



VALUE ADDITION, JOBS AND SKILLS: A STUDY OF INDIA'S EXPORTS

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Key Highlights

- The paper looks at the trends in domestic and foreign value-added share, employment and skill-composition of jobs supported by India's exports using Input-Output (I-O) analysis.
- It is found that the import content in exports has steadily increased from 15.9% in 2003-04 to 27.2% in 2013-14, implying that Indian industries are increasingly getting integrated into Global Value Chains (GVCs)
- Results show that export related jobs grew at a much faster rate than overall employment during the period; and a chunk of these jobs has gone to persons with below secondary education.
- The findings suggest that while the rate of growth for these low skilled jobs has declined, there has been a sharp rise in the rate of growth of high skilled jobs supported by exports.
- It is found that there is also a huge inter-sector disparity in the skill composition of jobs supported by exports, with agricultural exports supporting majorly unskilled and low-skilled jobs, whereas exports of services supporting mostly high skilled ones.

EXECUTIVE SUMMARY

BACKGROUND AND CONTEXT

As the production process is increasingly getting fragmented globally, greater exports no longer imply higher domestic production activity and associated job creation, as import of intermediate products used as inputs in exports also increase. Nor does the official trade data go very far in explaining the job creating aspect of exports. The relationship between exports and employment becomes more complex in the context of Global Value Chains (GVCs) (Dhir and Veeramani, 2019). Economic Survey 2019-20 has also highlighted the importance of GVCs in India's exports, by devoting an entire chapter, suggesting ways to integrate Indian firms into GVCs. Therefore, in order to gauge the potential contribution of exports to domestic job creation, what is required is to assess the domestic value-added (DVA) content in exports. Further, technological changes are creating new occupations and jobs as the demand for workers with requisite skills is rising. At

the same time, some existing jobs may be altered, reduced or eliminated.

Therefore, besides assessing the extent of employment supported by India's exports, it is also important to understand the skill composition of such jobs. In this regard, the present study looks at the trends in domestic and foreign value-added share, and employment and skill-composition of jobs supported by India's exports between 2003-04 and 2013-14 using an Input-Output (I-O) table framework.

DATA AND METHODOLOGY

The analysis is based on the Input-Output table for India for the years 2003-04 and 2007-08 provided by the CSO, MoSPI; and for the year 2013-14, provided by Singh and Saluja (2016). I-O



model is a quantitative technique that represents the linkages and interdependencies between outputs of different sectors of a national/regional economy. In a typical I-O table, the economy is presented such that each industry listed across the top represents the consuming sector ('j') and down the table, each row represents the producing sectors ('i'). Thus, the output from the row sector (i) is distributed as an intermediate input to all the sectors mentioned in the respective headings of columns (j) plus the final demand and import.

The Supply Demand balance equation of the I-O table (having only two sectors) can be expressed as:

$$x_{11} + x_{12} + F_1 = X_1 \quad (1)$$

$$\underbrace{x_{21} + x_{22}}_{\text{Intermediate}} + \underbrace{F_2}_{\text{Final}} = \underbrace{X_2}_{\text{Total}} \quad (2)$$

The above structure of equations can easily be extended to an IO table for n sectors. Let A denote the input-output coefficients matrix (n×n), X the output vector (n×1) and F the final demand

vector (n×1), then the supply-demand balance equation may be written as: AX+F=X. The study mainly follows the Hummel et al (2001) approach used in this strand of empirical literature to estimate industry-wide trends in domestic and foreign value added in India's exports over time.

Next, in order to compute the number and the kind of jobs supported by India's exports across these industries, we estimate the employment coefficient matrix using NIC 5-digit industry-wise employment figures from the NSS 68th round of Employment and Unemployment survey for the year 2011-12. We estimate these figures across general education level of workers. The NIC product categories are then mapped with the Supply and Use table 2011-12 product classification of 140 commodities. The SUT classification is then mapped to IOT 2011-12 product classifications and the employment figures are divided by the output values for respective industries to arrive at the employment coefficient matrix for the year 2011-12. Now, in order to make the estimates consistent with the 2013-14 estimates, we deflate by using sector deflators and thereby obtain the employment coefficient matrix for the year 2013-14.

