Pathways to Jobs

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Outline

1. **Structure and trends in employment**
   - Demand side: sectoral growth and capital deepening
   - Supply side: nature and quality of employment

2. **Addressing demand side constraints**
   - Investing in labor intensive manufacturing and services

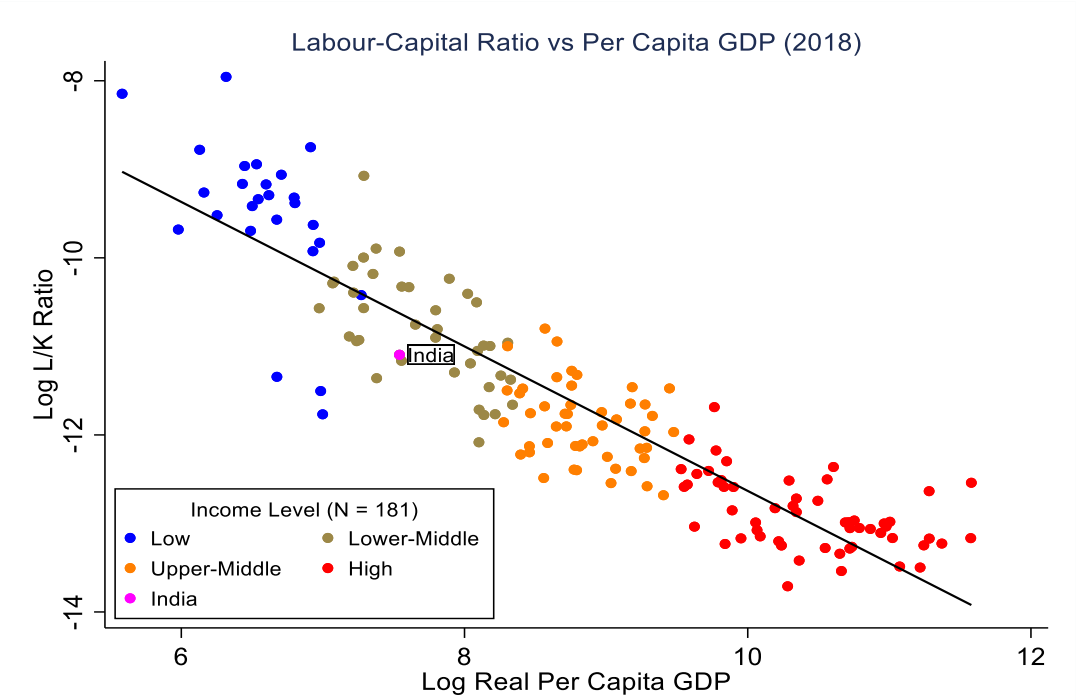
3. **Addressing supply side constraints**
   - Investing in skills

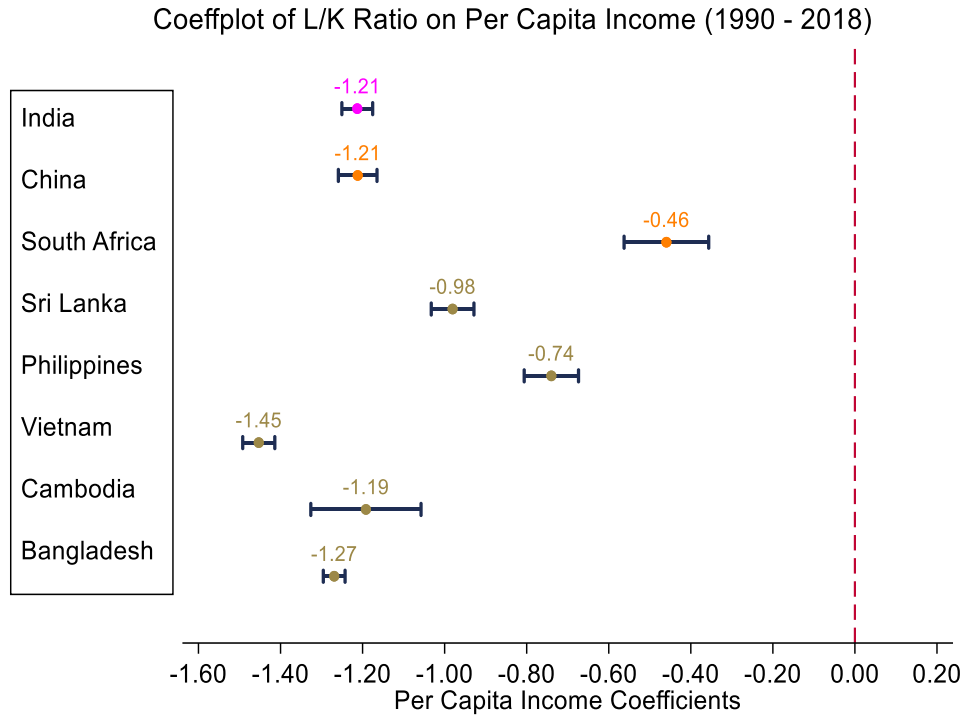
4. **Policy implications**

1. Structure and Trends

Low *demand* for labour: Capital deepening

- *Low labour intensity of production relative to per capita GDP*
- *Monotonic decline in labour employed relative to capital in the production technology (1981 - 2023)*

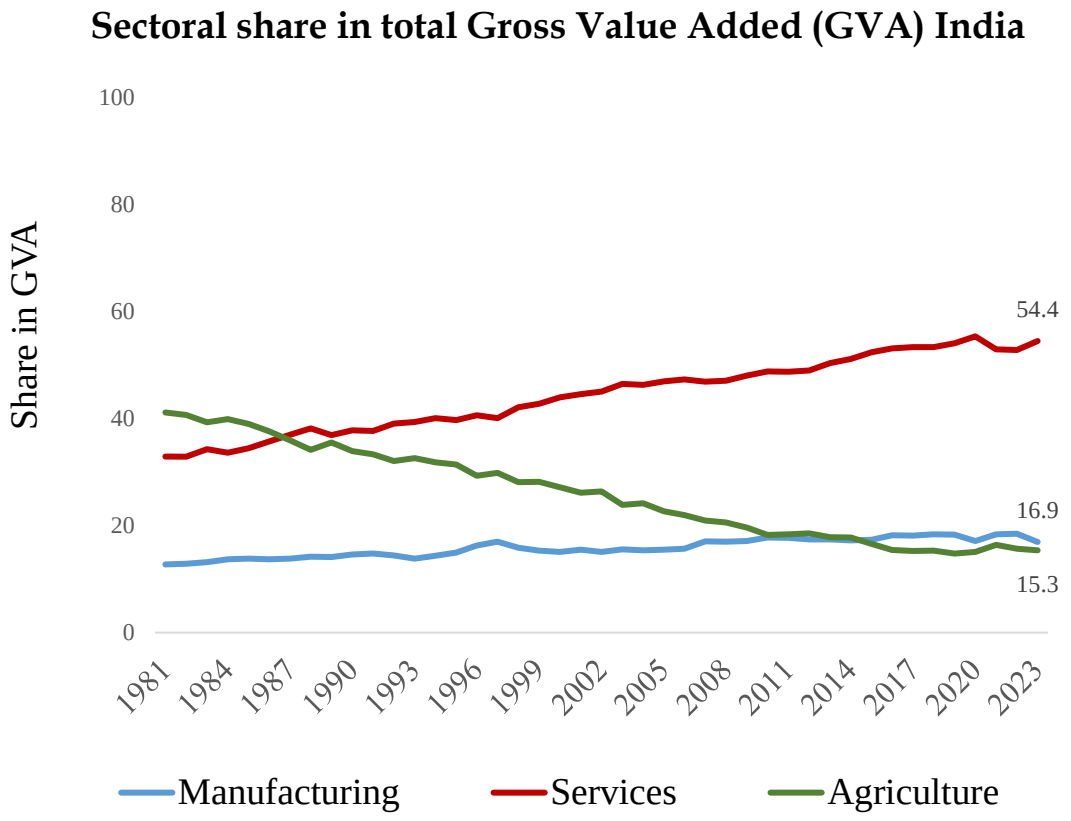




Data: Penn World Table (1990 -2018), Groningen Growth and Development Centre; World Bank database; Authors' calculations.
Note: L/K Ratio is the number of persons employed (in millions) divided by capital stock measured at constant 2017 USD prices (in millions)

