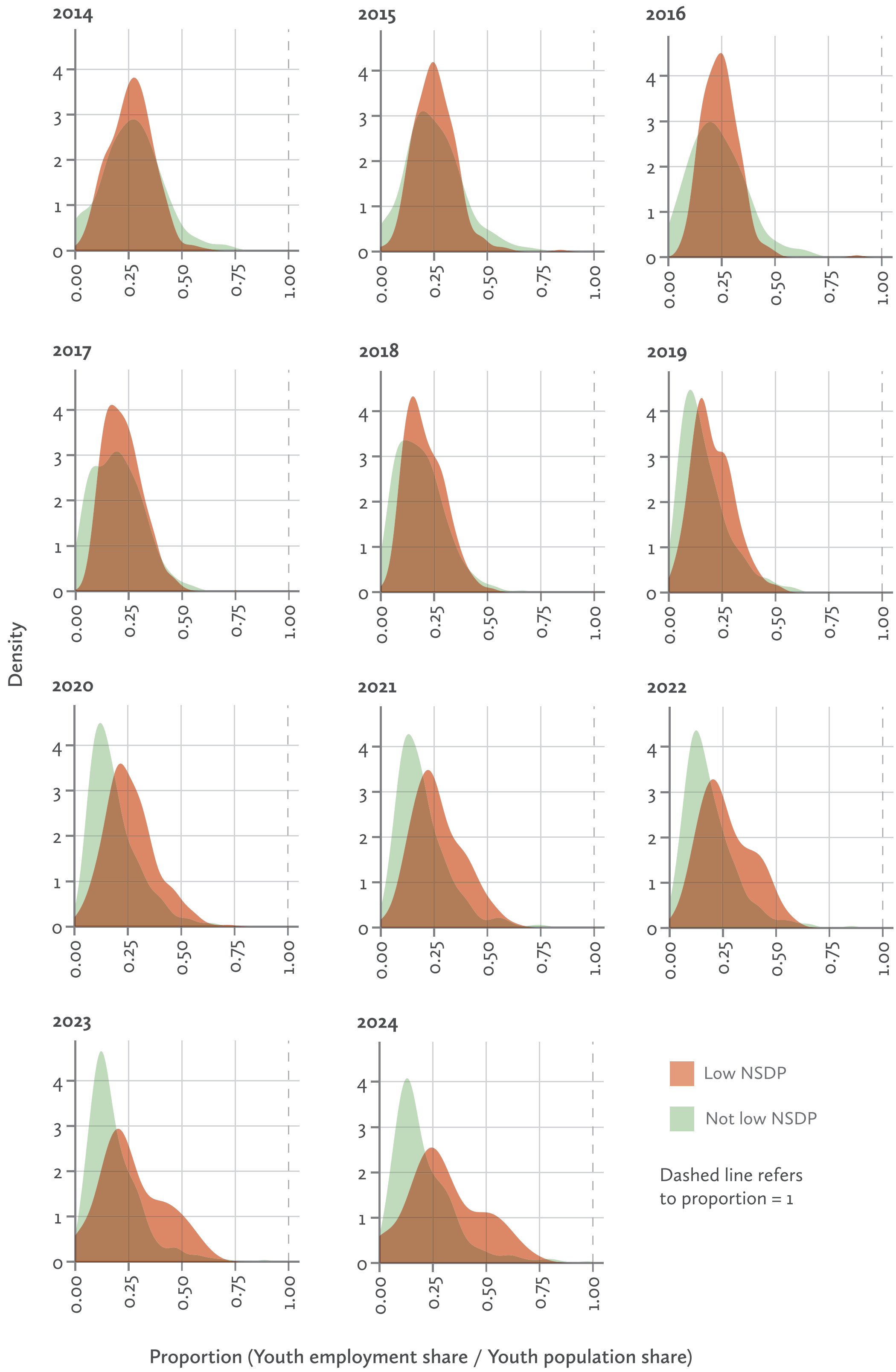
$$r_{dt} = \frac{\textit{Youth share among NREGA workers in district } d\textit{, in year } t}{\textit{Youth share in Working Age Population in district } d\textit{, in year } t}$$

A value of one implies proportional representation, while values above one indicate that youth are over-represented relative to older working-age cohorts. This metric isolates relative reliance on public employment by youth after accounting for population composition and overall programme use. A persistently high r_{dt} suggests high reliance on NREGA. This could be because alternative employment options are not available and youth then rely on NREGA as a fallback.

Figure 7.8 plots the distribution of the ratio r_{dt} over a span of 11 years from 2014 till 2025. While almost no district, at any point of time, hits the proportional value of 1 (the dashed line), two significant features stand out.

First, before the pandemic, districts in low-NSDP states (shown in red) are only modestly different relative to other districts. While the peak was higher, reflecting a greater concentration of districts clustered around moderate levels of youth proportionality, the distributions were largely the same, with similar tails,

Figure 7.8: Distribution of youth employment proportionality across districts



Sources and notes: NREGA MIS portal

implying that youth in weaker state economies were represented at a more or less similar rate as in better-performing states. However, as soon as the pandemic broke out, from 2020 onward, the red distribution shifts noticeably to the right and develops a thicker right tail, and this shift persists through 2024. This indicates a higher reliance on NREGA by youth in poorer districts compared to richer districts.

In other words, the post-pandemic shift is not only about higher NREGA use overall, but about a growing number of districts in low-performing states where youth are disproportionately dependent on public employment as a fallback. Rather than being driven by a handful of outlier districts, the distribution for low-NSDP states moves to the right as a whole, and the persistent thicker right tail points to a sustained increase in youth reliance on NREGA.

While r_{dt} captures district-level intensity, Figure 7.9 complements this picture with a simpler, aggregate summary. It plots, for each year, the difference in the probability of finding a young worker in NREGA employment in low-NSDP states versus the other states. The difference is close to zero in the pre-pandemic period - one is as likely to find a NREGA worker in a poor state compared to a rich state. Around 2020, however, the gap increases and then declines somewhat, but remains positive well into 2024. The key point is the persistence: even after the initial pandemic shock recedes, youth in low-NSDP states continue to be significantly more likely to be found in NREGA than the better performing states.

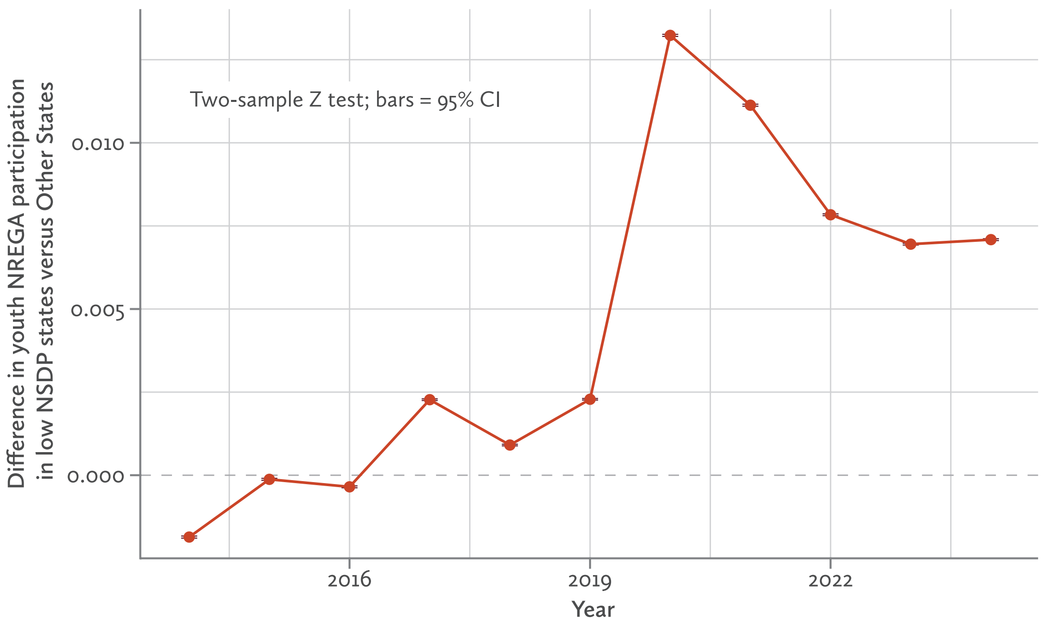
Taken together, the two figures point to the same conclusion. In economically weaker states, NREGA appears to have shifted from being primarily a short-term buffer to playing a more sustained role in absorbing young workers when local labour markets fail to generate sufficient opportunities.

