

3. Forecasting Jobs and Occupations Using Input-Output Analysis

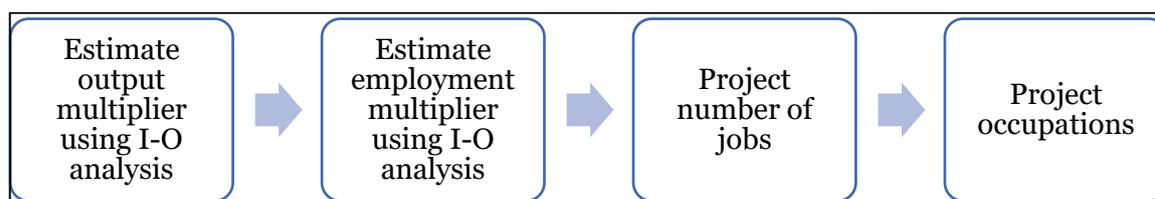
3.1 Introduction

The next step is to make a projection of jobs and occupational distribution of jobs within the selected sectors. Input-Output (I-O) analysis is used here (see Annexure 2.2 about background on I-O analysis). The advantages of this analysis are that it is a simultaneous approach across sectors and it gives an indication of both direct jobs in the specific sector and indirect jobs being created in other sectors too. However, projections about occupations can only be made about direct jobs. Projections are made for the year 2026–27.

The challenge is one of growth assumptions for each sector. Here the suggestion is that while one can look at past growth rates to develop assumptions, it is strongly recommended that it should be supported by alternative simulations.

The rest of the chapter illustrates the step-wise process for the baseline case where growth assumptions are made from past growth rates. The summarised steps for projecting jobs and occupations are illustrated in Figure 3.1.

Figure 3.1: Summarised steps to forecast jobs and occupations



Source: NCAER conceptualisation.

3.2 Projecting Gross Value of Output for 2026–27

The first step is projecting Gross Value of Output (GVO) for the year 2026–27 (as jobs creation is the result of output generation) based on certain growth assumptions for GVO. GVO numbers at current and constant (2011–12) prices are sourced from the MoSPI (2024a).³² The broad (agriculture, livestock, manufacturing of textiles plus cotton ginning, manufacture of transport, electricity, trade and computer related services) sectors provided here are grouped in such a way that it corresponds to the 64 sector I-O tables estimated using the Supply Use Tables (SUTs) for 2018–19. Since the latest available data for GVO was 2022–23, this was assumed as the baseline year. For projecting GVO numbers for 2026–27 over the base year 2022–23, assumptions about two scenarios were made.

³² MoSPI, Government of India. 2024a. INDIA – National Accounts Statistics 2024. <https://www.mospi.gov.in/publication/national-accounts-statistics-2024>.

3.2.1 Assumptions about GVO growth rates (real, i.e., in constant prices)

3.2.1.1 Scenario 1: Past growth scenario

In this scenario, average of annual growth rates of real GVO (constant price GVO) at the broad sectoral levels for the past three normal years (2018–19, 2019–20 and 2022–23) are used as the growth rates for 2026–27 GVO projections (Table 3.1).

Table 3.1. Assumptions of GVO growth rates from both scenarios for 2026–27

| Sector | Scenario 1 | Scenario 2 |
|---------------------------|---------------------|---------------------------------|
| | Past Growth Trend | De-composition of IMF Forecasts |
| | GVO Growth Rate (%) | GVO Growth Rate (%) |
| Agriculture | 3 | 4 |
| Livestock | 6 | 4 |
| Textiles | (-)3 | (-)6 |
| Transport | 9 | 19 |
| Electricity | 5 | 7 |
| Trade | 9 | 10 |
| Computer-related services | 13 | 12 |

Source: NCAER computations with data sourced from NAS (GVA and GVO) and IMF (growth projections).

Note: Alternative credible projections may be explored based on availability of data and feasibility.

3.2.1.2 Scenario 2: Overall Gross Domestic Product (GDP) growth projection being taken from the IMF (2024)^{33,34}

The International Monetary Fund (IMF) projects Gross Domestic Product (GDP) growth rates for all countries. To calculate the GVO growth equivalent of the IMF projected GDP growth rate, following steps were followed.