Low *demand* for labour: Stagnant structure

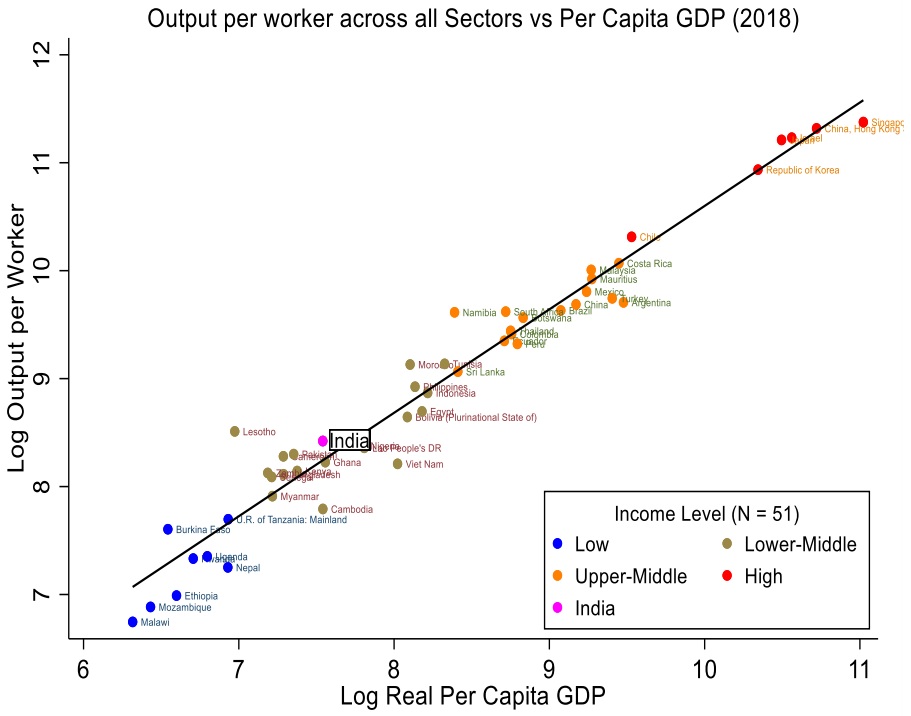
- Agriculture shrinking but manufacturing stagnant:
  - Agriculture sector's share in GVA has halved, while that of the manufacturing sector has stayed below 20%.

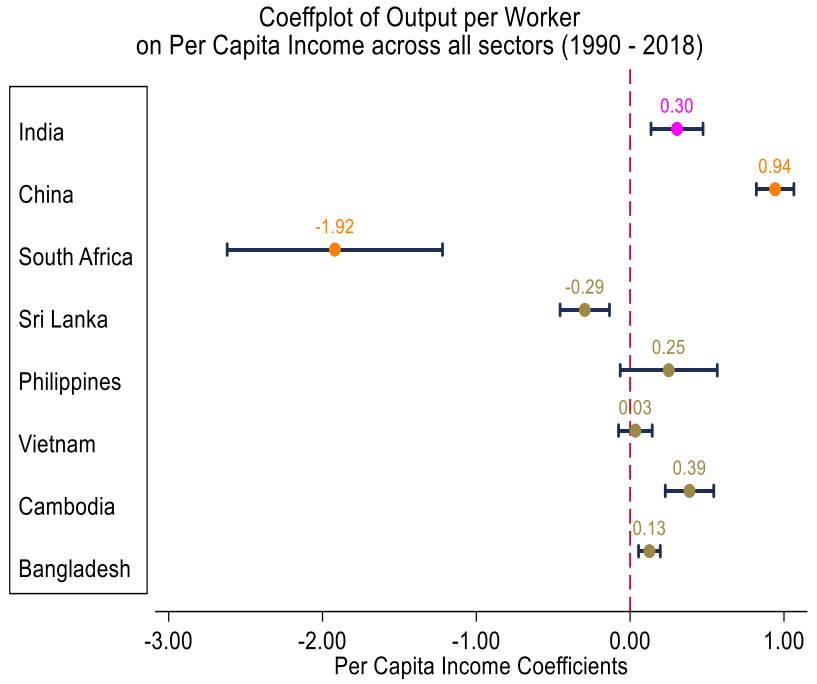


Data: RBI KLEMS, 2024; Authors' calculations.

Poor *supply* of labour: Low productivity

Low output per worker and slow growth in labour productivity



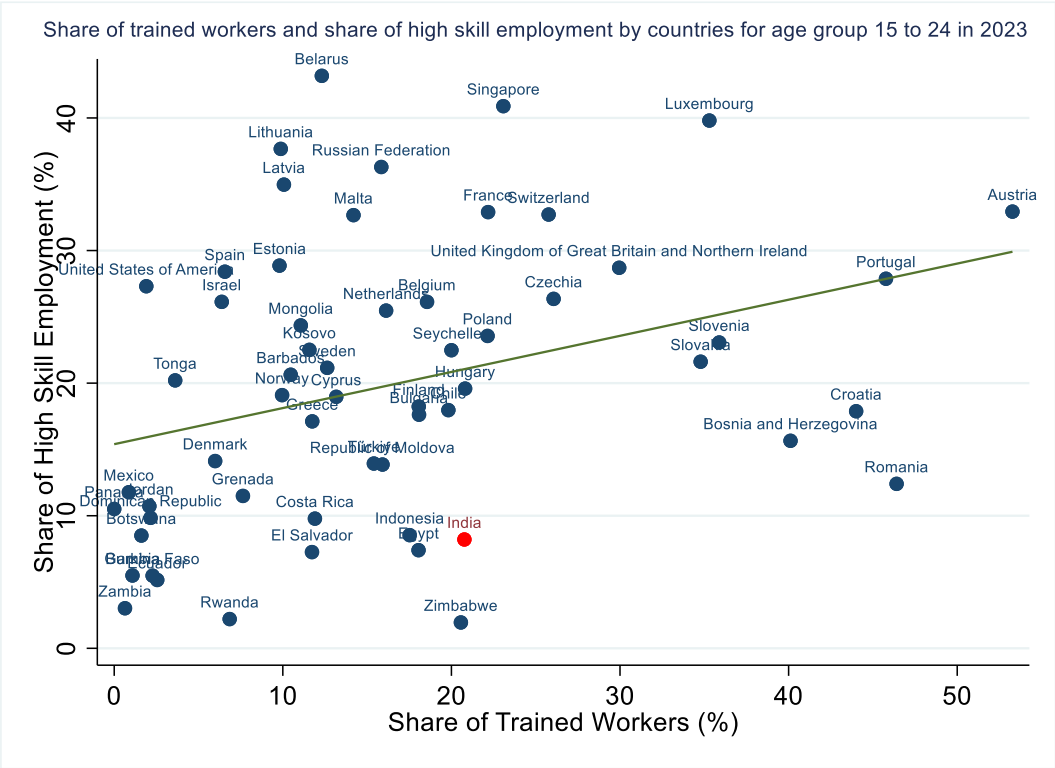


Data: Economic Transformation Database (ETD; 1990-2018), Groningen Growth and Development Centre; World Bank; Authors' calculations.
Note: Output per worker is Gross Value Added (measured in constant 2015 USD) divided by persons employed; GDP Per Capita is measured in constant 2015 USD prices; Sample consists of 51 non-OECD countries, as available in the ETD.

