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# Logistics Cost in India: Assessment and Long-term Framework

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# Context

## What is logistics?

- Encompasses entire supply chain process
- All activities between the point of production and the point of delivery
- Includes transportation, warehousing, insurance, information flow, administration & management

## National Logistics Policy

- Improve competitiveness of Indian goods by reducing logistics cost to global benchmarks
- Be among top 25 countries in Logistics Performance Index ranking by 2030
- Create data driven decision support mechanism for an efficient logistics ecosystem

# Estimation of Logistics Cost requires an understanding of

- global benchmarks
- methodologies adopted globally
- whether these methodologies apply to Indian context
- best possible methods for India
- methodology if newer and real-time data are available
- elements where there is scope for reducing the cost

# What is current logistics cost in India?

## **DPIIT constituted a Task Force which adopted a consultative approach**

- to identify critical components of logistics cost and possible data sources
- to arrive at an aggregate estimate of India's logistics costs using available official data
- to update estimates of logistics costs following international best practice
- to propose a long-term comprehensive framework to track the progress of NLP interventions

# Components of Logistics Cost

- Transportation
- Warehousing, including cost of carrying inventories
- Insurance cost
- Postal & Courier Services
- Administration cost associated with logistics activities
  - Repair & maintenance of logistics equipment
  - Cost of Logistics Equipment
  - IT - Hardware & Software Cost
  - Logistics System Management
  - Software & Maintenance

# Data sources for short-term estimation

- 01 Supply and Use Tables, MoSPI, GoI
- 02 National Accounts Statistics, MoSPI, GoI
- 03 Report - Analysis of India's Logistics Costs, NCAER, 2019

# Current assessment of Logistics Cost

## Supply and Use Tables

Transportation cost by all modes of transport but presented as an aggregate for all products

## National Accounts Statistics

Extrapolated Transportation cost

Warehousing (including inventory carrying cost)

Imputed Postal & Courier service cost

## Analysis of Logistics Cost, NCAER, 2019

Imputed value of other components of Logistics Cost

# Supply and Use Table

SUTs are matrices showing all economic transactions in the economy

**Supply table** presents values of goods and services produced by industries during a certain period of time. *Presented in basic prices*

**Use table** shows values of goods and services consumed by industries during a certain period of time. *Presented in purchaser's prices*

**Total Supply = Total Use**

**Or**

**Domestic Produce + Imports = Domestic Consumption + Exports**

Valuation adjustment is necessary to equate Total Supply with Total Use

**Purchaser's price = Basic price** + net taxes payable on production + imports + transport charges paid (or transport margin) + retailer's margin (or trade margin)

# Trade and Transport Margin

- Trade margin is the retailer's margin
- Transport margin is the freight cost for transporting goods
- For all products, TTM is the combined value of both
- For services other than transport services, TTM is zero
- For transport services, TTM depicts transport margins only

# Supply and Use Table

- SUTs are available for 2011-12 to 2018-19
- The transport services for which TTM or freight costs are available are:
  - Railway Transport
  - Road Transport
  - Water Transport
  - Air Transport
  - Supporting and auxiliary transport activities
- The values of TTM for items (a) to (d) present the values of freight cost for each type of transport.
- Item (e) includes service activities incidental to all modes of transportation (parking charges, switching and shunting, fire-fighting services, etc), cargo handling services, activities of cargo agents, travel agency services etc.

# National Accounts Statistics

- NAS is published by MoSPI. Annually available. Latest data for 2021-22
- Data available on the output of “transport services”, “Storage and Warehousing”, and “Postal & Courier services”
- Imputed Freight cost for 2021-22
- Imputed Postal and courier services cost

# Analysis of Logistics Cost, NCAER, 2019

- To estimate the cost of remaining components of Logistics
- Assume that % contribution of the other components is same as found in NCAER, 2019 study
- NCAER, 2019 report provides cost analysis of cargo movement on major (about 50) trade routes
- Cost of other components shows significant variation across these routes
- So their Lower Bound (LB) or Upper Bound (UB) estimates have been used

**LB assumes the remaining components to constitute 24% of total logistics cost**

**UB assumes the remaining components to constitute 33% of total logistics cost**

# Metrics of Logistics Cost

- Common metrics to assess the logistics cost are:
  - % of gross domestic product (GDP),
  - % of sales or turnover, and
  - absolute costs
- For international comparison, most of the studies report logistics cost as % of GDP
- This should not be interpreted as its contribution to GDP in respect of income and job creation.
- It is an absolute and an aggregate cost measure, presented as percentage to GDP, only for the purpose of cross-country comparison