The Urban Employment Guarantee (UEG) in Rajasthan offers a rare opportunity to directly observe how youth respond when a public employment guarantee scheme is made available in urban areas. Unlike NREGA, data from the UEG scheme analysed here is for only a single financial year. Figure 7.10 below presents the state-level time series of the youth share (18–30) among NREGA-employed workers in Rajasthan from 2014 to 2023, alongside the UEG youth-share in 2022-23. On an average, we find a 8 percentage point higher level of youth participation in comparable periods, and even going back in time, it exceeds the youth employment share ever observed historically under NREGA in Rajasthan.

We also repeat this comparison for top urban and rural districts, and find that the overall pattern at the state level cannot be dismissed as a simple reflection of urban-rural population composition. If anything, the four most urban districts in Rajasthan reflect a similar pattern as that of districts with high rural population share (data not shown).

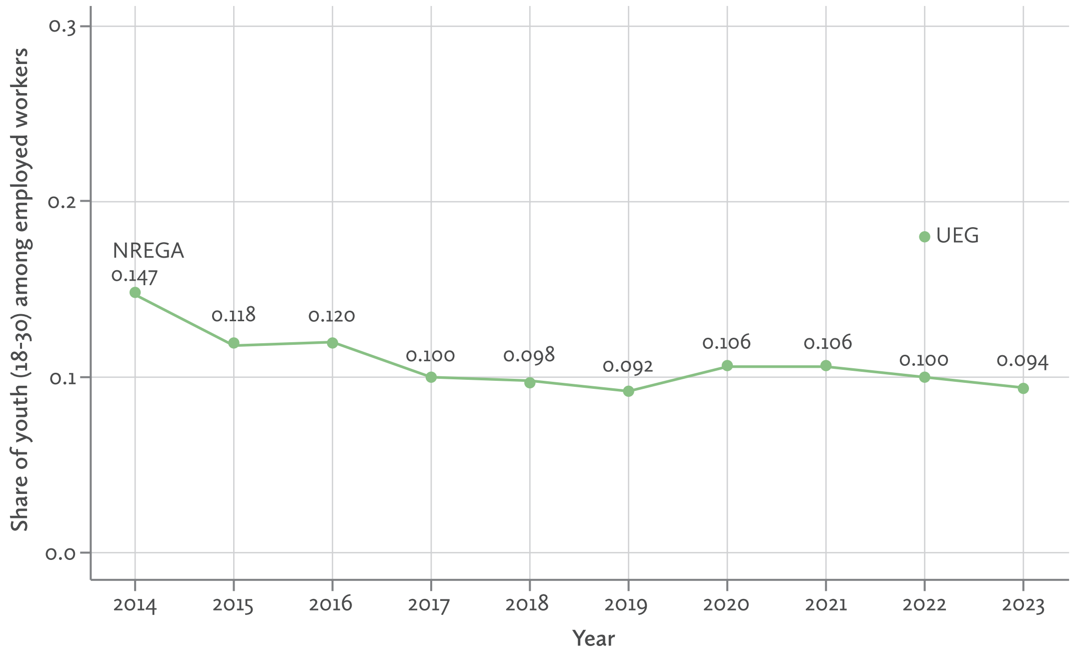
The discussion in this section implies that employment guarantee schemes are perhaps no longer a peripheral safety net or fall back, but core instruments of social protection in an economy struggling to absorb large cohorts of young workers. For policymakers, this has three implications. First, employment guarantee schemes must treat the youth as an important demographic category, and not merely serve as residual rural welfare schemes. Second, the design of these programmes should explicitly incorporate skill-building, work progression, and links to local labour demand, so that they do not become traps of economic immobility. Third, as demographic pressures intensify over the next decade, the trade-off would

Figure 7.9: Are youth in low income states more likely to be employed in NREGA?



Sources and notes: NREGA MIS portal

Figure 7.10: Comparing NREGA and UEGA employment in Rajasthan



Sources and notes: NREGA MIS portal and Indira Gandhi Urban Employment Guarantee Scheme dashboard

be to decide between fiscal cost of such schemes vis-a-vis the cost of whether the economy can afford to manage youth precarity without them.

> **The discussion in this section implies that employment guarantee schemes are perhaps no longer a peripheral safety net or fall back, but core instruments of social protection in an economy struggling to absorb large cohorts of young workers.**

7.8 Conclusion

The central challenge that this report began with—translating India's demographic dividend into an economic one—pivots fundamentally on what policies we have adopted so far and what we intend to prioritise. Irrespective, it requires deliberate and sustained coordination across education reform, industrial strategy, labour market institutions, and social protection systems.

The long-standing debate—whether India faces primarily a skills deficit or a jobs deficit—cannot be resolved in binary terms. In specific sectors, skill shortages may constrain growth; in others, the binding constraint lies in insufficient demand for labour, particularly for salaried workers. At the aggregate level, the evidence suggests that without a commensurate expansion of productive, formal, and remunerative employment opportunities, investments in skilling alone will not yield transformative outcomes. Skills enhance productivity, but it is the availability of quality jobs that ultimately determines whether such productivity can be absorbed and rewarded.

The transition from learning to earning must therefore be approached as a systemic challenge rather than a sectoral one. It calls for policies that are ambitious in scale, coherent across domains, and attentive to structural realities - demographic pressures, regional disparities, gender norms, and the persistence of informality. Only through such an integrated approach can India convert its demographic potential into equitable economic gains. The chapters in this report are in no way exhaustive in covering the school to work transition and the policy interventions needed therein. Rather, our intention is to lay out some of the foundational work that can contribute to a better understanding of the challenges and enable coordinated policymaking.

Endnotes

1 This is based on ongoing work by Angarika Rakshit.

2 We do see some non-linearity but this appears only after very high levels of enrolment are reached, around 80 percent.

3 Population projections are available for up to 2036 from the Report of the Technical group of Population Projection July 2020 (2011-2036), prepared by the Ministry of Health and Family Welfare.

4 The remainder fall in categories such as “hereditary” and “self”

5 In the 1980s and 90s there was a debate among US labor economists on whether wages differences between industries could be adequately explained assuming that labor markets were competitive and only human capital differences among workers mattered. In this literature, those who argued for non-competitive models brought up factors like degree of product market competition, firm size, and capital-labour ratio to account for inter-industry earning differentials (Krueger and Summers 1988; Groshen 1991).

6 The test consists of Multiple Choice Questions (MCQs), a CMRI (Click and Selection Based Comprehension), a programming test (for engineering students), and asynchronous video interviews.

7 Model Career Centres (MCCs), function as a hub of career counselling and also provide career related services such as organising job fairs, mobilise the employers, provide career counselling at local level etc., in collaboration with States and other institutions to the jobseekers and employers through outreach activities. The Government provides financial assistance to the states for establishing model career centres based on the proposals and scheme guidelines. Each Model Career Centre is supported by one Young Professional engaged for management of the centre and for better coordination with the Ministry.