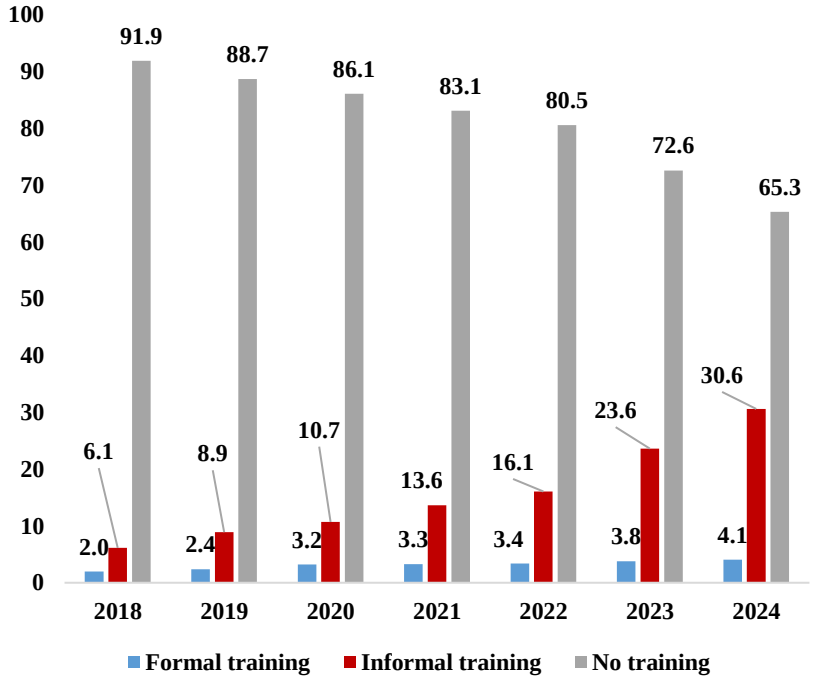
Poor *supply* of labour: Low skills

Less than 5% of workers formally trained; low share of high skill employment

(a) Share of trained workers vs high skill employment



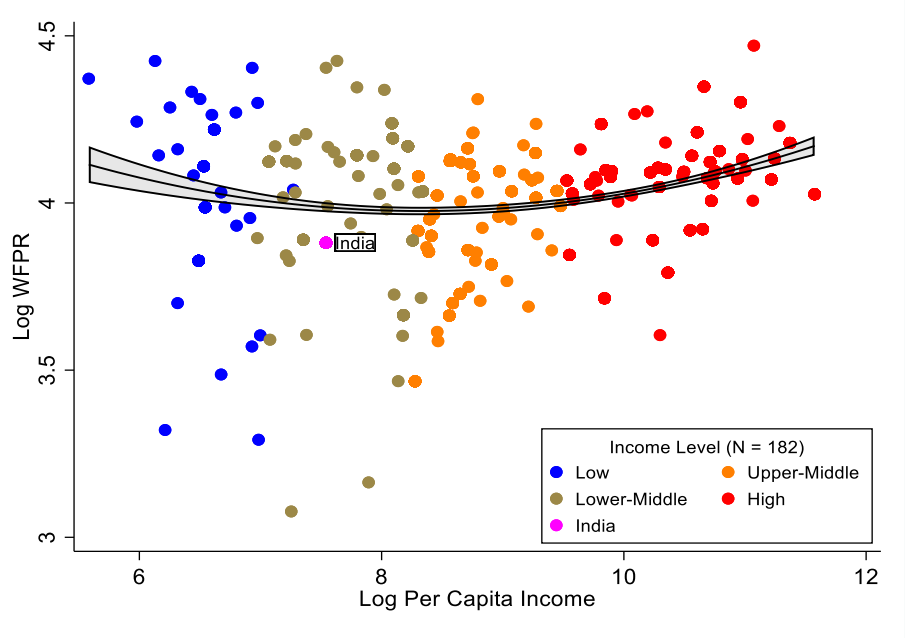
(b) Distribution of workers by training in India



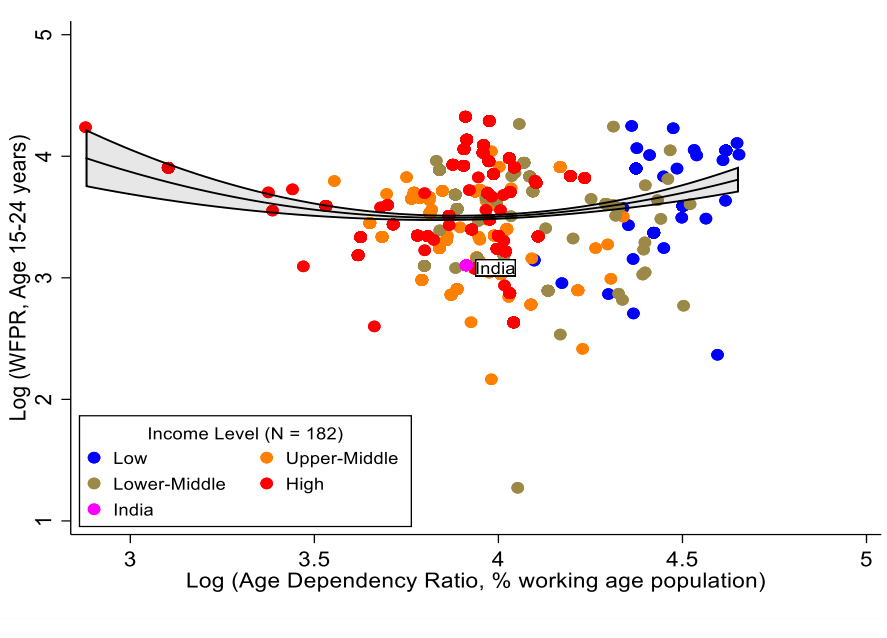
Data: ILOSTAT, International Labour Organization (2023); PLFS (2017-18 to 2023-24); Authors' calculations.

Fact 1: Low participation

Low labour force participation relative to comparable middle income countries.



WFPR vs per capita income (2018)



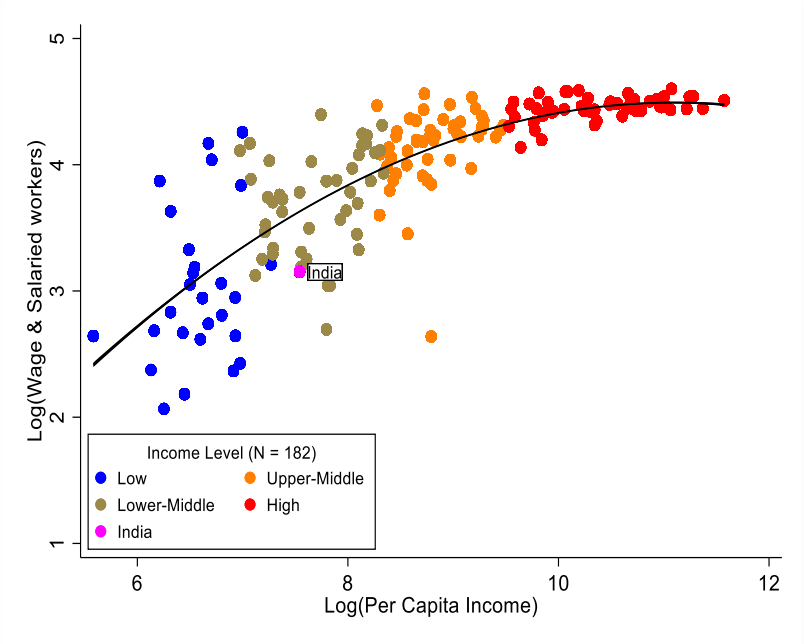
Youth WFPR vs age dependency ratio (2018)

Source: Real GDP per capita (2015 USD), age dependency ratio from World Bank database; Data for employment and population from ILOSTAT; Authors' calculations.

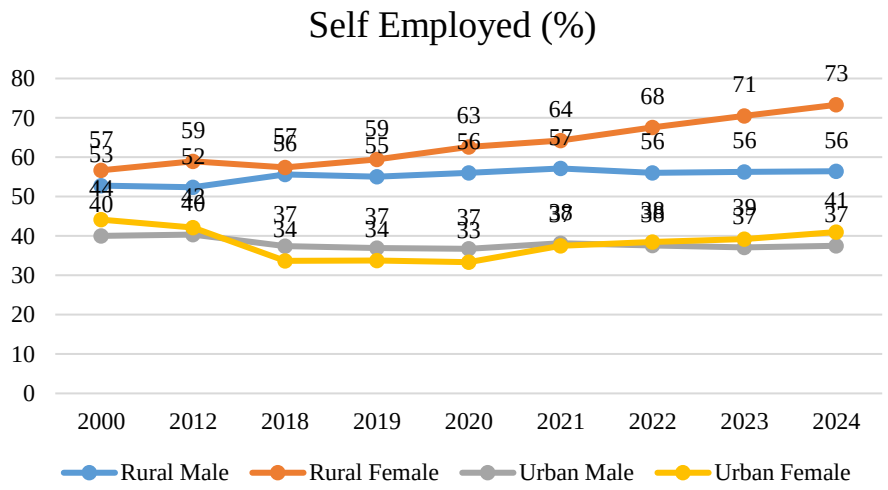
Fact 2: Underemployment and informality

- *Low share of salaried jobs*
- *Low average hours of work, significant proportion of workers available for additional work*
- *Self-employment, increasingly, the fall back option*

Wage & salaried workers by per capita GDP



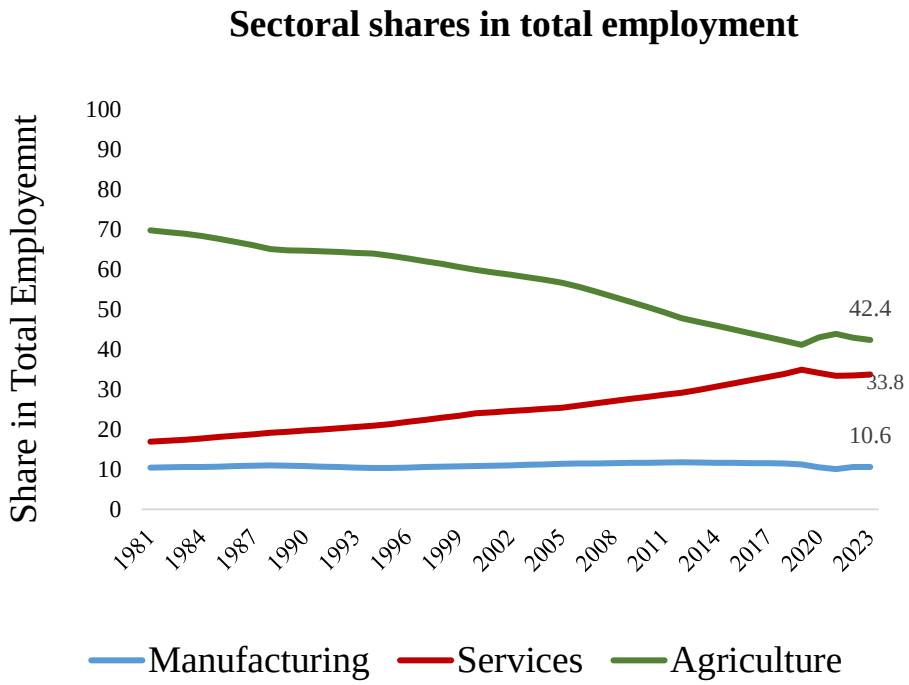
Trends in proportion of self-employed (India)



Data: GDP Per Capita (constant USD, 2015), and Wages and Salaried Workers from the World Bank database; Periodic Labour Force Survey (PLFS; 2017-18 to 2023-24); National Sample Survey 55th and 68th Round (NSS; 1999-00, 2011-12); Authors' calculations.