# Methodology

| Component   | Data Source  | Assumption  | Explanatory notes  |
|---|--|---|--|
| Transportation Cost and Supportive and Auxiliary transport activities | SUT for 2011-12 to 2018-19                         | No assumption; directly available   | TTM against 5 Transport Services is the measure of Freight Transport Cost. This is directly available by all modes of transport, in the SUT. Also available is the value of import of transport services |
|   | NAS'2023 for 2021-22                               | Transport Margin Ratios (TMR) or TTM to output ratios are assumed to be equal to the moving average of TMRs for the 5 years preceding 2019-20. Past years TMRs are directly available from respective year's SUTs | The average TMR for each transport service is multiplied by the Value of Output of respective transport services for 2021-22. These values of output are available in NAS-2023.                          |
| Warehousing   | NAS'2023 for all the years from 2011-12 to 2021-22 | No assumption; directly available.  | This component is included in the "Storage and Warehousing" sector's value of output   |

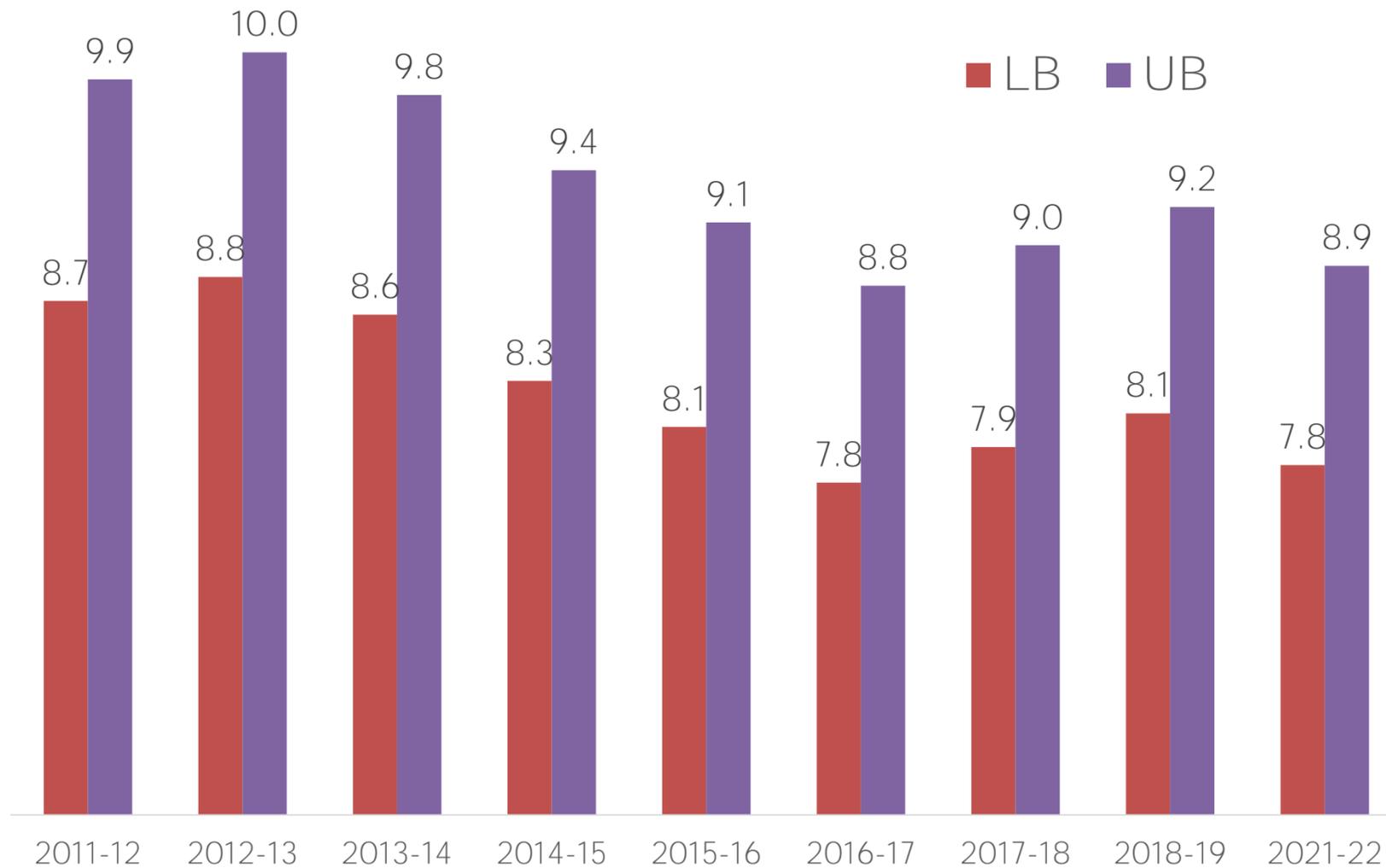
# Methodology

| Component  | Data Source   | Assumption   | Explanatory notes   |
|--|---|--|---|
| Insurance cost   | No direct data source   | No plausible assumption to derive indirectly too   | <b>A primary survey will be required for this component.</b>  |
| Postal and Courier Services                                    | No direct data source. But it can be imputed using data available in NAS'2023 | The GVA for Postal and Courier Services is the margins earned by them through the delivery of both business and personal couriers. It is assumed that business couriers account for 50% of total | <b>A primary survey will be required</b> to determine the actual share of business couriers in total postal & courier service. For now, in absence of any data, it is assumed that this share is 50%.                   |
