

Quantifying India's Logistics Costs

Policy Brief No. 3 | 2019 | Authors: Devender Pratap, Devendra B Gupta and Sanjib Pohit

INTRODUCTION

The prevalence of high logistics costs in India as compared to other countries with a similar environment and level of development is a matter of concern as it poses challenges for the manufacturing growth and comprehensive development of the country. Several reasons are cited for the high logistics costs in India, including an unfavourable policy regime, lack of a multimodal transport system and consequently the heavy reliance on road transport, a fragmented storage infrastructure, the presence of multiple stakeholders in the entire transport and storage value chain, poor quality of road and port infrastructure, and the absence of technological intervention in storage/transportation and distribution activities. These high logistics costs inevitably have an adverse effect on the country's global competitiveness.

Although there is unanimity among all stakeholders on the need to keep logistics costs under control, no serious effort has hitherto been made in India to quantify the same and track its changes over the years. In this context, NCAER is making an effort to quantify the logistics costs prevalent in India to facilitate policy recommendations. This is in conjunction with NCAER's work on logistics costs, which has been commissioned by the

Logistics Division, Ministry of Commerce
(see Box 1).

Box 1. Scope of NCAER's Work on Logistics

- *Route Study: Cost analysis of cargo movement on major routes:*
This pertains to an analysis of the time and cost entailed in cargo movement on major selected routes to identify differences in cost as well as efficiency across the following areas:
 - a) Modes of transport (road, railways, air and waterways);
 - b) Type of products (containerised/ non-containerised, perishable/non-perishable); and
 - c) Nature of logistics operations (first party/second party /third party logistics players).
- *Estimation of logistics costs in India as a percentage of the GDP using primary and secondary data.*
- *Organisation of a policy roundtable among stakeholders.*
The objective of this roundtable would be to create a forum at NCAER providing key stakeholders of logistics services in both the private and public sectors the opportunity to brainstorm and interact with policy-makers for the exchange of ideas and identification of various challenges faced by this sector.

Constituents of Logistics Costs

At the outset, it may be pointed out that there is no standard world-wide nomenclature for defining logistics costs. Typically, logistics activities imply the chain that facilitates the movement of goods from the supplier to the consumer as well as the concomitant intermediate

transfers. Broadly, the following components comprise the core elements of logistics costs: handling and loading/unloading; packaging; insurance; transportation; and management and administration. However, after surveying the literature on the measurement of logistics costs, we have included a few additional components of logistics costs for measuring the total logistics costs of India. The different cost elements are self-explanatory and have been listed in Box 2.

Box 2. Logistics Cost Components

Transportation

Other Elements of Logistics Costs:

- Material handling;
- Administration; cost
- Logistics equipment;
- Documentation;
- Insurance;
- IT, including hardware and software:
- Logistics system management;
- Marketing; Packaging;
- Speed money; and
- Maintenance of equipment and software.
- Warehousing

Approach to Measuring Logistics Costs

India's *National Accounts Statistics (NAS)*, published by the Central Statistical Organisation (CSO), Government of India, provides the national (macroeconomic) estimates of Gross domestic Product (GDP), the balance of payments, national production, input costs, consumption, investment, and other fundamental attributes of the national economy. Specifically, the cost estimates are more explicitly depicted in the supply and use table (SUT) published by CSO, which are also consistent with national accounts statistics. Nonetheless, the logistics cost estimates cannot be directly estimated from the SUT for the following reasons: (a) the unit of analysis in the SUT or NAS is an establishment;

and (b) logistics operations transcend multiple industries/sectors and their costs, though embedded in the SUT/NAS, are not readily apparent as they are not shown in the SUT/NAS as an independent entity.

The SUT table has been the fulcrum of our estimation of logistics costs as it is consistent with GDP estimates derived from NAS. Our approach has been to use estimates of transportation and material handling cost from SUT, which are shown as separate entities in SUT. We have computed the sector-wise norm of other logistic cost elements listed in Box 2 relative to transportation cost derived from survey data. These norms have been applied to cull out other logistics cost elements from each sector's service input costs. The other logistics cost elements are principally services activities that any industry/sector needs for production activities. Hence, these have been accounted for in the SUT under the service input cost element. Summing up, the sector-wise logistics costs, including freight transportation cost, freight material handling cost, and other logistics cost elements, across sectors determine the total logistics costs in India.