FINDINGS

The estimates show that the domestic value-added content in India's exports increased from USD 75.25 Billion in 2003-04 to USD 310.32 Billion in 2013-14, with a CAGR of 17.04% per annum. On the other hand, the foreign value added increased from USD 14.2 Billion in 2003-04 to USD 116 Billion in 2013-14 with a CAGR of 26.28% per annum. Domestic Value-Added content in exports has declined from 84.1% in 2003-04 to 72.8% in 2013-14, and foreign value added share in India's exports has increased from 15.9% in 2003-04 to 27.2% in 2013-14. This shows that Indian industries are increasingly getting involved into Global Production Sharing (GPS).

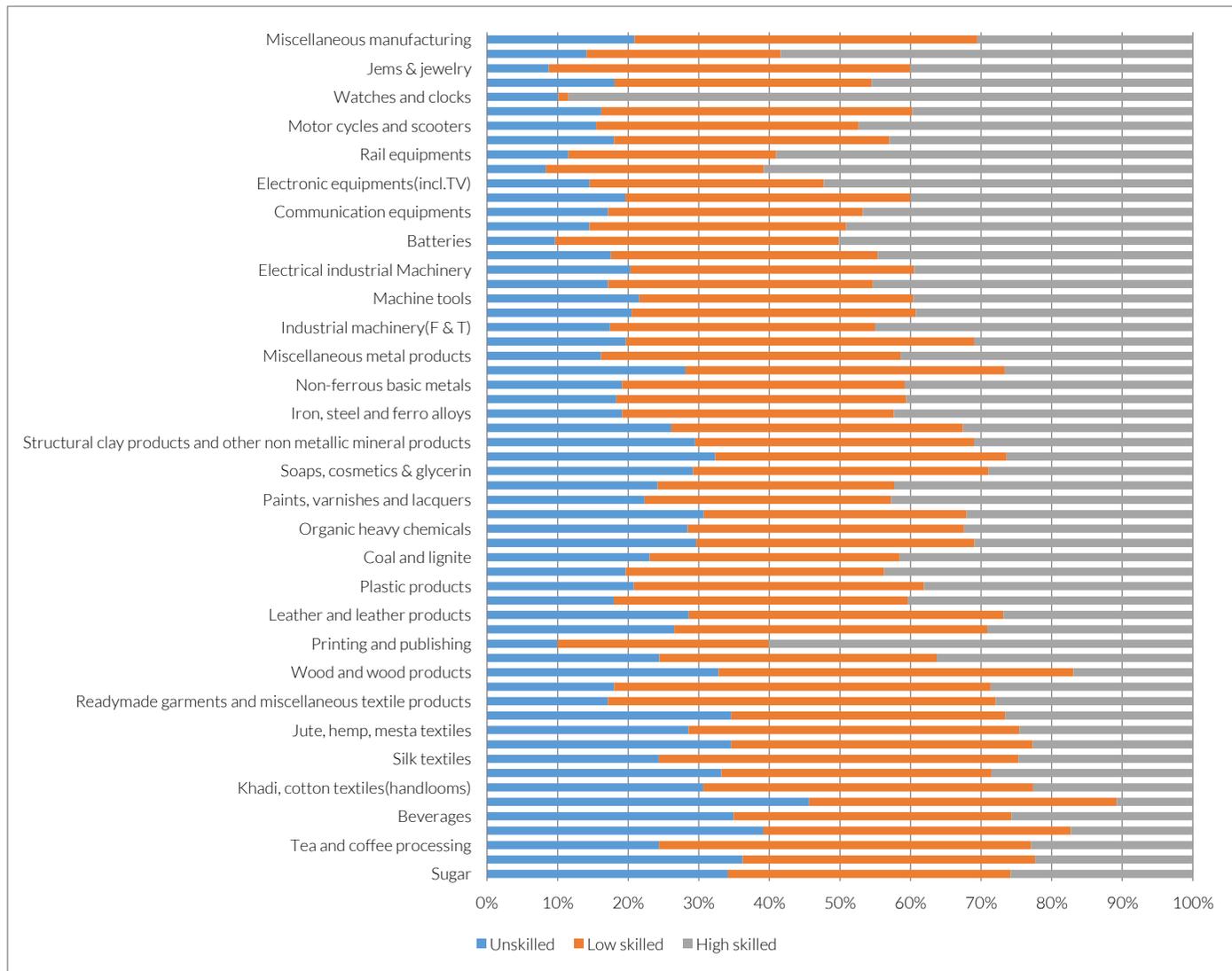
It is observed that the manufacturing sector contributes the highest to the DVA content in exports, followed by services. Within manufacturing, the highest contribution is by *Textiles, Textile Products, Leather and Footwear* whereas lowest is by *Wood and Products of Wood* between 2003-04 and 2013-14. Further, the largest increase in imported content in exports during the period was recorded in the case of *Chemicals and Chemical Products*, whereas lowest by "*Wood and Products of Wood*".