8 This is based on ongoing work with Vijayashree Jayaraman

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Data Appendix

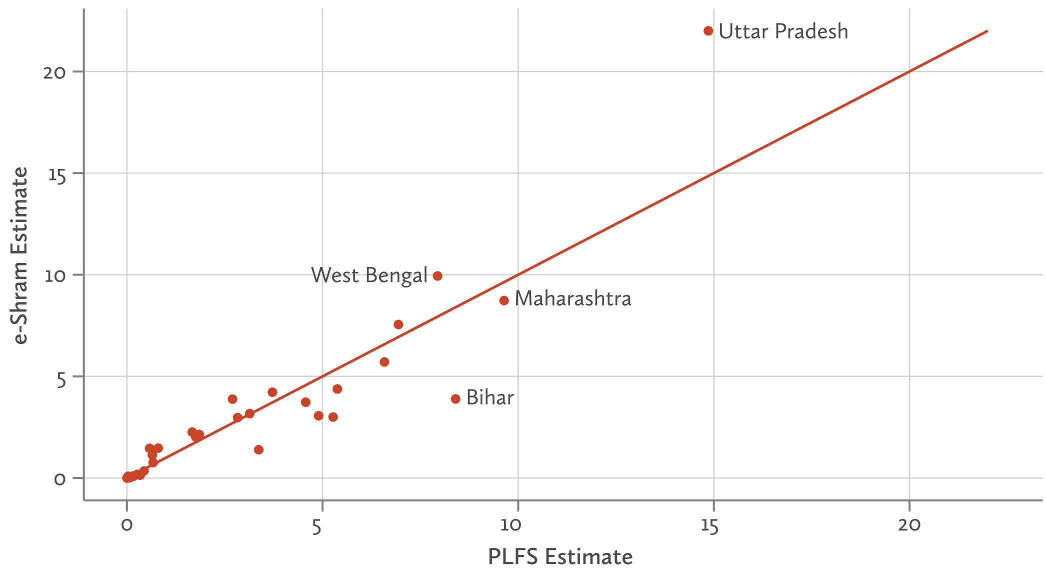
Chapter 2

Comparing e-Shram with PLFS

In contrast to the 29 crore workers recorded in e-Shram, as per estimates using the PLFS, the estimated count of potential e-Shram eligible workers is around 39 crore, implying approximately 75% coverage by the e-Shram portal (notwithstanding inclusion and exclusion errors).

A comparison of state-wise worker shares in PLFS and e-Shram reveals two broad patterns. Most states lie close to the 45-degree line, indicating broad rank-order consistency between the two sources, while a small number of large states emerge as clear outliers. In particular, UP and Bihar account for substantially larger shares in e-Shram than in PLFS, while several southern and smaller states are modestly under-represented.

Figure 1: State wise comparison : PLFS vs e-Shram



Sources and notes: PLFS and e-Shram

Chapter 4

AISHE

The All India Survey on Higher Education (AISHE) is an important nationwide annual survey initiated in 2010-11 by the Ministry of Education, Government of India. The primary objective of this extensive survey is to develop a comprehensive and reliable database on India's diverse and expanding higher education system.

It is important to note that AISHE is **not a sample survey**. Rather, it involves self-reporting by all institutions imparting higher education. Higher education is defined as education obtained after completing 12 years of schooling and of a duration of at least nine months or after completing 10 years of schooling and of a duration of at least three years. The AISHE survey encompasses the following institutions:

- University & University Level Institutions: These are institutions which are empowered to award degrees under some Act of Parliament or State Legislature.

- Colleges: Colleges are affiliated/recognised with a University and are not empowered to provide a degree in its own name.

- Stand-alone Institutions: Stand-alone institutions are institutions which are not affiliated with Universities and are not empowered to provide degrees. They run Diploma Level Programmes (such as polytechnics, teacher training institutes, etc.) offering programs classified as higher education.

AISHE collects information on a range of indicators for each college including number of students enrolled, number of teachers, level of education (UG, PG, PhD, etc.),teaching and non-teaching staff, infrastructure and facilities, programmes offered, caste and gender background of students and teachers etc. Since reporting is on a voluntary basis, information available under AISHE pertains to institutions registered in the AISHE database who report in that year. Typically, a year on year non-response rate of around 9–10% is observed, particularly among affiliated and constituent colleges.There is an improvement in response rate over the years, for example a 61% response rate from the sample of colleges in 2010-11 to 94.2% in the year 2022.[1] To maintain the consistency and reliability of the data, imputation techniques are applied for non-responding institutions especially for enrolment figures at the undergraduate (UG) and postgraduate (PG) levels.

Table 1: Response Rate over the years

Category	University	Colleges	Stand-alone
Total	642	34,908	11,356
Response in AISHE 2011-12	464 (72%)	16,021 (46%)	4,654 (41%)
Total Institutions after pooling (2010-11)	**601 (94%)**	**21,158 (61%)**	**6,702 (59%)**
Total	667	35,525	11,565
Response in AISHE 2012-13	656 (98%)	25,138 (71%)	5,749 (50%)
Total Institutions after pooling (2011-12)	**660 (99%)**	**27,345 (77%)**	**6,880 (59%)**
Total	723	36,634	11,664
Response in AISHE 2013-14	676 (93%)	27,916 (76%)	5,897 (51%)
Total Institutions after pooling (2012-13)	**702 (97%)**	**29,330 (80%)**	**6,860 (59%)**
Listed for AISHE 2014-15	760	38,498	12,276
Response in AISHE 2014-15	724 (95.3%)	33,187 (86.2%)	7,056 (54.5%)
Total Institutions after pooling (2012-13 & 2013-14)	**740 (97.3%)**	**34,452 (89.5%)**	**7,627 (62.1%)**
Listed for AISHE 2015-16	799	39071	11923
Response in AISHE 2015-16	754 (94.4%)	33903 (86.8%)	7154 (60%)
Total number of Institutions after pooling data from AISHE 2013-14 and AISHE 2014-15	**774 (96.9%)**	**35667 (91.3%)**	**7915 (66.4%)**

[Table continued on next page]

Sources and notes: Various AISHE reports

Table 1 [contd.]: Response Rate over the years

Category	University	Colleges	Stand-alone
Listed for AISHE 2016-17	864	40026	11669
Response in AISHE 2016-17	795 (92.01%)	34193 (85.42%)	7496 (64.2%)
Total number of Institutions after pooling data from AISHE 2014-15 and AISHE 2015-16	**835 (96.6%)**	**36852 (92.1%)**	**8453 (72.4%)**
Listed for AISHE 2017-18	903	39050	10011
Actual Response in AISHE 2017-18	828 (91.7%)	34628 (88.7%)	7854 (78.5%)
Total number of Institutions after pooling data from AISHE 2013-14 to AISHE 2016-17	**882 (98%)**	**38061 (97.5%)**	**9090 (90.8%)**
Listed for AISHE 2018-19	993	39931	10725
Actual Response in AISHE 2018-19	944 (95.1%)	36308 (91%)	8354 (77.9%)
Total number of Institutions after pooling data from AISHE 2016-17 to AISHE 2017-18	**962 (96.9%)**	**38179 (95.6%)**	**9190 (85.7%)**
Listed for AISHE 2019-20	1043	42343	11779
Actual Response in AISHE 2019-20	993 (95.2%)	38102 (90.0%)	8631 (73.3%)
Total number of Institutions after pooling data from AISHE 2017-18 to AISHE 2018-19	**1019 (97.7%)**	**39955 (94.4%)**	**9599 (81.5%**
Listed for AISHE 2020-21	1113	43796	11296
Actual Response in AISHE 2020-21	1085 (97.5%)	40212 (91.8%)	8696 (77%)
Total number of Institutions after pooling data from AISHE 2018-19 and AISHE 2019-20	**1099 (98.7%)**	**41600 (95%)**	**10307 (91.2%)**
Listed for AISHE 2021-22	1168	45473	12002
Actual Response in AISHE 2021-22	1154 (98.8%)	38886 (85.5%)	9163 (76.3%)
Total number of Institutions after pooling data from AISHE 2019-20 and AISHE 2020-21	**1162 (99.5%)**	**42825 (94.2%)**	**10576 (88.1%)**