- i. Used projection of 6.5 per cent GDP growth from the IMF World Economic Outlook for 2024–25 to 2026–27 (A)
- ii. Since the ratio of real GDP growth rate to real Gross Value Added (GVA) growth rate for the years, 2018-19, 2019-20 and 2022–23 was 1.0, this ratio was used to derive the GVA growth rate of India for those years (B)
- iii. Since the ratio of real GVO growth rate to real GVA growth rate for the years, 2018-19, 2019-20 and 2022–23 was 1.3, this was used to derive the GVO growth rate of India (C)

³³ International Monetary Fund. 2024. *World Economic Outlook Databases October 2024*. <https://www.imf.org/en/Publications/WEO/weo-database/2024/October>.

³⁴ Alternative growth assumptions may be made based on these alternative growth scenarios. Chaudhary, Pratap and Pohit (2024) use the alternative NITI Aayog assumptions to simulate the impact of net zero transition on employment. Similarly, if assumptions, policy priorities, goals and targets have to be modelled for either all 64 or selected sectors, one can tentatively estimate both the overall and sectoral impact on jobs and occupations.

Chaudhuri, C., Pratap, D. & Pohit, S. 2024. “Effect of Energy Transition Under Net-Zero Target on Employment.” *Ind. J. Labour Econ.* <https://doi.org/10.1007/s41027-024-00528-y>. November 30.

Thus, projected GVO growth rate for the economy using the IMF GDP growth projection number was estimated as $A*B*C$ ($6.5*1*1.3$), which comes to 8.5 per cent.

Using the projected growth rate for the economy as a whole, sectoral growth assumptions were estimated by using the following formula:

$$\text{Sectoral Contribution to overall GVO growth} = (\text{GVO Growth rate of the sector} * \text{GVO Share of the sector in overall GVO}) / \text{Overall GVO growth rate}$$

This can be re-written as,

$$\text{GVO growth rate of the sector} = (\text{Sectoral Contribution to overall GVO growth} * \text{Overall GVO growth rate}) / \text{GVO Share of the sector in overall GVO}$$

3.2.2 Projecting GVO in levels

The sectoral (real) growth rates are used to project real GVO for the year 2026–27 with 2022–23 being treated as a base year. Using GVO of 2022–23 and multiplying that with the assumed growth rates yields the 2026–27 real GVO. The projected GVO numbers for the seven broad sectors using growth assumptions from both scenarios are given in Table 3.2.

Table 3.2: GVO projections in Rs lakh crore for 2026–27 at 2022–23 prices

| Sector | GVO (₹ lakh crore) in 2022–23 prices | | |
|---------------------------|--------------------------------------|------------|------------|
| | 2022–23 | 2026–27 | |
| | | Scenario 1 | Scenario 2 |
| Agriculture | 31.2 | 34.9 | 36.4 |
| Livestock | 17.2 | 21.5 | 20.1 |
| Textiles | 11.5 | 10.2 | 8.9 |
| Transport | 18.2 | 25.8 | 37.2 |
| Electricity | 11.0 | 13.5 | 14.4 |
| Trade | 35.9 | 51.1 | 52.9 |
| Computer-related services | 20.6 | 34.0 | 32.8 |

Source: NCAER computations with data sourced from NAS (GVA and GVO) and IMF (growth projections).

3.3 Projecting Jobs for 2026–27

Projecting jobs for 2026–27 involves the following steps:

- Deriving the labour inputs numbers for the 64 sectors by using the 2022–23 PLFS micro data released by the MoSPI. The details about this is mentioned in Annexure 2.1. Labour inputs (jobs) at the both selected sectoral and sub-sectoral levels are estimated by using the selected NIC codes. This gives the direct jobs estimated through PLFS numbers.
- Estimating the employment multiplier for the broad sectors by using the labour output ratio (L/Y) for 2022–23 and Leontief inverse for 2018–19. Estimation of employment multiplier is discussed in Annexure 2.2.³⁵

³⁵ This I-O analysis only focusses on backward linkages.

The employment multipliers for the selected seven broad sectors are given in Table 3.3. The figures denote number of jobs created in the economy due to output worth Rs 1 crore in the said sector.

Table 3.3: Employment multipliers

| Sector | Employment Multiplier 2022–23 |
|---------------------------|--------------------------------------|
| Agriculture | 91.2 |
| Livestock | 49.7 |
| Textiles | 27.4 |
| Transport | 11.8 |
| Electricity | 9.4 |
| Trade | 24.1 |
| Computer-related services | 7.5 |

Source: NSS computations.