| Administration cost associated with logistics activities.      | No direct data source   | No plausible assumption to derive indirectly too   | <b>A primary survey will be required for this component.</b>  |
| Repair and maintenance (R&M) of logistics/ transport equipment | No direct data source   | No plausible assumption to derive indirectly too   | R&M of transport equipment is separately available in SUT but it is difficult to differentiate between R&M of private vehicles and of commercial vehicles. <b>A primary survey will be required for this component.</b> |

# Methodology

| Component                     | Data Source           | Assumption   | Explanatory notes  |
|-------------------------------|-----------------------|--|--|
| Cost of Logistics Equipment   | No direct data source | The Use Table of SUT provides the value of transport vehicles being used as capital or as Gross Fixed Capital Formation (GFCF). But the estimate of depreciated value is required for this study | <b>A primary survey will be required for this component.</b> |
| IT - Hardware & Software Cost | No direct data source | No plausible assumption to derive indirectly too   | <b>A primary survey will be required for this component.</b> |
| Logistics System Management   | No direct data source | No plausible assumption to derive indirectly too   | <b>A primary survey will be required for this component.</b> |
| Software & Maintenance        | No direct data source | No plausible assumption to derive indirectly too   | <b>A primary survey will be required for this component.</b> |

# Trend in Logistics Cost, % to GDP

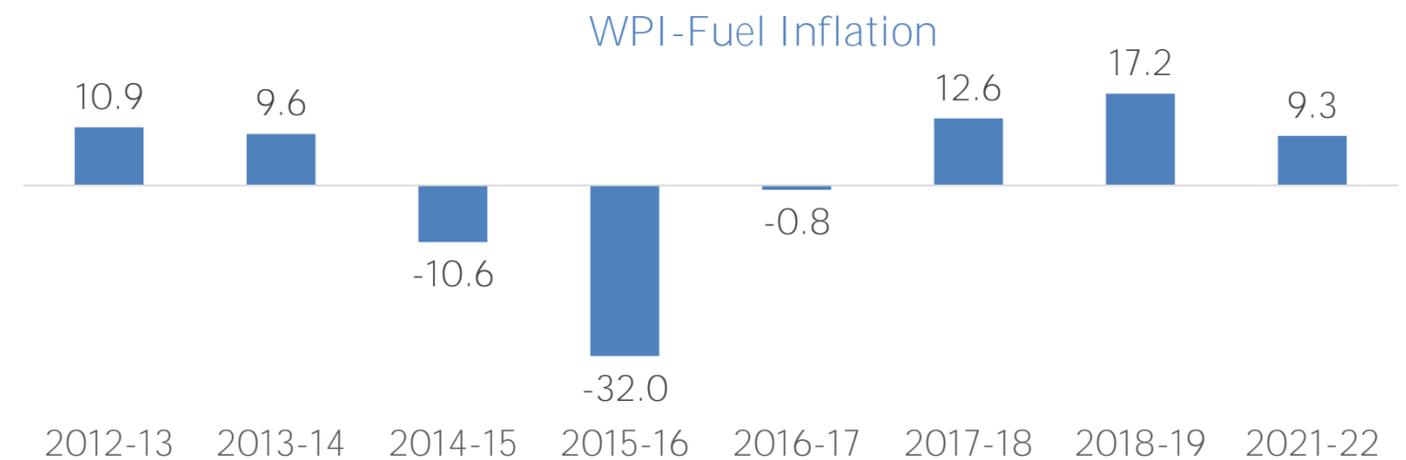
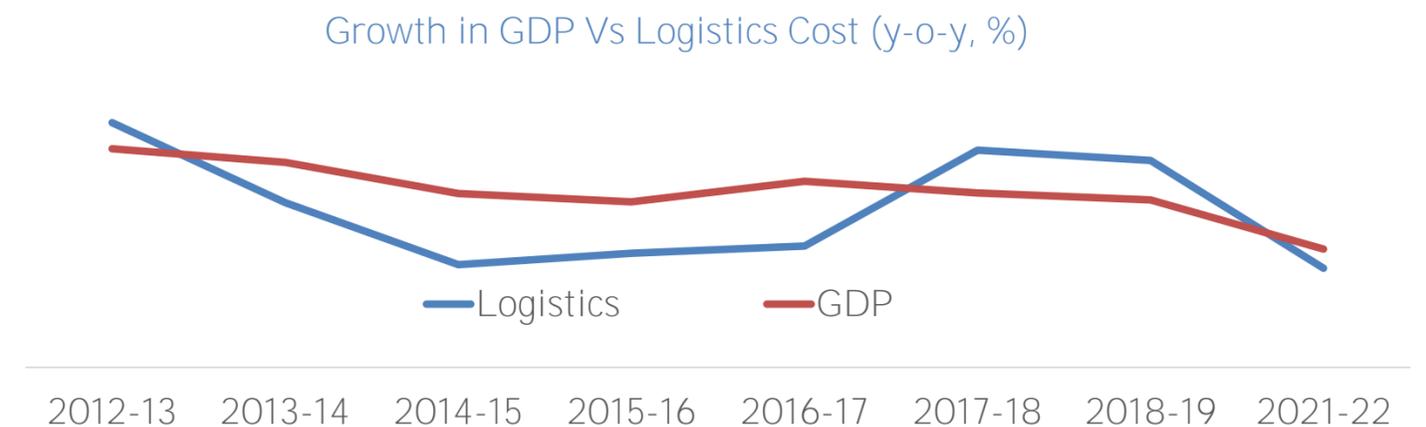