Sources and notes: Various AISHE reports

UDAYA Data

Understanding the Lives of Adolescents and Young Adults (UDAYA) is a large-scale longitudinal survey conducted by the Population Council of India in the states of Uttar Pradesh and Bihar. The first round of the survey was conducted in September 2015 to January 2016 in Uttar Pradesh and January 2016 to July 2016 in Bihar. The survey focused on five groups of adolescents - unmarried adolescent girls and boys aged 10-14 and 15-19 and married girls aged 15-19 - who are the primary respondents. The second round (wave 2) was conducted about three years later between 2018 and 2019 by which time these groups would be aged 13-17 and 18-22, respectively. Along with a household questionnaire administered to the household head or any adult in the household, the identified adolescent within the household is administered an individual level questionnaire. While many themes are covered, we are particularly interested in choices and aspirations for education, vocational training and employment. Individual learning levels are also assessed.

Using the 2011 Census as a frame, the survey followed a multi-stage systematic sampling design with 150 randomly selected primary sampling units comprising villages in rural areas and census wards in urban areas (Paul et al 2023). With the use of the appropriate sampling weights, the survey is intended to be representative at the state level.

Since we are specifically interested in understanding the link between education, aspirations and employment, we focus on 15-19 year olds who are at the school leaving stage during the two waves of the survey. We further introduce an additional categorization to identify initially unmarried girls who get married between the two waves. Since aspirations, educational attainment and school to work transition are likely to systematically differ between married and unmarried girls of the same age, we split the unmarried 15-19 girls to two groups - ones that remained unmarried, and ones that married in the interim.

Table 2: Final sample shares by age groups

Age category	Unweighted sample	Weighted share
UM15-19	2,716	20.33
UF15-19_U	4,617	33.57
UF15-19_M	1,551	12.6
MF15-19	4,257	33.49
Total	**13,141**	**100**

Notes: UM - Unmarried male, UF - unmarried female, UF_M - unmarried female, married between the two waves, MF - married female.

Household Social Consumption: Education Survey

For analysis of stream choices and the costs of enrolling in higher education, we use data from the three rounds of 'Household Social Consumption: Education' conducted by the National Sample Survey Office (NSSO). These surveys collect data on enrolment status, educational level, type of institution, along with household-level indicators such as social groups, religion, consumption expenditure, place of residence etc. Within the households, information about household members' gender, age, and educational enrollment. For enrolled individuals, additional details pertaining to their course enrollment, subject/stream selection, and various educational expenses are available. We use the latest three rounds of the Education consumption – 64th Round (2007-08); 71st Round (2014) and 75th Round (2017-18). Across the three rounds, data for 340,908 individuals aged between 3 and 35 and enrolled in any course is available.

Estimation of Enrolment: The NSS data reports information about household members aged between 3 and 35 years for those who are enrolled in education courses as well as those who are not enrolled. Using this information, the Gross Enrolment Rate (GER) is computed as the proportion of individuals in the 18–23 age group who are enrolled in undergraduate-level courses.

Estimation of Education expenditure for academic year: For each observation, information about the level of enrollment and course are available. Also, respondents report the expenses incurred towards education including the costs related to course fee, books, stationery, transport, exam fee etc. A summation of all these components is reported as the annual cost of the course. We estimate the mean annual education expense incurred from the reported expenses by specific courses and the level of the course.

Gender Gaps in stream choice: To estimate gender gaps in stream choice, we use a regression model where the outcome variable is an indicator for a specific course. The variable takes the value 1 if student *i* from household *h* is enrolled in the specified undergraduate course, and 0 if the student is enrolled in any other course.

The key explanatory variable is an indicator variable for female students (that takes the value 1 if the student is female, 0 otherwise). We also include indicators for social groups that take the value 1 if student *i* belongs to social group *j* ($j \in \{OBC, SC, ST\}$), with students belonging to the General (GEN) category serving as the reference group. In addition, we control for the household's real monthly per capita consumption expenditure (MPCE).

Separate regressions are estimated for each course category, such as engineering, medicine, science, and humanities. The estimated coefficients can be interpreted as the likelihood of female students choosing a particular course relative to male students.

Endnotes

1 Data Appendix Table 1 gives the year on year response rate by type of institutions, as reported by AISHE.

Methods & Results Appendix

Chapter 2

States' salaried employment share growth vis-a-vis economic growth

The first year for which detailed unit-level employment data is available from the employment surveys corresponds to the NSS 38th round: Employment & Unemployment Survey (EUS), 1983. The last EUS round came out in 2011, between 1983 and 2011 there were four more rounds in 1987, 1993, 1999 & 2004. EUS was replaced by the annual Periodic Labour Force Survey in 2017. Since 2017, there have been six more rounds, the latest one for the year 2023-24.

In the analysis below, the age group considered is 25–29. We exclude the 20-24 year olds as some may still be in education. Thus, the estimates reflect the share of the salaried youth population within the 25–29 age group, calculated separately for men and women. The index is computed using the following formula:
Salaried Index for period i = Salaried share in period i / Salaried share in 1983

Net State Domestic Product (NSDP) per capita information is sourced from the RBI's Database on Indian Economy. The numbers are in constant terms, in 2011prices. For the long run analysis states created since 2000 were considered as part of earlier existing states. To calculate per capita NSDP of these states, a weighted average is used where weights are the proportion of the population in earlier existing state and newly formed states. For example, to calculate per capita income for undivided Bihar in 2004, the per capita NSDP of Jharkhand and Bihar is used with respective population proportions (population projections are taken from the Ministry of Health & Family Welfare population projection report).

