

Analysis of business surveys data for a new estimation methodology of national accounts transport margins

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The definition of the Transport Margins used by EUROSTAT

"The transport margin consists of all transportation costs that are included in the use of products at purchasers' prices but not in the basic prices of a manufacturers' output or in the trade margins of wholesale or retail traders. All other costs of transporting goods are not recorded as transport margins" (Eurostat, 1996)".

Current method to calculate transport margins on transported goods

The present calculation method uses following statistical sources for different transport types:

- *Data published by the national railways;*

these are used to quantify the national transport margin on goods freighted by rail, disaggregated by categories and goods types.

- *Data collected by ISTAT through the sample survey on goods hauled by road;*

these are used to quantify the transport margin on these goods.

- *ISTAT surveys on sea transport;*

these are used to calculate coastal navigation transport margins.

- *Data supplied by marine companies and published by "FINMARE";*

these are utilised in order to determine the average price of coastal navigation transport of goods

New methodology

The new methodology will consist instead in the following steps:

📄 Economic analysis of surveys in relation to transport margins estimation;

📄 data editing, based on an economic and empirical data analysis, and imputation, based on the search of a “donor with least mixed distance”;

📄 Matrix compilation.

Economic analysis of the BAS and SMB surveys for transport margins estimation

The sources to be used for the new methodology include two structural business surveys conducted yearly by ISTAT:

⇒ the exhaustive Survey on the Business Accounting System (BAS), on enterprises with 20 employees and over up to 1997 and with 100 employees and over from 1998;

⇒ the sampling Survey on Small and Middle Business (SMB), on enterprises with 1-19 employees up to 1997 and with 1-99 employees from 1998.

Transport costs that only burden on commodities bought by companies

The items in the questionnaire of the BAS and SMB survey selected are:

- ✓ COMMODITIES TRANSPORT (12203);
- ✓ OTHER TRANSPORTS (12204).


Data analysis and edit specification


☰ According to 1996 BAS survey, 23,484 enterprises out of 30,521 declared transport costs for commodities and for other transports. Commodities transport costs amounted to 27,045 millions of ITL of Italians liras, while costs for other transports were equal to 4,238 millions of ITL.

☰ These values seem to introduce an underestimation of commodities transport costs if compared to currently calculated estimates referring to a set of comparable enterprises.

☰ This would confirm the assumption that the 7,037 enterprises reporting in the questionnaire no transport costs for commodities and for other transports (both items resulted with void values) in fact omitted the real value of these costs.

In order to verify the last assumption following edit rules were defined

 In the first place, all companies belonging to an economic field that does not envisage commodities transport costs due to its nature were excluded.

 In the second place, the consistency of the variables "commodities transport costs", "sale of products manufactured by the company" (11101), and "sale of commodities bought in proper and reselled without transformation" (11102) was analysed for enterprises that declared no costs.

There are different reasons for the missing value for transport costs

- ✓ in the first place, transport costs were integrated in the item "costs for other services", since companies very often do not dispose on information disaggregated by cost type;
- ✓ in the second place, companies did not declare transport costs to third companies because they only sustained transport costs for purchases, which burden directly the purchasing of raw materials without a separate billing;
- ✓ finally, enterprises did not declare transport costs intentionally.

Data imputation

The missing information was reconstructed through an automatic imputation method based on the search of a “donor with least mixed distance”.

The method is based on the concept of nearness among two statistical units and its goal is to select the closest valid unit to the failed edit record, so as to obtain the missing information.

Conclusions

✓ After a first analysis, results showed that the business surveys data editing and imputation method proposed can produce an apparently plausible estimation of transport costs which is consistent with estimates produced through the current method, based on sources that analyse the phenomenon from the supplier side.

✓ The availability of estimates from the demand side, as far as cost items are concerned, should produce, in fact, an exhaustive estimation of costs levels. It is known, in fact, that companies usually answer in a correct way for cost items.



***Thank you
for your attention***