Note: Years 2019-20 and 2020-21, being abnormal years, have been excluded

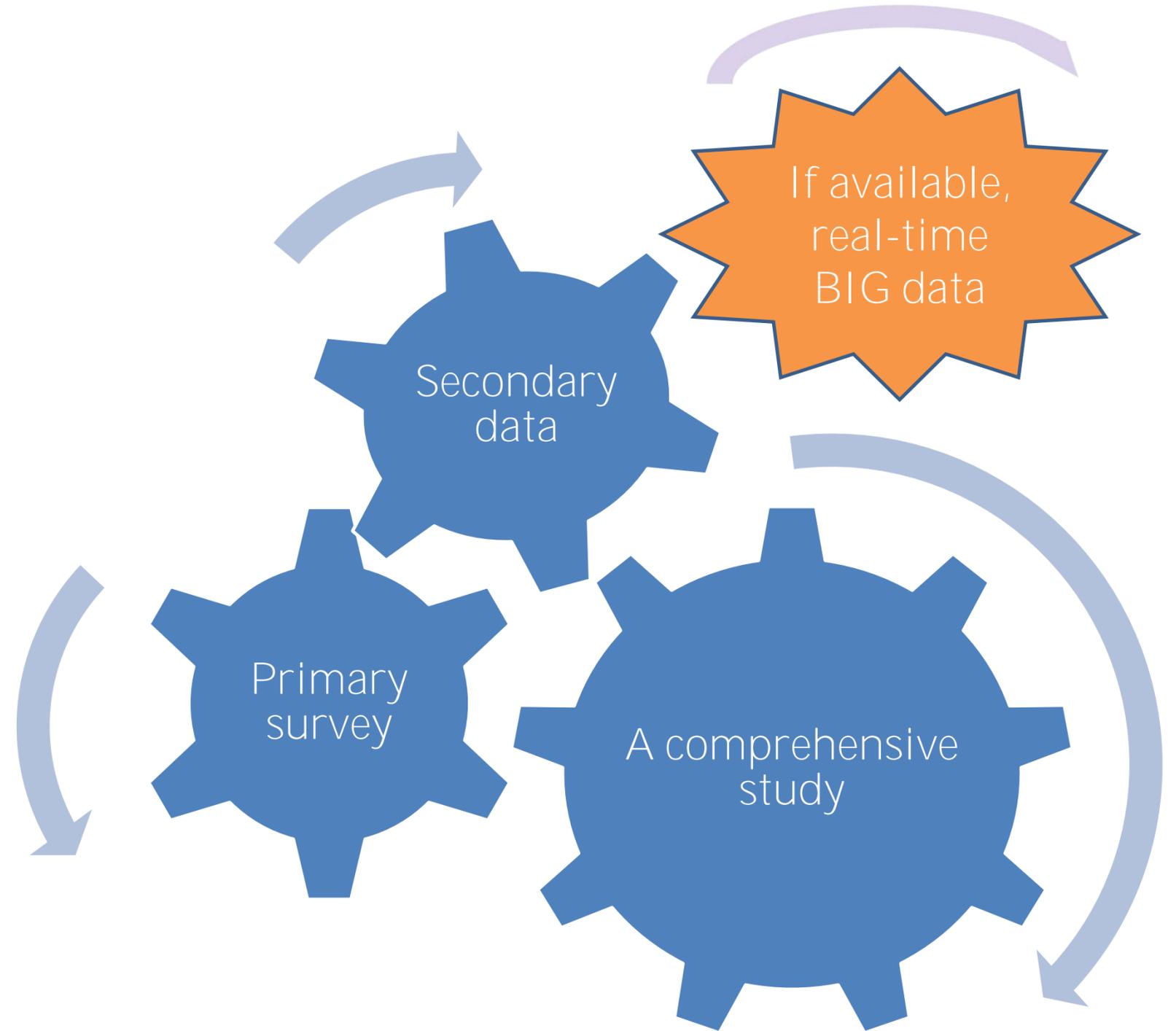
LB = lower bound, UB = upper bound

Dip during 2014-15 to 2016-17 could be due to :

- Faster growth in nominal GDP than in logistics cost
- Fall in fuel prices, as expressed by Wholesale Price Index



# An ideal approach to estimate Logistics cost



# Primary Survey

Gets disaggregated information on:

- costs associated with different product groups, supply chains and geographies within India
- elements of logistics and mode-wise differences
- role they play in driving overall logistics costs
- critical for enabling policymakers to identify priority areas for bringing down logistics costs.

# Primary Survey

However, as primary surveys are:

- Time-consuming
- Expensive
- Difficult to be carried out every year to track the progress of NLP implementation

an interim and tentative assessment has been done using secondary data

# Secondary data

## Benefits:

- Official data through government sources on major components – freight and warehousing
- Cost-effective and takes much lesser time
- Logistics cost can be imputed every year to make tracking of progress possible

## However,

- Estimates of many constituents (other than freight, storage) not available
- Overall logistics cost estimate based on several assumptions
- Can provide limited policy guidance regarding ways to reduce logistics cost at granular level

# Secondary data

- Gets information through government sources on **only Transportation and warehousing costs**
- Estimates of other constituents not available
- Overall logistics cost estimate based on **several assumptions**
- Can provide **limited policy guidance** regarding ways to reduce logistics cost at granular level
- However, logistics cost can be imputed every year to make tracking of progress possible

# Survey Objectives

To understand the time in hours and costs in rupees of transporting cargo across:

- Modes of transport (road, railways, air and waterways);