- The projected sectoral GVO for 2026–27 (Table 3.2) are used to project direct and indirect sectoral jobs for 2026–27. The method of jobs projection using employment multiplier and GVO is discussed in Annexure 2.2.
Since the GVO numbers for 2026–27 are at 2022–23 prices, multiplying these with employment multipliers for 2022–23, we get number of projected jobs which is neutral of price change between 2022–23 and 2026–27. For example, if the GVO numbers were nominal, jobs projections would not be price change neutral. Output might have increased in nominal terms but real increase would be smaller, and so projected jobs would be higher than what it should be.
- The sub-sectors' proportion of jobs within the broad sectors are available from the PLFS for 2022–23. Those proportions are used to estimate the number of jobs for the selected sub-sectors for both the scenarios (Table 3.4).

Table 3.4: Projected jobs in 2026–27 for selected sub-sectors

| Lakh jobs | <i>Growing of cereals, leguminous crops and oilseeds</i> | <i>Raising of cattle and buffaloes</i> | <i>Weaving of textiles</i> | <i>Manufacturing of motor vehicles, parts & accessories of motor vehicles</i> | <i>Electric power generation using solar energy and other non-conventional sources</i> | <i>Retail sale of food, clothing, footwear and leather articles in specialised stores and maintenance & repair of MVs</i> | <i>Computer programming activities</i> |
|---|--|--|----------------------------|---|--|---|--|
| 2022–23 from PLFS | | | | | | | |
| Direct Jobs | 1,789.6 | 206.1 | 22.6 | 13.9 | 1.1 | 261.3 | 25.9 |
| 2022–23 using I-O Analysis | | | | | | | |
| Direct jobs | 1,849.9 | 207.6 | 29.9 | 17.6 | 1.1 | 281.0 | 26.4 |
| Direct + Indirect jobs | 2,034.8 | 394.5 | 101.7 | 145.7 | 7.5 | 393.3 | 76.6 |
| Scenario 1 using Past Growth Rates: Projections for 2026–27 | | | | | | | |
| Direct jobs | 2,066.3 | 259.4 | 26.4 | 24.9 | 1.3 | 399.7 | 43.7 |
| Direct+ Indirect jobs | 2,272.9 | 492.8 | 89.8 | 206.5 | 9.2 | 559.5 | 126.6 |
| % Change in direct jobs over 2022–23 using I-O Analysis | 11.7 | 24.9 | -11.6 | 41.7 | 22.4 | 42.3 | 65.3 |
| Scenario 2 using IMF Growth Projections; Projections for 2026–27 | | | | | | | |
| Direct jobs | 2,157.5 | 241.9 | 23.2 | 35.8 | 1.4 | 414.4 | 42.1 |
| Direct+ Indirect jobs | 2,373.3 | 459.7 | 78.9 | 297.4 | 9.8 | 580.1 | 122.2 |
| % Change in direct jobs over 2022–23 using I-O Analysis | 16.6 | 16.5 | -22.4 | 104.1 | 30.1 | 47.5 | 59.6 |

Source: NCAER computations.

Projecting Jobs for 2026–27 across main occupations in the seven selected sub-sectors

The PLFS, apart from giving details of workers as per their industry of engagement (NIC codes at 5–digits), also gives the occupations of the workers. These are at the National Classification of Occupations (NCO) 3–digit level.³⁶ The projected jobs for

³⁶ “The NCO-2015 has 8–digit coding structure which was mapped and aligned to ISCO-2008 with the addition of 2 digits. There is one to one correspondence between ISCO-2008 and the NCO-2015 with

the year 2026–27 can be distributed across occupations. However, this has to be done by taking the proportion of each occupation at the 2022–23 level. Plus, only account of the direct jobs associated with sectors can be given. The reason being engagement of indirect jobs created by a sector due to its interlinkages cannot be assigned to particular sectors due to layers of interlinkages playing in the background.

The distribution of direct jobs across major occupations in the seven sub-sectors are given in Tables 3.5 to 3.11.

Table 3.5: Projected jobs (in lakhs) across top five NCO codes in ‘growing of cereals, leguminous crops and oilseeds’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|--|--|--|-------------------------------------|--------------------------------------|--------------------------------------|
| | | | Share in Total Jobs, 2022–23 (%) | Total Jobs 2023–23 (lakhs) | Scenario 1 Projections (lakhs) | Scenario 2 Projections (lakhs) |
| 611 | Market gardeners & crop growers | Cultivator, tree and shrub crop growers, gardeners, mixed crop growers, agriculture information management | 69.4 | 1,116.6 | 1,433.3 | 1,496.6 |
| 921 | Agricultural, forestry and fishery labourers | Crop farm labourers, livestock farm labourers, garden and horticultural labourers | 19.6 | 315.9 | 406.0 | 423.9 |
| 631 | Subsistence crop farmers | Tree trimmer and pruner | 8.9 | 143.4 | 184.3 | 192.4 |
| 613 | Mixed crop and animal workers | Seed grower/quality seed grower, seed processing worker | 1.0 | 15.4 | 19.18 | 20.7 |
| 633 | Subsistence mixed crop and livestock farmers | | 0.4 | 6.9 | 8.9 | 9.3 |