The SUTs depict, in the form of matrices where the products come from and how they are used. Their main use is to act as an integration framework for balancing the national accounts, by recording how the supplies of different kinds of goods and services originate from domestic industries and imports, and how those supplies are allocated between various intermediate or final uses, including exports.

The Supply Table and Use Table of India are created as product X industry matrices but their entries are different. In the Supply Table, each column presents the values of products (delineated in rows) produced by an industry or the products supplied by industries to the

economy distinguishing the domestic supply from foreign supply (imports). These are at basic prices. The total supply of each product at the purchaser's price has been obtained by adding taxes less subsidies on products and trade and transport margins.

On the other hand, a Use Table shows the use of the product (a good or a service, delineated in rows) by the type of use (delineated in columns), that is, as intermediate consumption, gross capital formation, and exports. They are all given at the purchasers' price.

The first SUT for India, released by CSO, was for the year 2012–13. These tables have been compiled at a level of disaggregation of 140 products and 66 industries. These SUTs are used to prepare the symmetrical Input-Output Transaction Table (IOTT) by making use of the industry technology and standard methodology suggested in the Handbook Of Input–Output published by the United Nations, 1999 (see the flow chart in Figure 1). Since the input–output table derived from SUT would correspond to the base year of the SUT, that is, 2012–2013, there is a need to adjust the same for the reference year 2017–18 using the macro aggregates, viz., GVA at basic price, net product tax including tariff,

and components of GDP expenditure. The updated IOTT has been reported for 15 products.

The aggregated constructed IO transaction table provides freight transportation for all sectors of the economy. As mentioned earlier, the sector-wise norms of the other logistics cost elements in relation to the respective sector's freight transportation cost have been applied to cull out these costs from the service input costs for the same.

Results

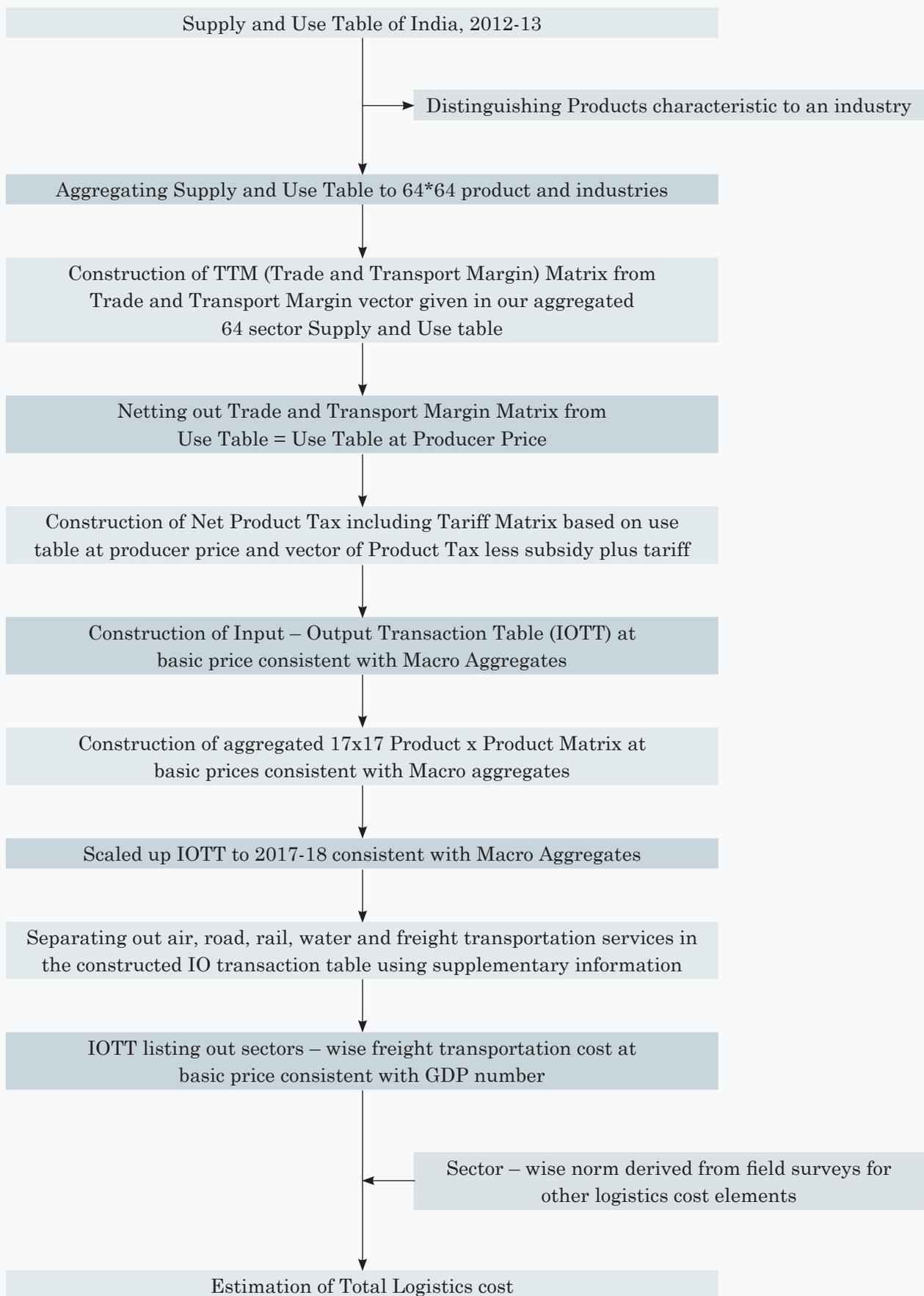
Table 1 shows our estimates of the **Logistics Costs** for the year 2017–18. As per the table, the total logistics costs turn out to be 8.87 per cent of GVA at basic prices. Table 1 shows that there are variations across sectors depending on the nature of the products (low- or high-value products, or bulk or non-bulk commodities). It is generally observed that low value items or bulk items have higher logistics costs.