Fact 3: Declining employment share of agriculture

- Declining, but continued dominance, of the agricultural sector and stagnant (low) share of the manufacturing sector
  - Uptick in agriculture share post pandemic
- While output growth has been the slowest in agriculture, followed by manufacturing.
- *Services sector leading job creation*



Data: RBI KLEMS, 2024; Authors' calculations.

Summary

- Labour demand constrained by lack of growth in manufacturing and capital deepening:
  - Challenge in the creation of jobs if the production technology becomes more capital intensive, particularly with the advent of AI, the relative cost of labor is likely to increase further.

- Supply of labour constrained by its poor quality and productivity:
  - Slow increase in labour productivity despite increasing mechanization

=> ***Shift the equilibrium employment levels by addressing both sides of the labour market***

- *Demand expansion: Labour intensive manufacturing and services expansion*
- *Supply enhancement: Labour force productivity*

This analysis

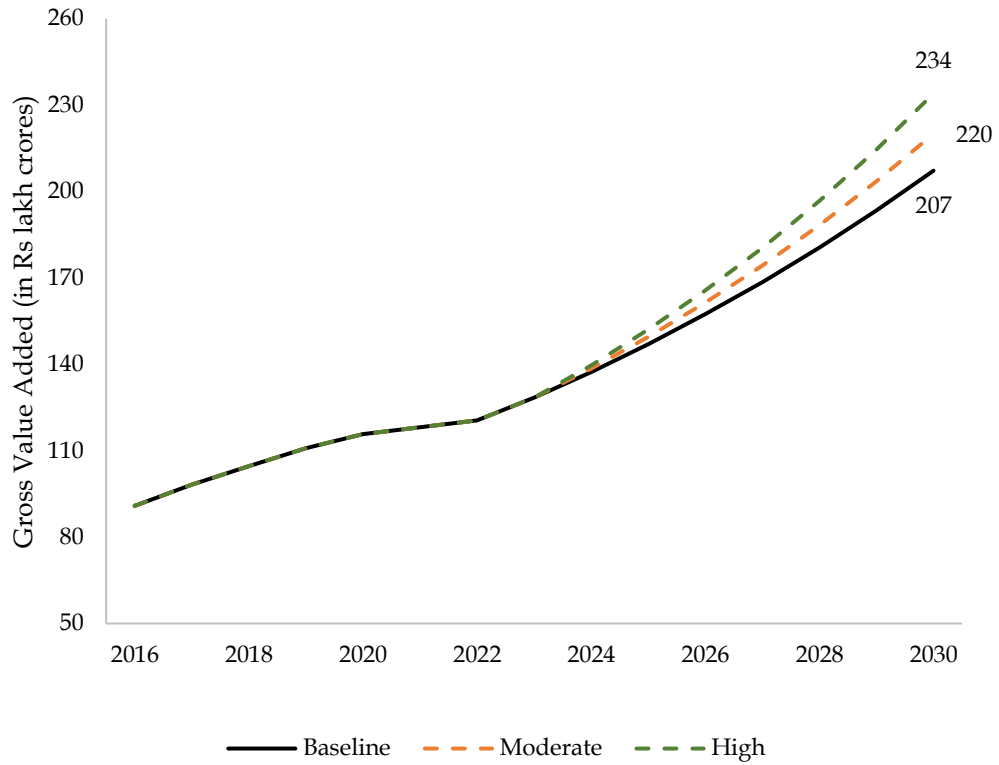
STEP 1: Estimate aggregate growth scenarios that yield average 8% (or higher) annual GDP between 2025 – 2030, using sectoral projections.

STEP 2: *Demand side* – Simulate sectoral growth scenarios that match higher GDP growth and project job creation in labour intensive manufacturing and services.

STEP 3: *Supply side* – Simulate growth in formal skilling and project job creation in labour intensive manufacturing and services.

Shifting the employment equilibrium: Growth simulations for *Viksit Bharat*

Year	BASELINE growth rate	MODERATE (>0.5 S.D.) growth rate	HIGH (>1 S.D.) growth rate
2025	7.02	7.94	8.86
2026	7.05	7.97	8.91
2027	7.08	8.00	8.96
2028	7.11	8.03	9.00
2029	7.14	8.06	9.05
2030	7.16	8.09	9.09



Data: RBI KLEMS, 2024; Authors' calculations.
Note: Gross Value Added (agriculture, manufacturing and services at constant sectoral shares) are in constant 2011-12 prices (Rs. Crores). Baseline growth scenarios based on average, historical GVA from 2012-2023 (excluding 2020-21).

2. Loosening labour demand constraints

Labour intensive manufacturing and services

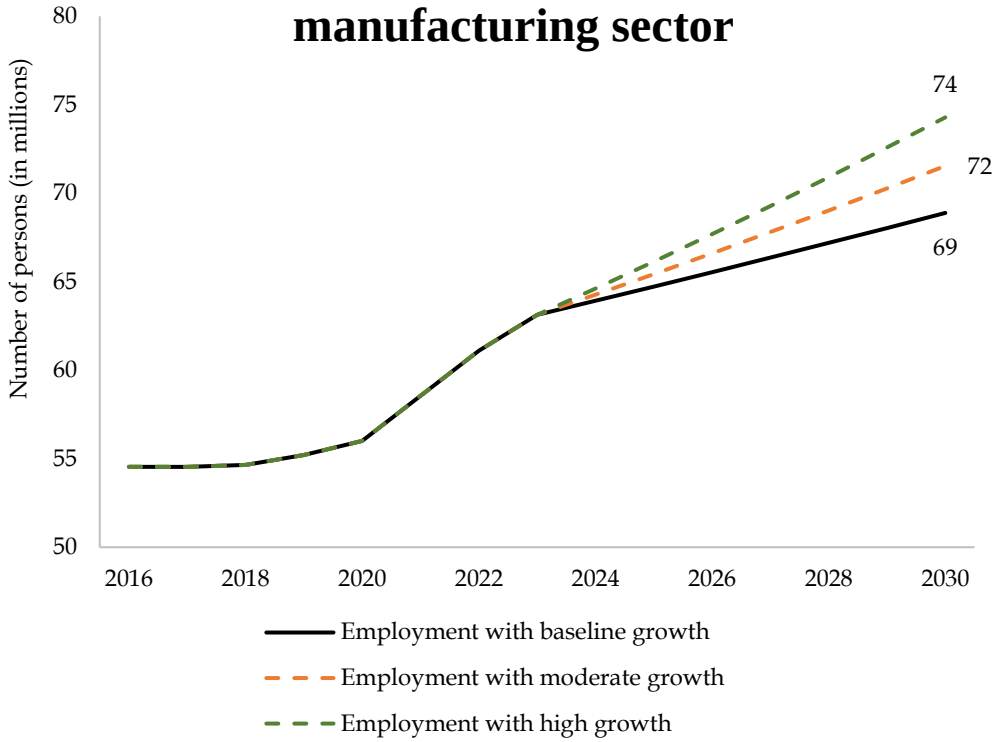
- Identify labour intensive manufacturing and services industries (1981 – 2023)
  - Less sharp decline in labour intensity (L/K ratio) in services and manufacturing
  - Focus on sub-sectors with median and above labour intensity