Figure 1: States' salaried employment share growth vis-a-vis economic growth

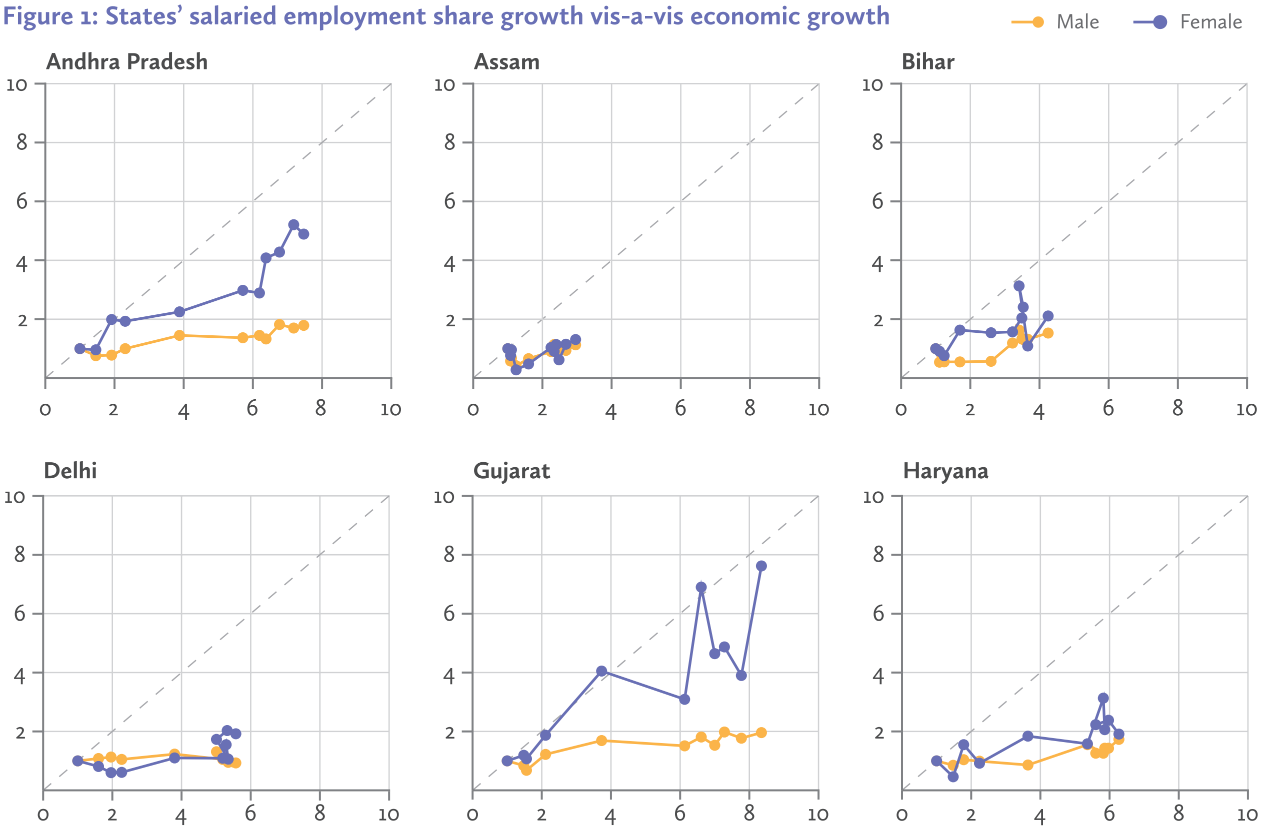
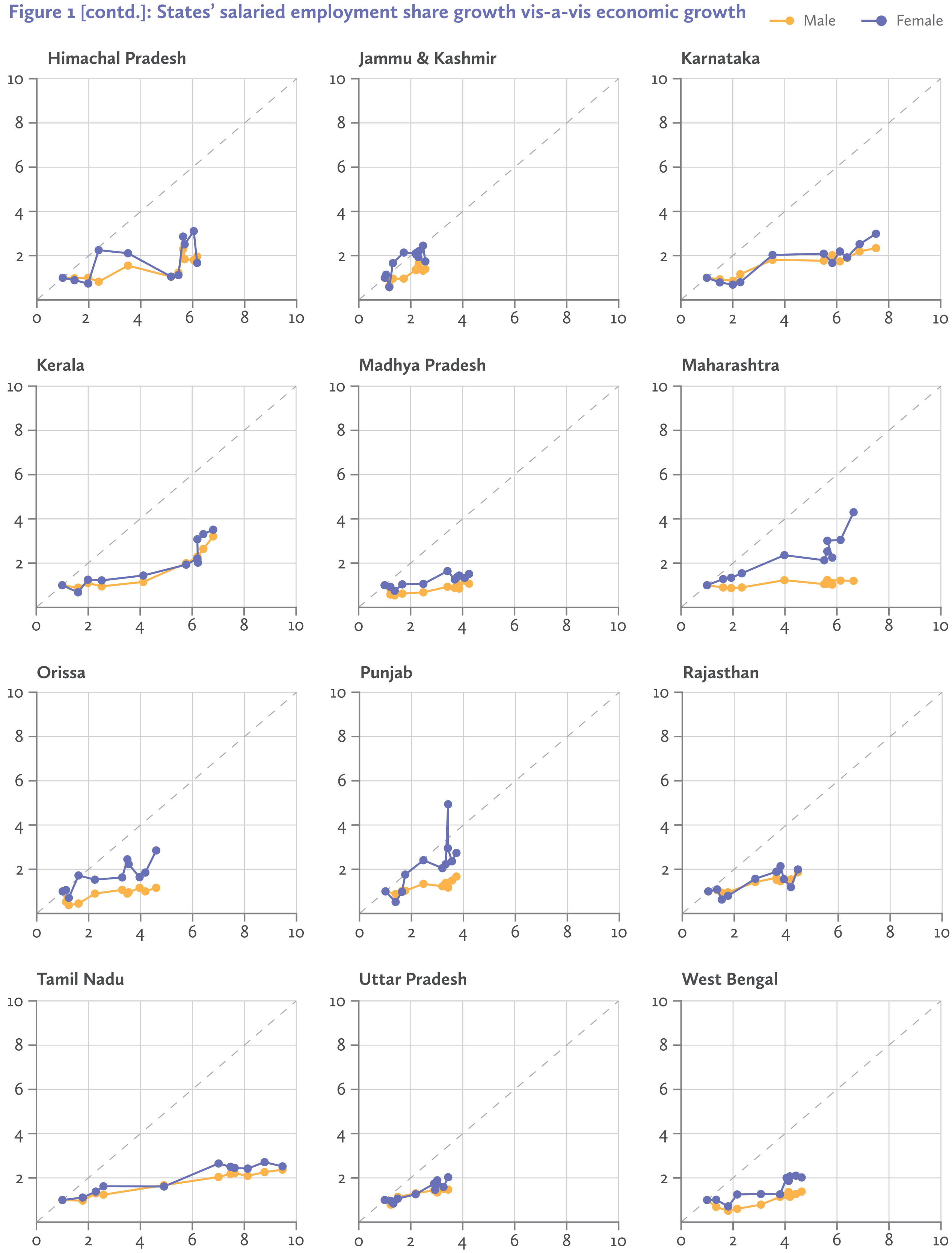


Figure 1 [contd.]: States' salaried employment share growth vis-a-vis economic growth



State Panel Regression

In the state panel regression, the independent variables are log per capita NSDP, interaction of log per capita NSDP and state controls, with state fixed effects.The regression model captures the effect of growth on the proportion of salaried youth for a given state i at time point t. The cross-state regression framework allows us to estimate the semi-elasticities for structural change for each state .The standard errors are clustered at the state level.

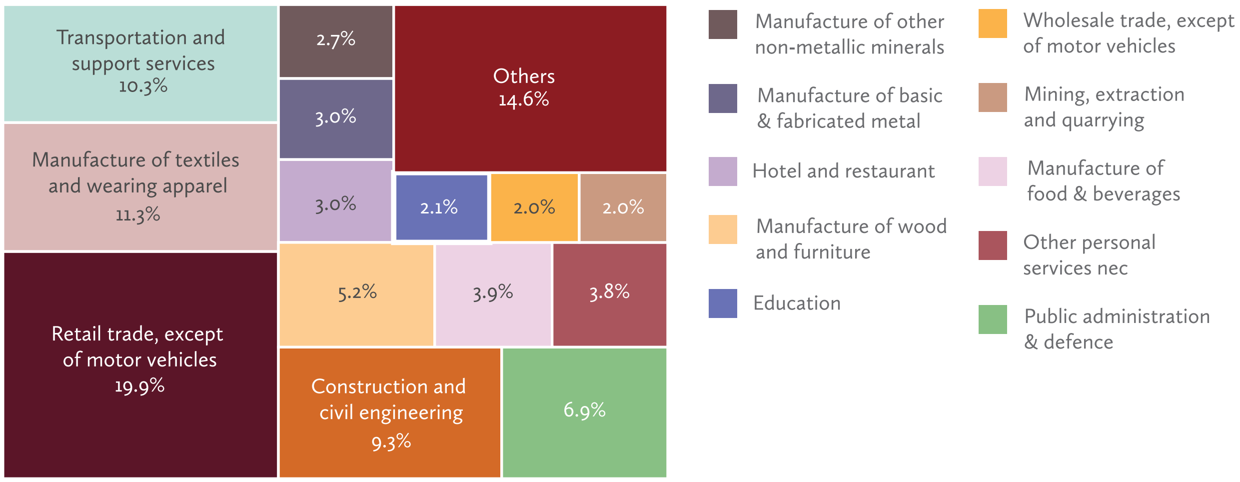
$$\text{prop\_salaried\_youth}_{it} = \alpha + \beta_1 \text{ log\_percapita\_nsdp}_{it} + \beta_2 \text{ state}_{it} + \beta_3 \text{log\_percapita\_nsdp}_{it} * \text{state}_i + \varepsilon_{it}$$

Here $\beta_1 + \beta_3$ gives the semi elasticity. Multiplying this by 100 gives us an easy interpretation of how doubling of growth (100 percent change in per capita NSDP) affects a salaried youth share in percentage point terms.