- Multimodal and transfer cost between modes
- Type of products/cargo moved (containerized versus non-containerized, perishable versus nonperishable);
- Nature of logistics operations, namely, First Party Logistics (1PL) players, 2PL players, and 3PL players.

The survey will assess the following:

- Cargo movement patterns across the country;
- Proportion of the cost of each logistics component in the overall logistics cost;
- Logistics cost per ton per km on each of the logistics routes under consideration;
- Differential in logistics costs across routes, modes, products, types of cargo, and service operations
- Message for Policy intervention at granular level

# Survey Respondents

- Logistics firms (Third Party Logistics, Second Party Logistics, Others)
- Standalone warehouse operators
- End users managing own logistics (First Party Logistics)
- Freight forwarders/clearing agents
- Transporters
- End-users (manufacturing companies as well as standalone importers)
- Port authorities/experts

# Real-time Big Data

The examples of real-time BIG data are:

- **E-way bill data**, believed to be rich and most reliable source of data on freight transport cost
- **FASTag** reveals the speed of the movement of the consignment along the route. The FASTag data can help in identifying the bottleneck (time cost) across various routes

# Approaches to estimate cost of Components of Logistics

| Components   | Approach                     |
|--|------------------------------|
| Transportation   | Supply and Use Tables        |
| Warehousing  | National Accounts Statistics |
| Transportation and warehousing costs associated with various product groups, and supply chains | Primary Survey               |
| Insurance Cost   |                              |
| Postal and Courier Services  |                              |
| Administrative Cost  |                              |
| Transportation costs across different geographies  | E-way bills/GST data/Survey  |
| Time Cost  | FASTag data/Survey           |

**Thank You**