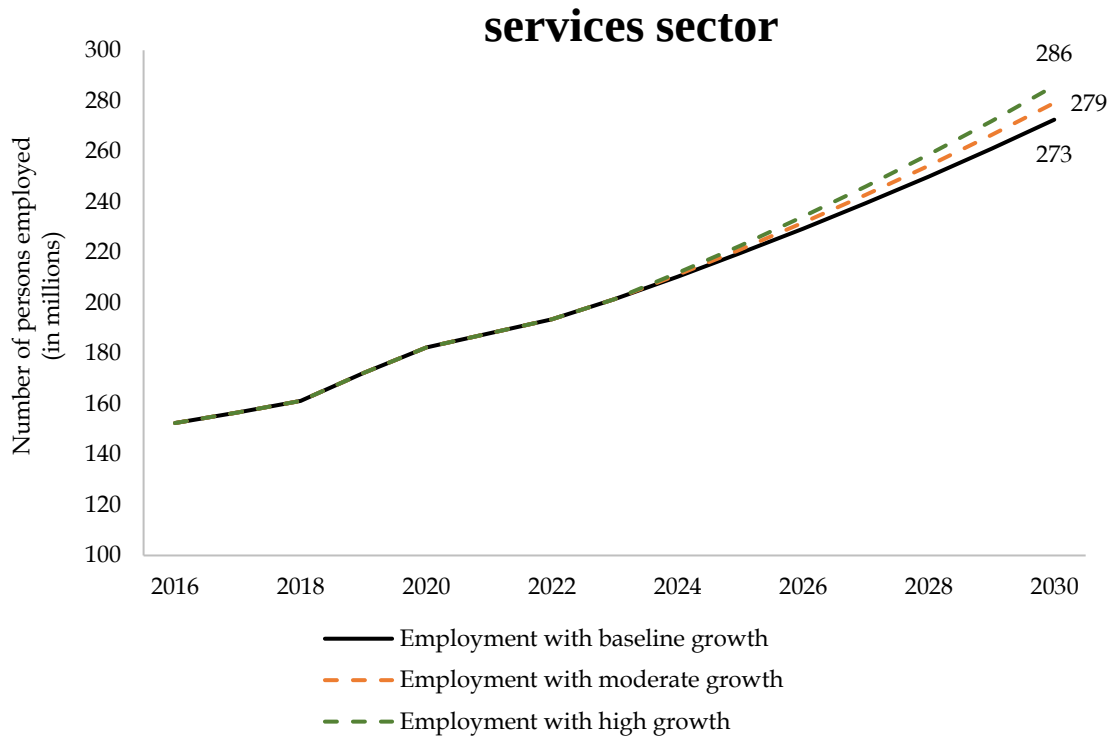
- Estimate potential for job creation (2012 – 2023)
    - Employment elasticity
    - Employment multiplier

- Simulation exercises (2025 – 2030)
  - **Medium growth** in sectoral Gross Value Added (GVA) and Gross Output (GO) (>0.5 Std. Dev. of last decade)
  - **High growth** in sectoral GVA and GO (>1 Std. Dev. of last decade)

Overall employment projections: *employment elasticity*

8% higher employment in manufacturing if average GVA grows at 11%
5% higher employment in services if average GVA grows by 10%



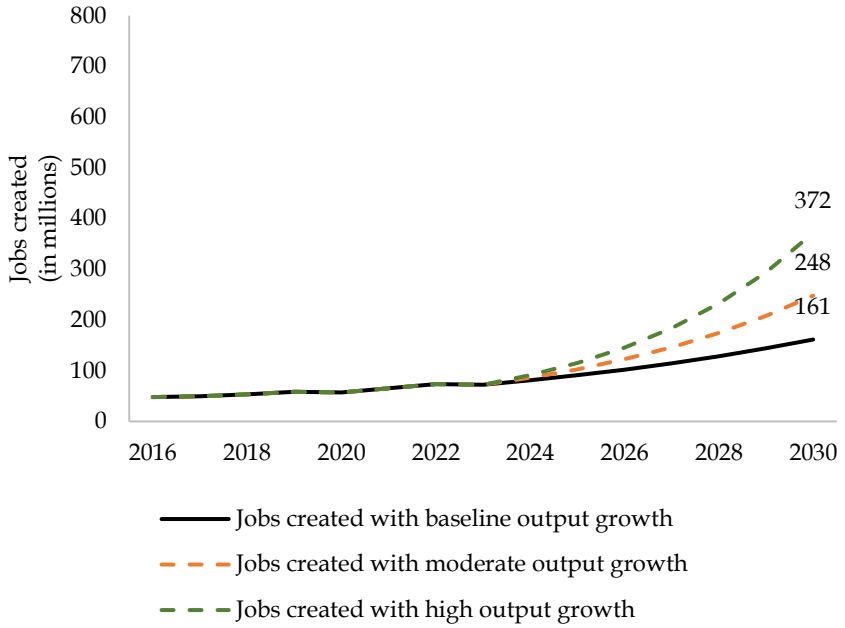


Data: RBI KLEMS, 2024; Authors' calculations.

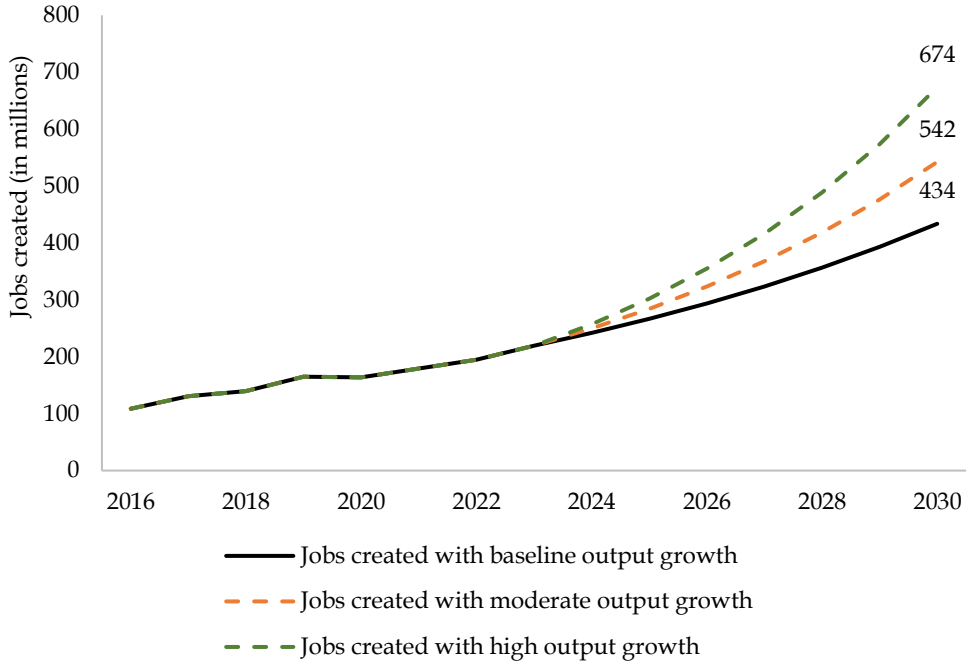
Note: Gross Value Added in constant prices (2011-12; Rs. Crore); 2020–21 is excluded from the analysis due to the adverse effects of the COVID-19 pandemic; Data used to project GVA spans from 2012 to 2023.

Sectoral employment projections: manufacturing *employment multiplier*

130% higher aggregate employment created if average textile & garments sector GO grows at 26%



(a) Textiles, garments, leather & footwear



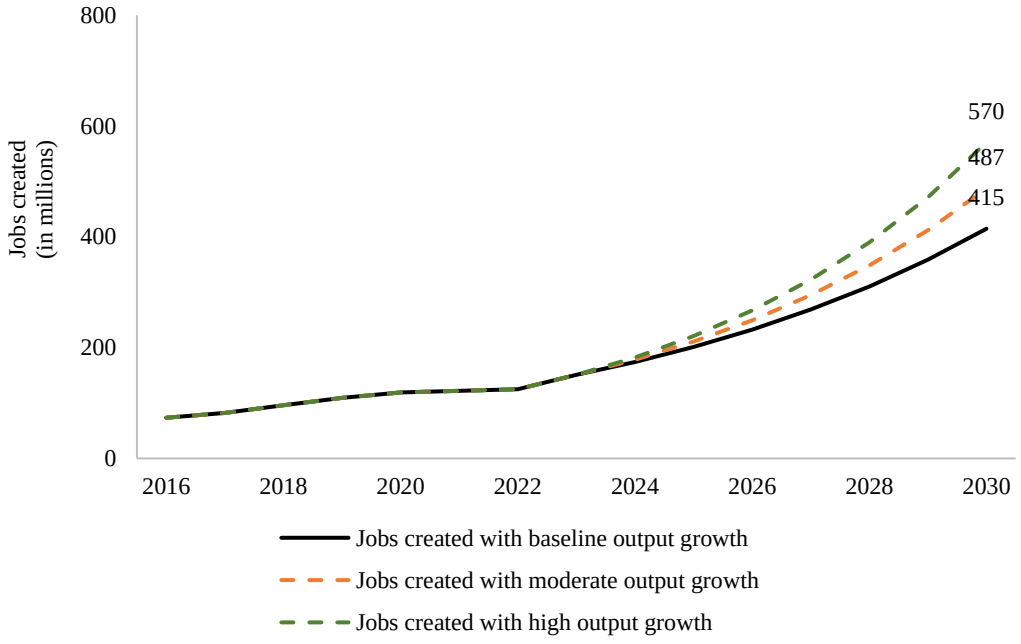
(b) Food products & beverages

Data: Supply-Use table 2018-19; RBI KLEMS, 2024; Authors' calculations.