Source: NCAER Computations.

the first digit representing the Division (Major Group), second digit representing Sub-Division (Sub-Major Group), third digit representing the Group (Minor Group) and the fourth digit representing the Family (Unit Group), a decimal is introduced after the first four digits in order to create a distinction between the Families and individual Occupations.”

National Career Services. 2016. National Classification of Occupations 2015.
https://www.ncs.gov.in/Documents/National%20Classification%20of%20Occupations%20_Vol%20I-%202015.pdf

Directorate General of Employment, Ministry of Labour and Employment, Government of India, New Delhi.

Table 3.6: Projected jobs (in lakhs) across top five NCO codes in ‘raising of cattle and buffaloes’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|---------------------------------|--|---|-------------------------------------|-----------------------|-----------------------|
| | | | Share in Total Jobs, 2022-23 (%) | Total Jobs 2023-23 (lakhs) | Scenario 1 (lakhs) | Scenario 2 (lakhs) |
| 612 | Animal producers | Livestock and dairy producers, animal producers n.e.c. | 87.3 | 209.1 | 226.4 | 211.2 |
| 521 | Street and market salespersons | Stall and market salespersons, street food salespersons (milkman) | 4.0 | 9.7 | 10.5 | 9.8 |
| 632 | Subsistence livestock farmers | | 3.8 | 9.2 | 10.0 | 9.3 |
| 613 | Mixed crop and animal workers | Artificial breeding technician, mixed crop and animal workers, other | 2.8 | 6.7 | 7.2 | 6.7 |
| 611 | Market gardeners & crop growers | Mixed crop growers, agriculture information management | 0.6 | 1.5 | 1.6 | 1.5 |

Source: NCAER Computations.

Table 3.7: Projected jobs (in lakhs) across top five NCO codes in ‘weaving of textiles’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|---|---|---|-------------------------------------|-----------------------|-----------------------|
| | | | Share in Total Jobs, 2022-23 (%) | Total Jobs 2023-23 (lakhs) | Scenario 1 (lakhs) | Scenario 2 (lakhs) |
| 731 | Handicraft workers | Handicraft workers in textiles, leather and related materials | 66.8 | 13.3 | 17.7 | 15.5 |
| 815 | Textile, fur and leather products machine | Fibre preparing, spinning and winding machine operators, weaving and knitting machine operators, sewing machine operators, bleaching, dyeing and cleaning machine operators | 12.4 | 2.5 | 3.3 | 2.9 |
| 753 | Garment and related trades workers | Garment and related pattern makers and cutters, sewing, embroiderers and related workers | 8.0 | 1.6 | 2.1 | 1.9 |
| 112 | Managing directors and chief executives | Director manufacturing | 3.6 | 0.7 | 1.0 | 0.8 |
| 632 | Manufacturing labourers | | 2.0 | 0.4 | 0.5 | 0.5 |

Source: NCAER computations.

Table 3.8: Projected jobs (in lakhs) across top five NCO codes in ‘manufacturing of motor vehicles (MVs), parts & accessories of MVs and repair and maintenance of MVs’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|--|---|--|-------------------------------------|--------------------------------------|---------------------------------------|
| | | | Share in Total Jobs, 2022–23 (%) | Total Jobs 2023–23 (lakhs) | Scenario 1 Projections (lakhs) | Scenario 2 Projection s (lakhs) |
| 723 | Machinery mechanics and repairers | MV mechanics and repairers | 58.5 | 18.3 | 26.0 | 30.8 |
| 932 | Manufacturing labourers | | 6.9 | 2.2 | 3.1 | 3.6 |
| 112 | Managing director and chief executive | | 4.2 | 1.3 | 1.9 | 2.2 |
| 821 | Assemblers | Mechanical machinery assemblers, electrical and electronic equipment assemblers | 3.5 | 1.1 | 1.6 | 1.9 |
| 312 | Mining, manufacturing and construction supervisors | Manufacturing supervisors | 2.7 | 0.9 | 1.2 | 1.4 |
| 311 | Physical and engineering science technicians | Electrical engineering technicians, electronics engineering technicians, mechanical engineering technicians | 2.4 | 0.8 | 1.1 | 1.3 |

Source: NCAER computations.