Chapter 3

Figure 2: Industrial composition of non-graduate men

a: 1983



b: 2023

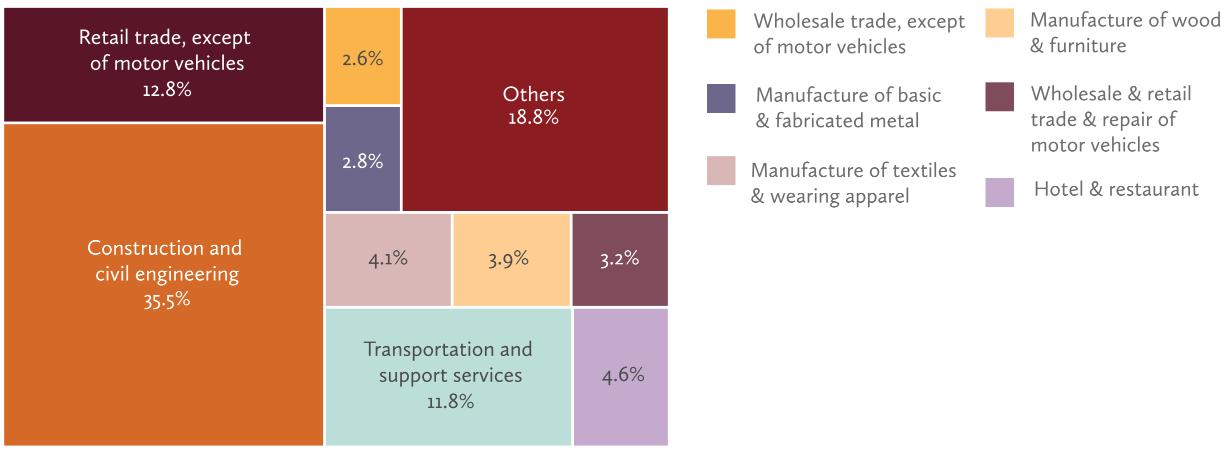
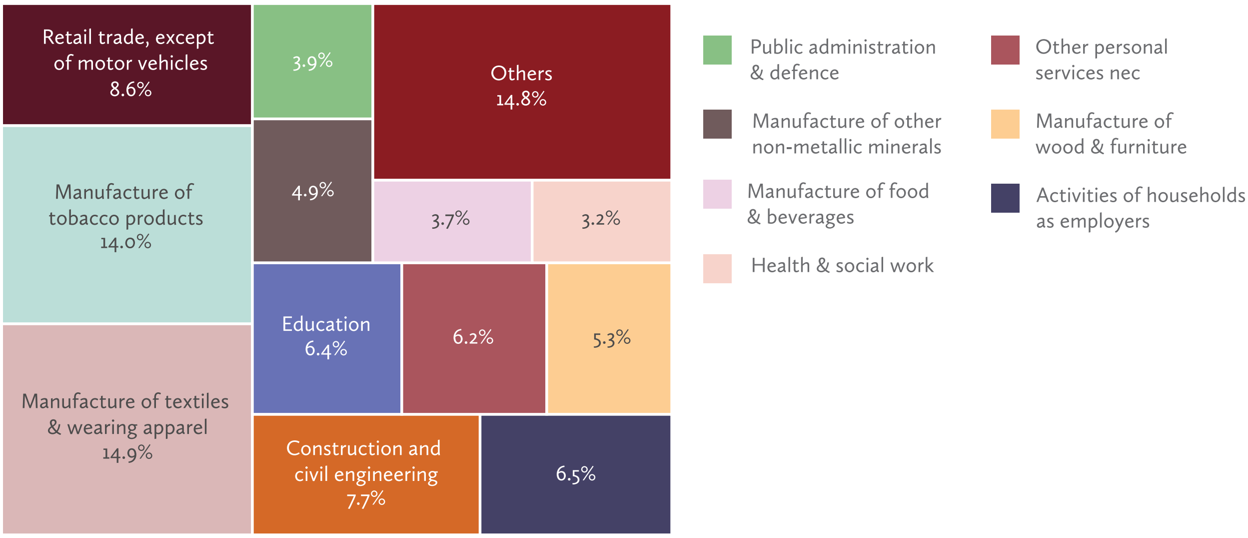