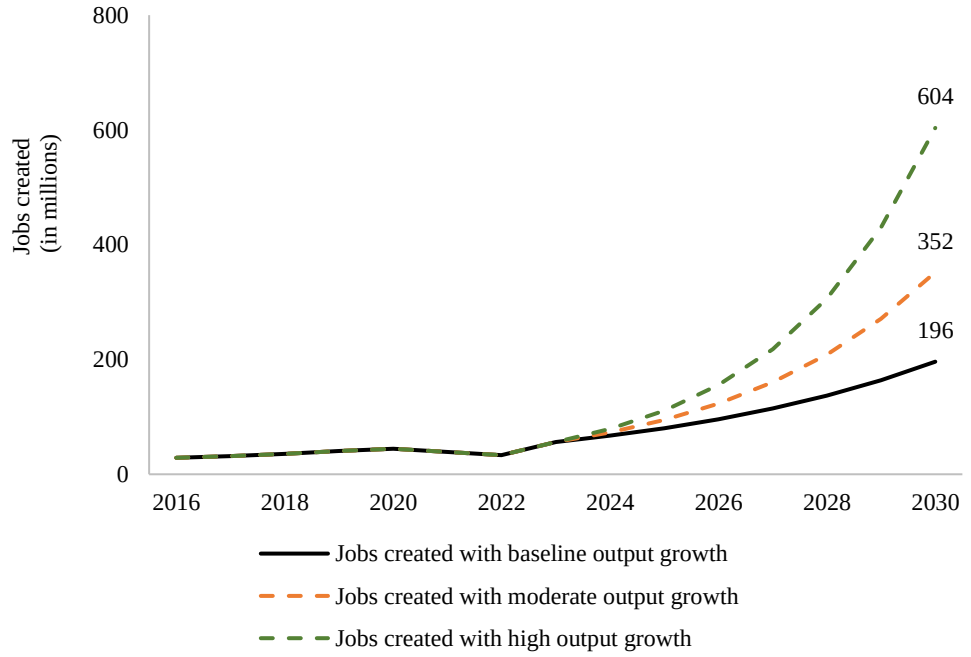
Note: The period of analysis is from 2012 to 2023; Gross Output is in current prices; 2020–21 is excluded from the analysis due to the adverse effects of the COVID-19 pandemic.

Sectoral employment projections: services *employment multiplier*

Over 200% higher aggregate employment by 2030 in high growth scenario



(a) Trade



(b) Hotels and Restaurants

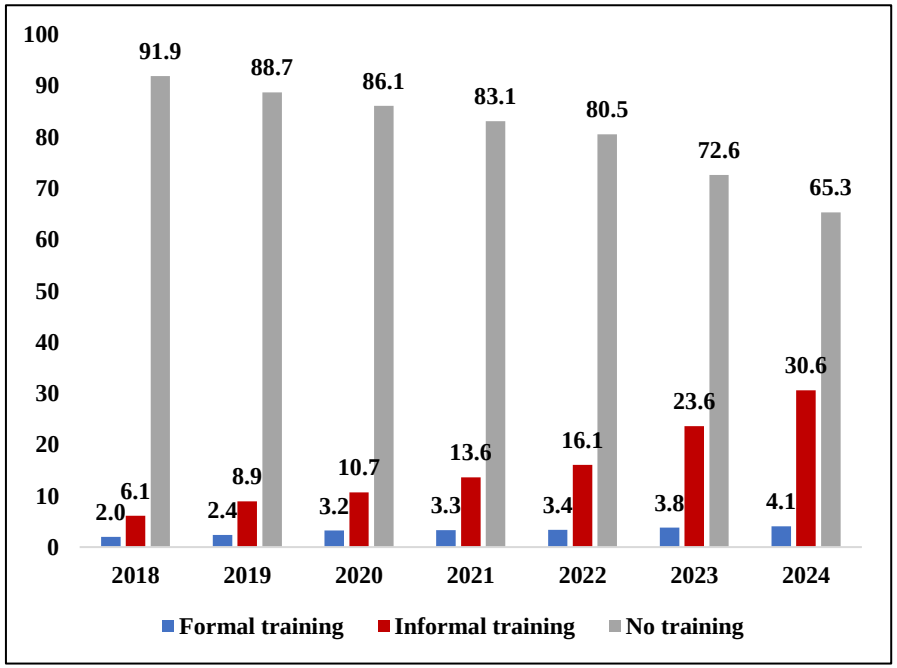
Data: Supply-Use table 2018-19; RBI KLEMS, 2024; Authors' calculations.

Note: The period of analysis is from 2012 to 2023; gross output is in current prices; 2020–21 is excluded from the analysis due to the adverse effects of the COVID-19 pandemic.

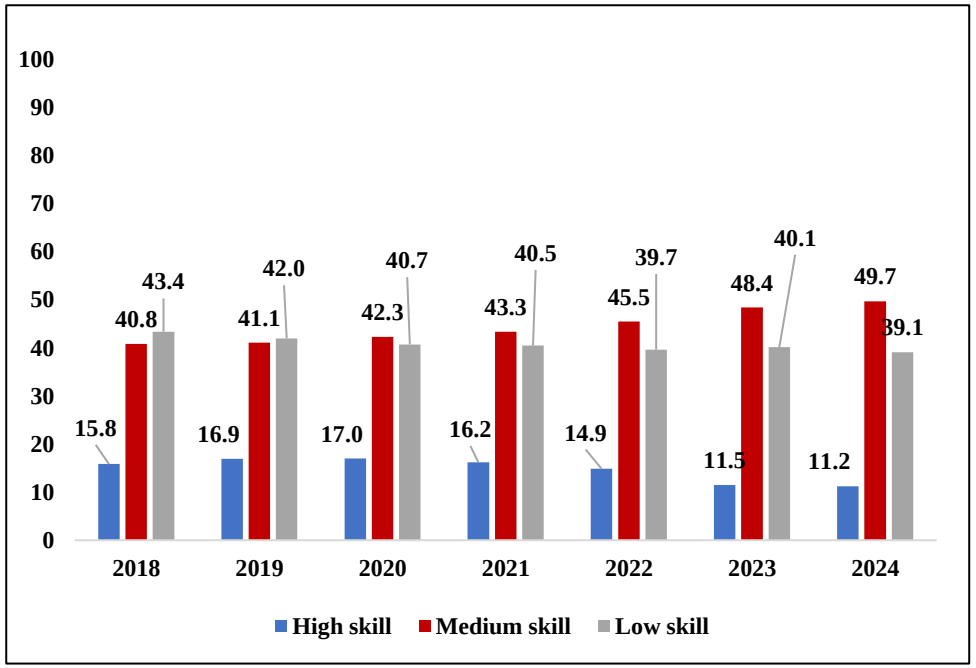
3. Unleashing quality labour supply

Skilling: demand - supply gap

- *Supply side*: India has a relatively small proportion of trained workers, particularly those with formal training.
- *Demand side*: Share of both low-skill and high-skill employment has declined, while the share of medium-skill employment has increased: from 40% in 2018 to nearly 50% in 2024



Distribution of workers aged 15-59 years by training (%)

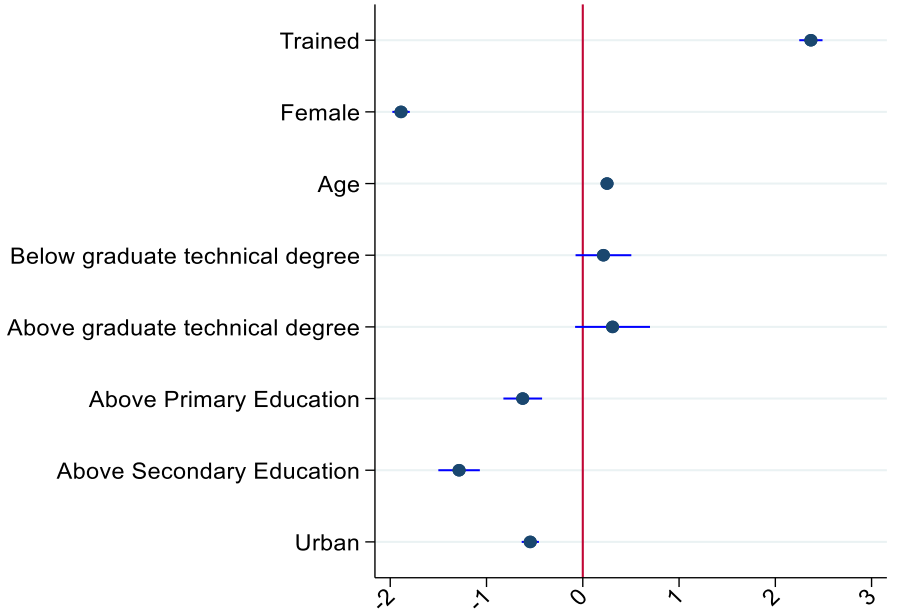


Employment distribution and employment trends by skills for workers aged 15-59 years (%)