It must be noted the logistics cost displayed above is in no way an indicator of the contribution of the logistics sector to the economy. The number estimated above only reflects the logistics cost to the economy in the year 2017-18.

Table 1: Logistic Cost in India, 2017-18

| Sl. No. | Sectors | Transport Costs | Total Logistics Costs | GVA at Basic Price | Logistics Costs as a Percentage of GVA |
|---------|---|-----------------|-----------------------|--------------------|--|
| | | Rs Crores | Rs Crores | Rs Crores | Per cent |
| 1 | Agriculture and Allied | 265765 | 528615 | 2447239 | 21.6 |
| 2 | Mining and Quarrying | 35113 | 42136 | 377628 | 11.16 |
| 3 | Food, Beverage and Tobacco products | 28677 | 56890 | 462892 | 12.29 |
| 4 | Textiles, Wearing Apparels and Leather Products | 14879 | 29487 | 372665 | 7.91 |
| 5 | Ferrous and Non Ferrous Metal, and Metal Products | 39121 | 58681 | 380694 | 15.41 |
| 6 | Consumer electronics, Electronic Components, incl. Computer, etc, | 1010 | 2040 | 48644 | 4.19 |
| 7 | Machinery and Equipment | 49643 | 97109 | 540177 | 17.98 |
| 8 | Chemical Rubber, Plastic Product including Petroleum Products | 30944 | 56490 | 662244 | 8.53 |
| 9 | Drugs and Medicines | 1489 | 2951 | 98679 | 2.99 |
| 10 | Cement | 2966 | 5873 | 45295 | 12.97 |
| 11 | Other Non-Metallic Minerals Products | 5487 | 10873 | 115686 | 9.4 |
| 12 | Wood and Wood Product, and Furniture and Fixture | 1072 | 2112 | 37636 | 5.61 |
| 13 | Paper and Paper Products, Printing and other Manufacturing | 6110 | 12446 | 223606 | 5.57 |
| 14 | Construction | 82304 | 123456 | 1530234 | 8.07 |
| 15 | Electricity, Gas and Water Supply | 5947 | 8920 | 445792 | 2 |
| 16 | Other services | 191773 | 287659 | 7156601 | 4.02 |
| | Aggregate | 762300 | 1325738 | 14945714 | 8.87 |

Fig 1: Flow Chart of the Construction Procedure



Disclaimer: The findings, interpretations, and conclusions expressed are those of the authors and do not necessarily reflect the views of the Governing Body or Management of NCAER.



NATIONAL COUNCIL OF APPLIED ECONOMIC RESEARCH
NCAER India Centre, 11 Indraprastha Estate, New Delhi 110 002, India
Tel: +91-11-2345 2698, 6120 2657, Fax: +91-11-23370164 info@ncaer.org
www.ncaer.org

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