Figure 3: Industrial composition of non-graduate women

a: 1983



b: 2023

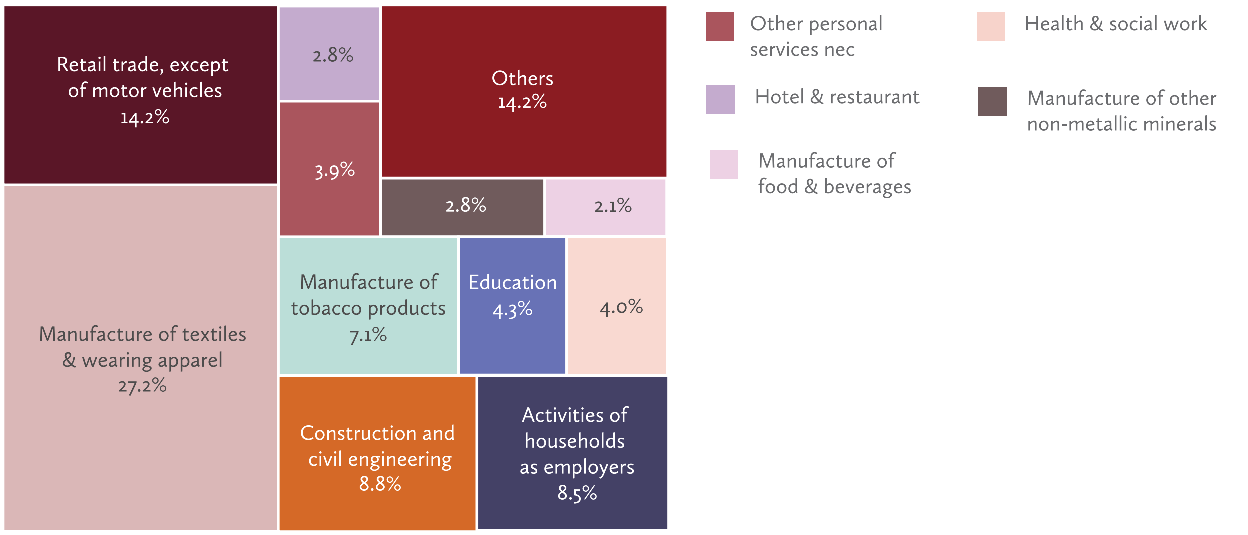
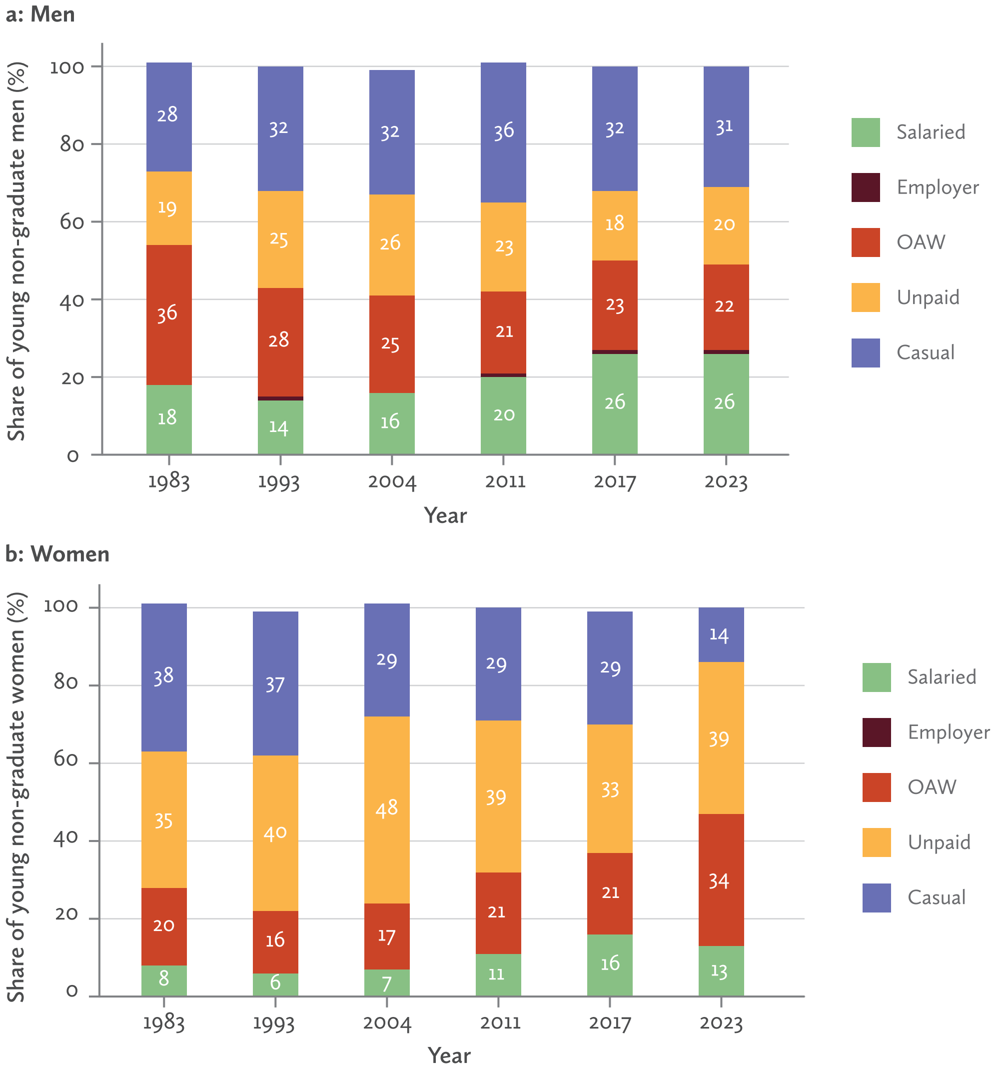


Figure 4: Employment type for non-graduate men and women



Chapter 4

Estimating increase in teacher numbers by district

For estimating if the increase in the number of teachers has been commensurate with enrolment by districts, we use the following regression model:

$$total\_teachers_{it} = \beta_0^d + \beta_1^d tstudents_{it} + \text{State Fixed Effects} + \varepsilon_{it}^d$$

Here *i* refers to the college and *t*, the year. $total\_teachers_{it}$ refers to the number of teachers in institute *i* in the year *t*. $students_{it}$ refers to the number of students enrolled in institute *i* in the year *t*. The number of students is scaled to units of 100, i.e. a 1 unit increase in $students_{it}$ indicates an increase in 100 students. The beta coefficient, represents the baseline increment in the number of teachers for an increase in 100 students. To estimate the heterogeneous effects of beta across the districts, run the regression in samples restricted to colleges in a given district. We do this for each of the 640 districts and report the respective beta-coefficients in Figure 10. We also include state fixed effects and a residual term.

Estimating increase in teacher numbers by district: panel analysis

We estimate the increase in the number of teachers commensurate to increase in enrolment by each year, we use the following regression model:

$$total\_teachers_{it} = \beta_0 + \beta_1 students_{it} + \sum_t \gamma_t Y_t + \sum_t \delta_t (students_{it} \times Y_t) + \alpha_i + \varepsilon_{it}$$

Here *i* refers to the college and *t*, the year. $total\_teachers_{it}$ refers to the number of teachers in institute *i* in the year *t*. $students_{it}$ refers to the number of students enrolled in institute *i* in the year *t*. The number of students is scaled to units of 100, i.e. a 1 unit increase in $students_{it}$ indicates an increase in 100 students. The beta coefficient, represents the increment in the number of teachers for an increase in 100 students. We interact the student enrolment with year dummies, to estimate the heterogeneous effects of beta for across the years. The gamma coefficient captures year specific effects. δ, the interaction coefficient between students and year, accounts for the year-specific effects on teacher numbers to vary by enrollment. We also include college fixed effects and a residual term. Therefore, in this estimation, we account for college-specific and time-specific variations. The coefficient of interest is ($\beta + \delta$) which gives us the average increase in teachers within colleges, for each year.

Chapter 6

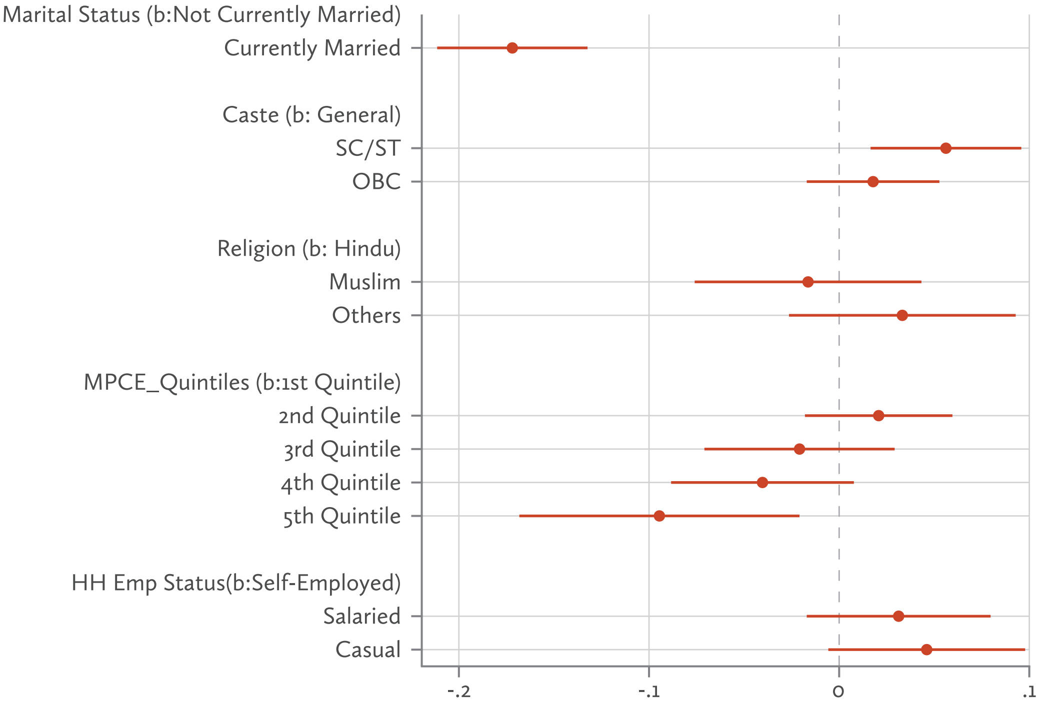
Correlates of unemployment

We estimate a linear regression model to estimate correlates of unemployment for men using PLFS 2023-24. The dependent variable in all the regressions is a binary variable taking the value 1 if the man is unemployed and 0 otherwise.