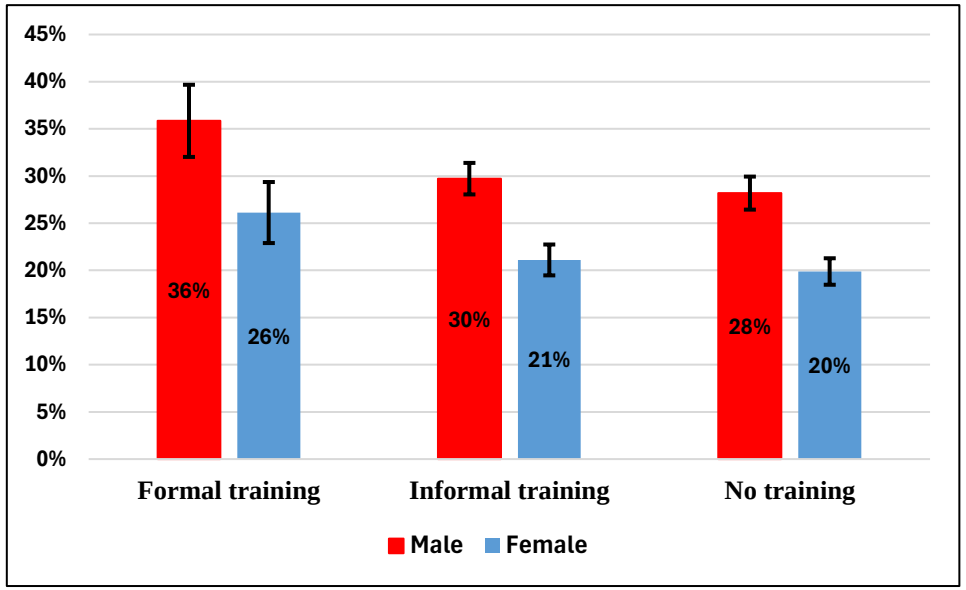
High returns to skills

Vocational skills increase the probability of any employment (15 pp) and formal employment (8 pp)

Log (Odds) of being employed in any job in 2024 for workers aged 15-29 years



Predicted probability of being formally employed based on training level of worker aged 15 to 29 years (%)



Note: PLFS (2023-24); Authors' calculations

Employment projections

Use predicted probability of employment when formally trained to estimate employment in *labour intensive manufacturing and services (2025 – 2030)*, based on following scenarios:

- **Baseline**: y-o-y growth in the number of formally trained workers and the number of total workers is the same as the *average y-o-y growth from 2018 to 2024* (excluding 2020-21)

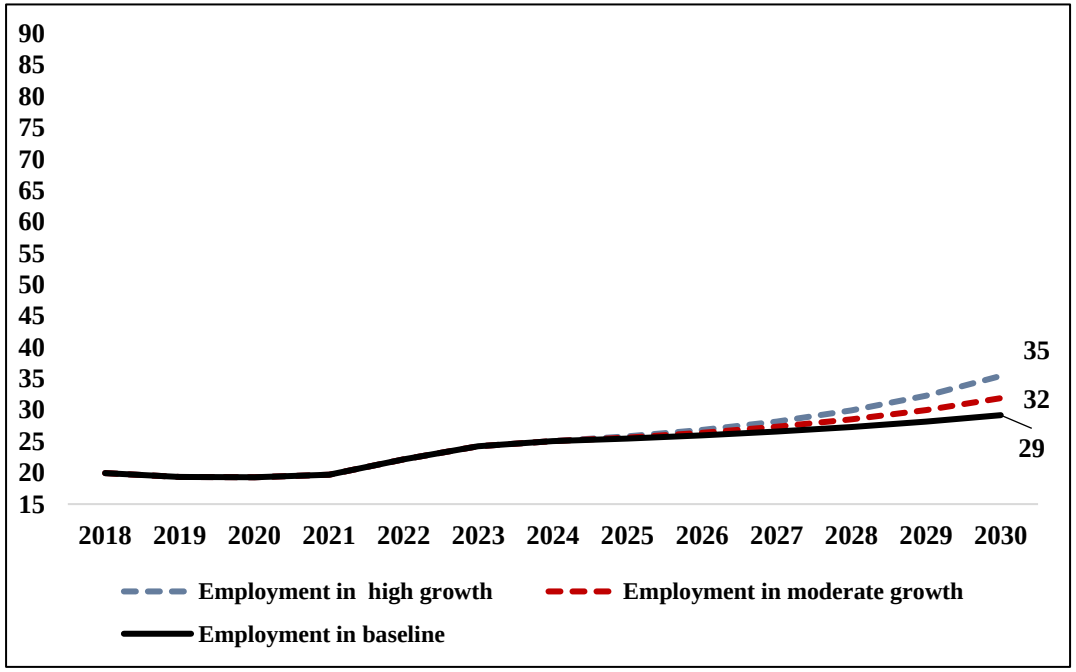
- **Moderate increase in the number of formally trained workers:** y-o-y growth in the number of formally trained workers is *0.5 SD greater than the average y-o-y* growth in the number of formally trained workers

- **High growth in number of formally trained workers**: y-o-y growth in the number of formally trained workers is *1 SD greater than the average y-o-y growth*.

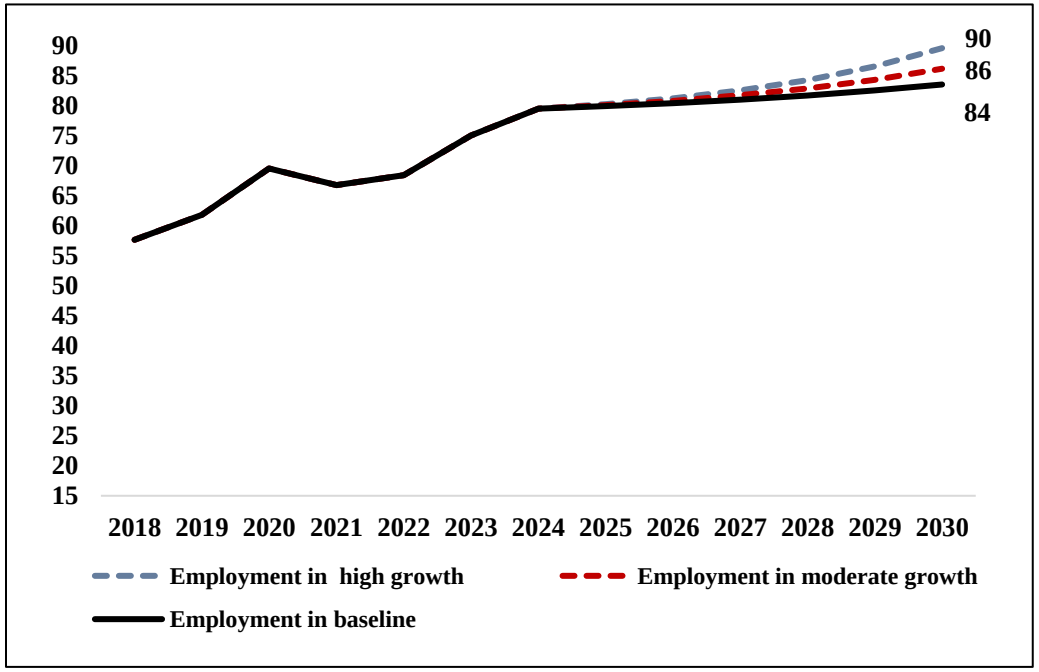
Sectoral employment projections

If the share of formally trained workers rises from 4% in 2024 to 16% by 2030, cumulative addition to jobs will be about 10 million - 41% and 13% increase over the base year in labour intensive manufacturing and services, respectively.

Employment in labour-intensive manufacturing (ages 15–59) (millions)



Employment in labour-intensive services (ages 15–59) (millions)

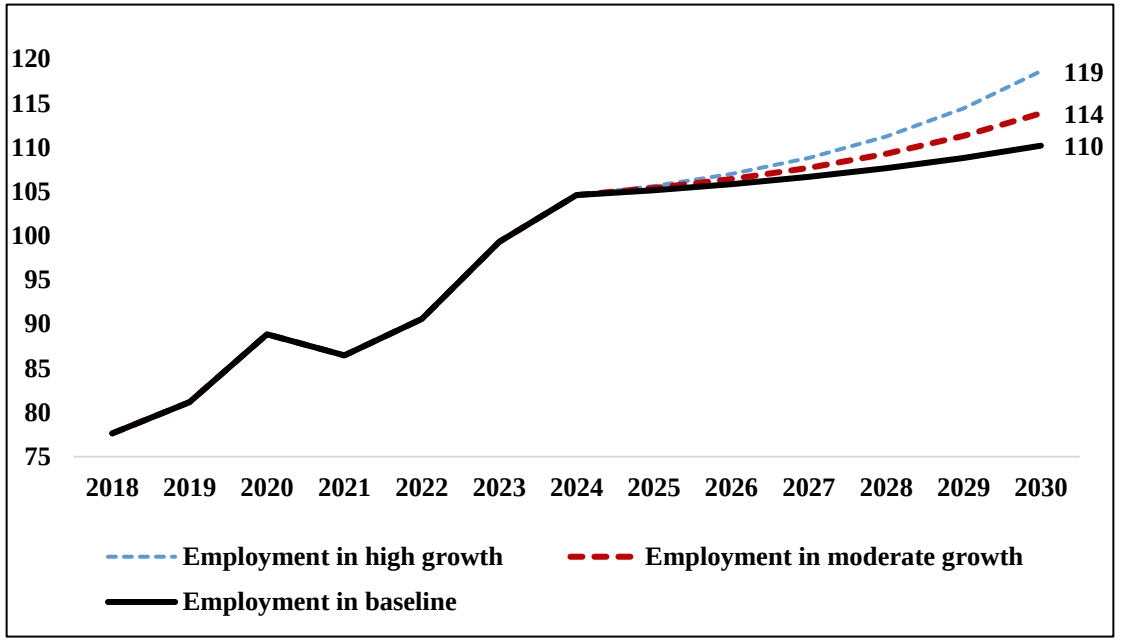


Data: PLFS (2017-18 to 2023-24); Authors' calculations

Overall employment projections

- To meet the Economic Survey target of 7.8 million non-farm jobs until 2030, the share of the formally trained workforce should increase to around 20% by 2030.
- This is slightly higher than our high-growth scenario, which projected the share of trained workers to reach 16% by 2030.
- Our high-growth scenario is conservative, as meeting the government's target requires an even greater increase in the share of formally trained workers.