Table 3.9: Projected jobs (in lakhs) across top five NCO codes in ‘electric power generation using solar energy and other non-conventional sources’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|---|--|--|-------------------------------------|-----------------------|-----------------------|
| | | | Share in Total Jobs, 2022-23 (%) | Total Jobs 2023-23 (lakhs) | Scenario 1 (lakhs) | Scenario 2 (lakhs) |
| 541 | Protective service workers | Fire fighters, security guards | 25.4 | 0.2 | 0.3 | 0.4 |
| 413 | Keyboard operators | Typists and word processing operators, data entry clerks | 10.1 | 0.1 | 0.1 | 0.1 |
| 741 | Electrical equipment installers and repairers | Electrical mechanics and fitters, electrical line installers and repairers | 9.7 | 0.1 | 0.1 | 0.1 |
| 932 | Manufacturing labourers | | 9.5 | 0.1 | 0.1 | 0.1 |
| 411 | General office clerks | | 7.8 | 0.1 | 0.1 | 0.1 |

Source: NCAER computations.

Table 3.10: Projected jobs (in lakhs) across top five NCO codes in ‘retail sale of food, clothing, footwear, and leather articles in specialised stores’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|---|---|--|-------------------------------------|-----------------------|-----------------------|
| | | | Share in Total Jobs, 2022-23 (%) | Total Jobs 2023-23 (lakhs) | Scenario 1 (lakhs) | Scenario 2 (lakhs) |
| 522 | Shop salespersons | Shopkeepers, shop supervisors, shop sales assistants | 76.5 | 173.6 | 281.2 | 291.6 |
| 521 | Street and market salespersons | Stall and market salespersons, street food salespersons | 8.3 | 18.9 | 30.5 | 31.7 |
| 112 | Managing directors and chief executives | Director, retail trade, working proprietor, retail trade/proprietor, retail trade | 7.2 | 16.3 | 26.4 | 27.4 |
| 952 | Street vendors (excluding food) | Hawker, street vendors, non-food products, other | 2.3 | 5.1 | 8.3 | 8.6 |
| 524 | Other sales workers | | 2.0 | 4.6 | 7.4 | 7.7 |

Source: NCAER computations.

Table 3.11: Projected jobs (in lakhs) across top five NCO codes in ‘computer programming activities’

| NCO 2015 Code | Name | Description | PLFS | | Projections | |
|---------------------|--|---|--|-------------------------------------|--------------------------|-----------------------|
| | | | Share in Total Jobs, 2022-23 (%) | Total Jobs 2023-23 (lakhs) | Scenario 1 (lakhs) | Scenario 2 (lakhs) |
| 251 | Software and application developers, and analysts | System analysts, software developers, web and multimedia developers, applications programmers | 77.4 | 19.6 | 33.8 | 32.6 |
| 133 | Information and communications technology services manager | Information and communication technology (ICT) services | 5.0 | 1.3 | 2.2 | 2.1 |
| 112 | Managing directors and chief executives | | 2.1 | 0.5 | 0.9 | 0.9 |
| 216 | Architects, planners, surveyors and designers | Graphic and multimedia designers | 2.1 | 0.5 | 0.9 | 0.9 |
| 413 | Keyboard operators | Typists and word processing operators, data entry clerks | 2.0 | 0.5 | 0.9 | 0.8 |

Source: NCAER computations.

3.5 Limitations of I-O Analysis

The objective is to assess skills shortages and gaps, which may be done at the occupational level. However, the I-O analysis has some shortcomings for this particular analysis:

- The NIC codes are insufficient to capture the technological changes that are taking place in the industries. For example,
 - The wind energy sector is a new and upcoming sector in India, but it is not captured separately. NIC code 35106 captures electric power generation using other non-conventional sources and the wind energy sector is subsumed under this.
 - The Information Technology (IT) sector has only NIC code, 6201, for ‘computer programming activities’. But IT has several sub-sectors—IT Services (ITS), Business Process Management (BPM), Engineering Research and Development (ER&D), Software Products Development (SPD), Future Skills, etc.
 - A new emerging area in ‘weaving, manufacturing of man-made fibre and manmade mixture fabrics’ (NIC code 13124) is the technical textiles sector. It can be produced using either Power loom or shuttle-less technologies, which may require new job roles. Other types of textiles are

emerging like 3-D textiles, circular textiles, etc. which are not fully captured in NIC codes.