We control for individual characteristics, namely age, marital status (1 if married, 0 otherwise). We include controls for household attributes including religion (Hindu, Muslim, Others with Hindu as the base), caste (SC/ST or not), technical education (1 if received any technical education and 0 otherwise) and employment type of household head (Self employed, Salaried and Casual worker with Self employed as the base). We accounted for the sector (urban or rural) differences in income by first generating quintiles of monthly per capita expenditure (MPCE) separately for the urban and rural populations. We then combined these into a single categorical variable—MPCE Quintile—where each individual was assigned a quintile according to their respective region. We include state dummies to control for state-level differences.

$$unemp_i = \alpha + \gamma_1 age_i + \gamma_2 married_i + \gamma_3 caste_i + \gamma_4 religion_i + \gamma_5 urban_i + \gamma_6 MPCE\_Quintile_i + \gamma_7 head\_of\_household\_employment_i + \gamma_8 state_i + \varepsilon_i$$

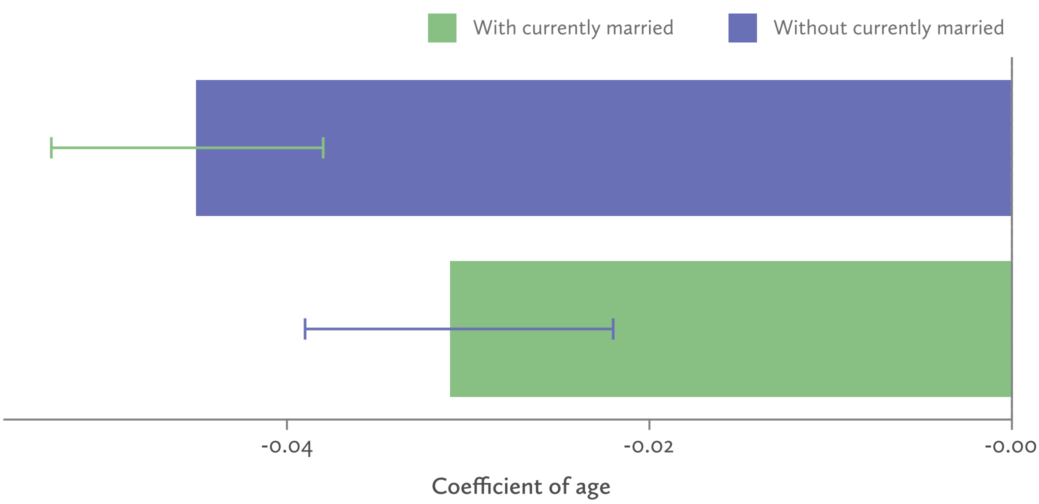
Figure 5: Association between marital status, caste, household income and household head employment type on likelihood of youth unemployment



Sources and Notes: PLFS 2023-24. The graph shows coefficients from a regression of young male graduate unemployment on individual and household attributes.

Using pooled PLFS rounds (2021-22, 2022-23, 2023-24) , we estimate a similar regression model of unemployment - both including and excluding the marital status variable in the specification. This approach allows us to control for the effect of marriage and better isolate the true impact of age on unemployment.

Figure 6: The inverse relation between age and likelihood of unemployment is muted when we control for marriage



CMIE-CPHS School to Work Transition Regression analysis

We now present the results of a linear probability model where the dependent variable is a binary one that takes the value 1 if an individual found employment within a year of declaring themselves to be looking for work, and zero otherwise. The regressors are the individual's age, religion, caste, education, father's education, rural/urban location and state of residence. The education variable is also binary (12th pass or degree holder). We include a dummy to capture the post-Covid scenario. We present the results of two models - one where the dependent variable captures any type of employment and one where it only takes into account white collar permanent salaried employment.

In line with the results presented earlier, individuals from relatively disadvantaged backgrounds (Muslims and marginalised castes) are more likely to find employment compared to their relatively privileged counterparts but if we restrict the analysis to white collar employment this is no longer the case. As expected again from results shown earlier, a college graduate is less likely to find employment in a one year period, but significantly more likely to find white-collar permanent salaried work as compared to a school graduate. We also find that sons of relatively more educated fathers (education exceeding 12th standard) are less likely to be employed within one year but significantly more likely to find white collar work, if they do find employment. This suggests that with better social capital as reflected in the education levels of fathers, individuals are more likely to wait longer for better jobs.

$$\textit{Found employment in 1 year}_i = \alpha + \gamma_1 \text{sector}_i + \gamma_2 \text{age}_i + \gamma_3 \text{religion}_i + \gamma_4 \text{education}_i + \gamma_5 \text{head\_of\_household\_education}_i + \gamma_6 \text{time\_period}_i + \gamma_7 \text{state}_i + \varepsilon_i$$

Table 2: The likelihood of finding employment within a year is higher as age increases

	Coefficient	Robust std. err.	t	P>t	[95% conf. interval]	
Sector (b: Rural)						
Urban	**-0.061**	**0.015**	**-3.950**	**0.001**	**-0.092**	**-0.029**
Transition age (b : 17)						
18	0.017	0.060	0.280	0.781	-0.107	0.141
19	-0.059	0.050	-1.180	0.247	-0.161	0.043
20	0.029	0.047	0.610	0.546	-0.068	0.126
21	0.037	0.069	0.540	0.597	-0.105	0.179
22	**0.113**	**0.049**	**2.330**	**0.028**	**0.013**	**0.213**
23	**0.135**	**0.064**	**2.100**	**0.045**	**0.003**	**0.267**
24	**0.189**	**0.072**	**2.650**	**0.013**	**0.043**	**0.336**
Religion (b: Hindu)						
Muslim	**0.105**	**0.030**	**3.480**	**0.002**	**0.043**	**0.168**
Other	-0.002	0.085	-0.020	0.984	-0.175	0.172
Caste (b: General)						
OBC	0.040	0.026	1.540	0.136	-0.013	0.094
SC/ST	**0.050**	**0.025**	**1.990**	**0.057**	**-0.002**	**0.102**
Education (b : Non-grad)						
Grad/PG	**-0.057**	**0.025**	**-2.250**	**0.033**	**-0.110**	**-0.005**
Father education (b: Upto 5th)						
More than 5th, up to 10th	-0.020	0.022	-0.900	0.377	-0.066	0.026
More than 10th, up to 12th	**-0.097**	**0.027**	**-3.640**	**0.001**	**-0.151**	**-0.042**
More than 12th	**-0.182**	**0.035**	**-5.170**	**0.000**	**-0.254**	**-0.110**
Time period (b: pre covid)						
postcovid	**0.120**	**0.037**	**3.210**	**0.003**	**0.043**	**0.196**

Azim Premji University

Burugunte Village, Survey No 66, Bikkanahalli Main Rd,
Sarjapura, Bengaluru, Bengaluru Karnataka – 562125

080-2441 4000
www.azimpremjiuniversity.edu.in

Facebook: /azimpremjiuniversity **Instagram:** @azimpremjiuniv **Twitter:** @azimpremjiuniv