Employment in labour-intensive sectors (manufacturing and services (age 15–59, millions)



Source: PLFS (2017-18 to 2023-24); Authors' calculations

Summary

- Labour-intensive sectors constitute 51.3% of total employment in manufacturing and services.
  - 44.1% of total manufacturing employment and 54.2% of total services employment.

- Our analysis shows that on the labour demand side, *inter-sectoral linkages of labour-intensive sectors can have a multiplicative effect on employment* in the aggregate economy, more than doubling job creation by 2030.

- On the supply side, increasing the share of skilled work force by 12 percentage points through *investment in formal skilling could lead to more than a 13% increase in employment* in the labour intensive sectors by 2030.

4. Policy Prescriptions

Policy measures to increase labour demand

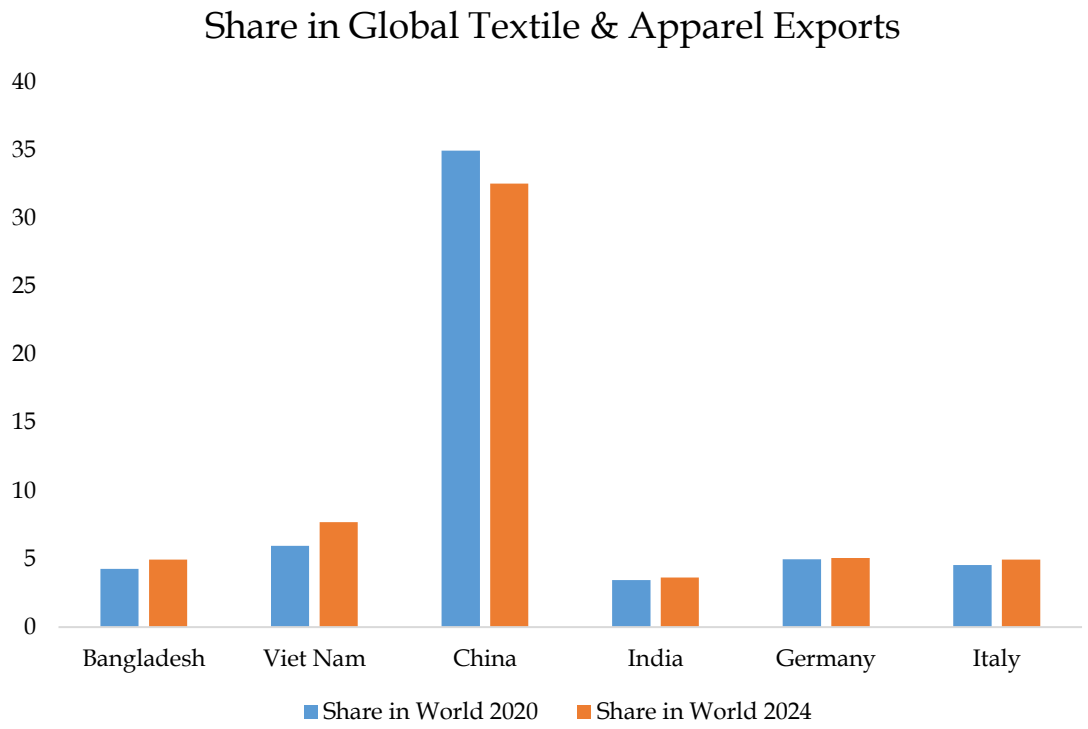
Multipronged approach to *increase production capacity* in labour intensive manufacturing and services sectors:

- *Stimulate domestic demand*
- *Stimulate foreign and domestic investments in labour-intensive manufacturing and services sectors*
- *Loosen labour regulations*
- *Credit expansion and ease of doing business*

Case study: Textiles and garments

Unrealized potential

- Export potential from proposed hike in US tariffs on Bangladesh, Vietnam:
  - Employment growth in sector dominated by read-made garments
  - *Tamil Nadu*: Targeted financial assistance, tax exemptions, alongside infrastructure upgrades - worker housing, environmental compliance, and healthcare.
  - *Tamil Nadu*: uptake of PMRPY, integrating it with skilling efforts and gender-inclusive hiring incentives
- Supply chain integration
- Labour regulations



Data: International Trade Corporation; Authors' calculations.

Policy measures to increase quality labour supply

Systemic overhaul of India's education system along with public-private partnerships:

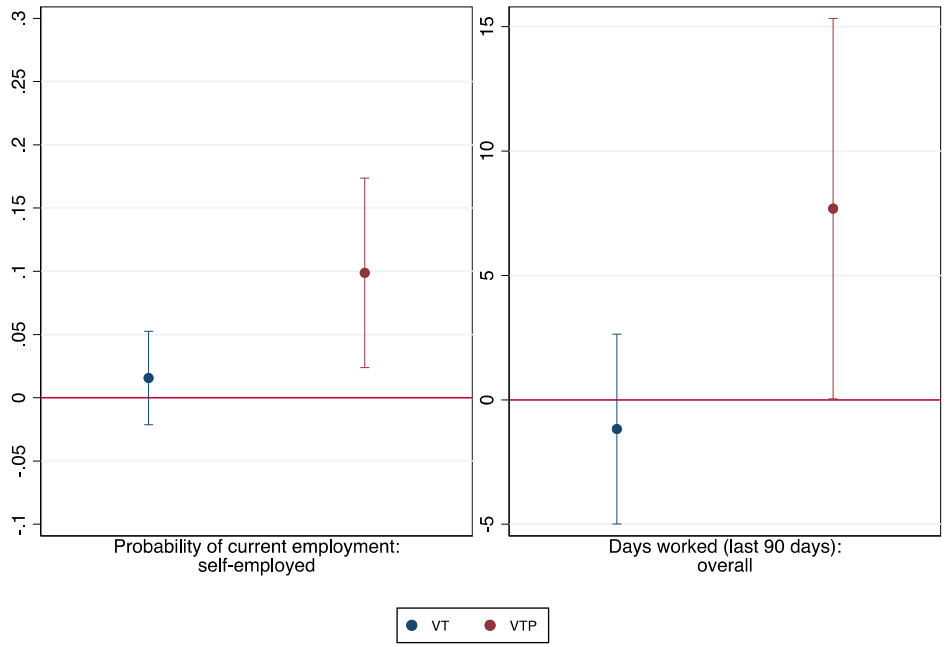
- *Adoption of international best practices in vocational skilling*
- *Vocational training curriculum standards*
- *Standardization of training and quality assurance*
- *Short-term and on the job training for dynamic skill upgradation*

Case study: International education systems & new age skills

- *Systemic overhaul of education system*
  - Singapore – two post-high school tracks; on-the-job upskilling
  - Canada – interwoven vocational training and internships
  - Germany – VET with two tracks of schooling

- Our analysis shows that vocational training leads to a greater increase in employment in manufacturing compared to services, as most programs are tailored to meet specific industry needs:
  - Incorporating soft skills, ***digital literacy*** and Information and Communication Technology (ICT) skills into training programs can further enhance employability, particularly within these service sub-sectors

Impact of *soft & digital skills* on women's entrepreneurship



Sample size: 1,857

Source: Afridi, Gupta, Heath and Mahajan (2025)
Note: The bars represent the difference in mean values for each treatment group relative to control group for outcomes– probability of self-employment and number of days worked in the last 90 days in any work. 95% confidence intervals.

Conclusions

We advocate a *multipronged strategy* for growth of labour intensive sectors along with transformative measures to enhance the human capital of the labor force for job creation:

- Our analysis shows that on the labour demand side, significant expansion of labour intensive non-farm sectors can have multiplicative effect on employment opportunities due to high inter-sectoral linkages.

- On the supply side, raising the productivity of the labour force requires investment in skills that are adaptive to rapid technological changes.