Table: Education category-wise number of jobs supported by India's exports (2003-04 to 2013-14) (in Millions)

Education Level	2003-04	2007-08	2013-14	Growth Rate (2003-04 to 2013-14) (%)
No Formal Schooling	14.49	13.54	20.98	3.77
Below Secondary Education	16.89	18.88	32.64	6.81
Secondary and Higher Secondary Education	5.76	7.48	15.60	10.47
Diploma and Above	3.06	4.78	9.00	11.41
Total	40.21	44.68	78.23	6.88

Source: Authors' estimation based on the official I-O tables and NSS EU survey estimates

Figure: Skill composition of jobs tied to India's export (2013-14): Manufacturing commodities



Source: Authors' estimation based on the official I-O tables and NSS EU survey estimates

Further, we find that export related jobs grew at a much faster rate than overall employment during the period. It is estimated that total number of jobs supported by India's exports increased from 40.2 Million in 2003-04 to 78.2 Million in 2013-14 at a CAGR of 6.9% per annum. While a chunk of these jobs has gone to persons with below secondary education, the rate of growth for these low skilled jobs has declined. On the other hand, we observe a sharp rise in the rate of growth of high skilled jobs supported by exports.

While a majority of the jobs generated by exports in agriculture and allied activities has gone to unskilled and low-skilled workers, employment of high skilled workers has been meager. Around 41.73% of jobs in the agriculture sector were taken up by unskilled workers, whereas merely 18.52% of the total employment tied to agricultural exports was taken up by high skilled ones. On the other hand, in case of services exports, bulk of employment was created for high skilled workers. Close to 53% of the total jobs created by services exports

were for high skilled, whereas just over 15% for unskilled workers. Furthermore, between 2003-04 and 2013-14, while the share of employment created by exports for unskilled workers has declined, there has been a rise in the employment share of high skilled workers across all broad sectors. In case of Agriculture and allied activities, between 2003-04 and 2013-14, employment supported by exports for people with no formal schooling declined by 2.18%, whereas for people with Diploma and above, it increased by 4.19%. Similarly, in case of

manufacturing, while the proportion fell by 1.63% for people with no formal schooling, it rose by 1.48% for people with Diploma and above. We observe a similar trend in case of services.

THE WAY FORWARD

The Economic Survey 2019-20 predicts that by integrating 'Assemble in India for the World' into 'Make in India', we can create four crore well-paid jobs by 2025 and eight crore by 2030. While the idea seems to be sound, the road to 'well-paid' jobs will not be that easy. The findings show that a chunk of jobs created by India's exports, especially of network products (computers, electronic and electrical

equipment, telecommunication equipment and automobiles) has been for high-skilled workers, which is in sharp contrast to the corresponding share in case of overall manufacturing exports. With the advent of transnational companies that largely control the production process of network products, the requirement for high-educated workers is only going to rise at the cost of uneducated and less educated. Therefore, while integrating into the GVC definitely seems to be the way forward, one must be mindful of the distributional consequences on the jobs so created. Past experiences show that employment and wage gains through GVC integration have been largely biased towards more skilled

workers, which contrasts with the predictions of trade theory. Therefore, we need policies to ensure that the gains from trade will be shared evenly. To reduce workers' exposure to the risk of offshoring, the government must invest in skill development programmes. Education and training can also help firms increasingly and efficiently fragment their production process globally.

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