- Table 3.12 shows a summary of the technological changes that are affecting the seven industries considered under this report. They will be discussed in detail in the next section.
- Given that the PLFS data are only available at the NCO–3–digit level, it does not give precise information about which job code is actually in need. For example, the code 731 is for handicraft workers. However, the code for a power loom weaver is 7318.5500 and that for a handloom weaver is 7318.5800. It is challenging to understand from the I-O analysis where the need for jobs precisely are—handloom weaver or power loom weaver. The skill requirements for each job role would presumably would be very different.
- Further, while the code for a power loom weaver is available, it would be capturing four different types of technologies (plain loom, semi-automatic loom, automatic loom and shuttle-less loom), each of which would require different technical skills. The existing codes are unable to capture these nuances.

Therefore, I-O analysis is a necessary methodology but not a sufficient one. It has to be supplemented by other types of analysis to analyse demand for skills, skill shortages and gaps.

Table 3.12: Technological changes in sector (industries)

| Sector | Digital technologies | Sector-Specific technology | Others |
|---|--|--|--|
| Growing of cereals, leguminous crops and oilseeds (farms) | Artificial intelligence, machine learning (ML), internet of things (IoT), big data and blockchain | Farm machinery, point of sale (PoS) and soil data | Drones, satellite data and statistical model |
| Raising cattle and buffaloes | Artificial intelligence | Artificial insemination | Improved refrigeration technologies for better milk preservation |
| Weaving of textiles | Artificial intelligence, ML, automation & digital technologies, supply chain invocations (traceability, block chain, etc.) | <ul style="list-style-type: none"> ● Sustainable Technologies (Eco-friendly chemicals/dyes) ● Circular/ Green/ Recycled/ Sustainable textiles ● Advanced materials (technical textiles, smart textiles, etc.) | |
| Electric power generation using solar and other non-conventional energy | Software to read and forecast solar and wind data | RE is a new technology in electricity sector; automation in O&M; Higher efficiency solar and wind modules, taller windmills | Offshore wind; green hydrogen |
| Manufacturing of MVs & its auto parts and repair | Artificial intelligence/ML; software and cybersecurity | BS4 to BS6 (transition to BS7); electric, hybrid, and flex fuel vehicles; electronics in motor | New materials and light-weighting components |

| Sector | Digital technologies | Sector-Specific technology | Others |
|---|---|---|-------------------------------|
| | | vehicles; automation and robotics in manufacturing and repair and maintenance | |
| Retail sale of food, clothing and shoes | Artificial intelligence, Digitised Supply Chain-IoT, GPS and RFID technology, Cloud/hybrid storage, AI/ML, blockchain, Automated data loggers barcode pricing | Electronic retail— Modern retail and e-Commerce; remote monitoring of stores | Data analytics |
| Information technology sector | <ul style="list-style-type: none"> • Python – AI/ML • Full stack developer • Image and signal processing • Natural language processing • Large language model building • Small language model building • Deep neural networks • Cyber cloud security • Cybersecurity: • Cloud computing • Data protection • Econometric modelling • Blockchain and 5G technology | <ul style="list-style-type: none"> • For Agri-tech, commerce and EV <ul style="list-style-type: none"> ○ Remote sensing ○ Drip technology with cloud computing • For Manufacturing <ul style="list-style-type: none"> ○ Robotics ○ Embedded computing ○ Digital twin • Pharmaceutical and Medical <ul style="list-style-type: none"> ○ 3D modeling ○ 3D printing ○ Robotics: virtual and augmented reality (VR/AR) ○ Nanotechnology ○ Digital twin ○ CRISPR ○ Bioprinting | Information technology sector |

Source: NCAER conceptualisation from literature review and stakeholder interviews.

3.6 Conclusion

Input-Output analysis is a holistic way of studying the overall impact of a sector on the entire economy as it includes all the sectors of the economy and studies the interlinkages among the sectors of the economy. However, it has limitations like it assumes the technology to remain constant at the year for which the I-O tables are available. Thus, the sectoral dynamism remains uncaptured through the I-O analysis. In addition, due to limitations of data, it can forecast occupations at a very aggregated level, which does not completely answer the question at hand about forecasting demand for occupations.

This has to be supplemented by stakeholder interviews. The sectoral chapters in the next part give insights on this aspect.