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Base de datos de Transporte Internacional (BTI) - **International transport database**

Since late 1999, ECLAC has maintained an international transport database (BTI) containing statistics on foreign trade and associated transport modes for 11 Latin American countries. Although BTI was originally designed for internal use at ECLAC, it is now in a position to respond to external queries—something we expect to be of interest to FAL Bulletin readers.

BTI was developed by consultant Joachim Fuchsluger, with cooperation from Gastón Rigollet of the ECLAC Statistics and Economic Projections Division. The work was supervised by Jan Hoffmann, of the Transport Unit. At the present time, consultant Gabriel Pérez is in charge of maintaining and updating it. Should you require further information on this edition of the FAL Bulletin or on BTI, please contact Jan Hoffmann and/or Gabriel Pérez, Email: bti@ECLAC.cl.

The possibilities offered by BTI

Research on trade flows and transport modes carried out by international organizations, ministries, academic bodies or private firms, can raise a variety of questions. These include:

Origin and destination: What are the main origin and destination countries or regions for imports and exports of specific products from Latin American countries, measured in thousands of US dollars, or in metric tons? (See example in table 1).

Modal split: Which transport modes are used for the main export and import products, both between Latin American countries and to or from other regions? (Two examples are given in tables 2 and 3).

Products: Which are Latin American countries' leading export and import products, by volume and value, by sea or other transport modes, and from which countries do they come? (See example in table 4).

Transport costs: What is the ratio between imports CIF (Cost, Insurance, Freight) and exports FOB (Free On board) for the different Latin American countries' main import products, by air, sea or land transport? (Example in table 5).

The data stored in BTI makes it possible to answer a wide range of questions of this type. This edition of the FAL Bulletin gives several examples. More detailed information on trade flows and their modal split can be found in "Perfil Marítimo" at the following URL: <http://www.eclac.cl/transporte/perfil/indexe.html>

The database fields include the following:

- Mode of transport by which the merchandise leaves or arrives in the country; nine possibilities are distinguished: maritime, river, lake (these three also known as waterborne), rail, road, air, pipeline, mail and other.
- Product, classified according to the Standard International Trade Classification (SITC), Rev 3, up to the three digit level. The annexes to the maritime profile contain a list of the codes and their descriptions. <http://www.eclac.cl/transporte/perfil/indexe.html>
- Country of origin and final departure (in the case of imports) and country of destination (in the case of export),
- Volume in kg, and
- FOB value of export and imports, and CIF value of imports.

BTI covers the following countries: Argentina, Bolivia (no information on transport mode), Brazil, Chile, Colombia, Ecuador (no information on transport mode), Mexico (no CIF import values), Paraguay, Peru, Uruguay and Venezuela (no CIF import values). Annual data correspond to 1997 and 1998, with figures for 1999 currently being entered. The statistics come from the Foreign Trade Data Bank for Latin America and the Caribbean (BADECEL), maintained by the Statistics and Economic Projections Division of ECLAC. The data represent information processed by each country's national customs service.

Although BTI was originally created for internal use at ECLAC, it is now able to accept external queries, depending on the availability of data and staff time at the Transport Unit. For further information, please contact Gabriel Pérez, BTI@ECLAC.cl, Fax 56-2-2080252.

Origin and destination: the example of Latin American intra- and inter-regional trade

Table 1 exemplifies the type of query that can be submitted to BTI relating to the origin and destination of international merchandise trade.

Table 1. Latin America and the Caribbean; intra- and interregional trade; 1998 (thousands of metric tons)

| Exporting country: | Argentina | Bolivia | Brazil | Chile | Colombia | Ecuador | Mexico | Paraguay | Peru | Uruguay | Venezuela | Africa | Europe | North America | Rest of L. A. and the Caribbean | Asia Pacific | Undeclared |
|---------------------------------|-----------|---------|--------|-------|----------|---------|--------|----------|------|---------|-----------|--------|--------|---------------|---------------------------------|--------------|------------|
| Importing country: | Argentina | Bolivia | Brazil | Chile | Colombia | Ecuador | Mexico | Paraguay | Peru | Uruguay | Venezuela | Africa | Europe | North America | Rest of L. A. and the Caribbean | Asia Pacific | Undeclared |
| Argentina | | 1137 | 10387 | 595 | 479 | 212 | 276 | 679 | 23 | 1147 | 319 | 1044 | 4000 | 2586 | 97 | 1977 | 284 |
| Bolivia | 491 | | 194 | 167 | 22 | 2 | 27 | 2 | 111 | 3 | 46 | 1 | 125 | 268 | 23 | 243 | 2 |
| Brazil | 19225 | 47 | | 1233 | 330 | 62 | 1705 | 1189 | 339 | 1311 | 7712 | 14314 | 12086 | 16854 | 330 | 15400 | 937 |
| Chile | 9277 | 101 | 700 | | 206 | 960 | 1124 | 75 | 542 | 49 | 1510 | 1633 | 1462 | 3511 | 431 | 5533 | 30 |
| Colombia | 665 | 209 | 287 | 307 | | 343 | 608 | 19 | 191 | 81 | 2818 | 116 | 2107 | 5726 | 509 | 653 | 81 |
| Ecuador | 339 | 43 | 123 | 231 | 484 | | 194 | 0 | 130 | 107 | 473 | 412 | 715 | 2198 | 503 | 345 | 19 |
| Mexico | 395 | 5 | 4342 | 681 | 238 | 432 | | 1 | 816 | 12 | 833 | 3071 | 5890 | 87784 | 1186 | 5017 | 338 |
| Paraguay | 115 | 0 | 114 | 8 | 0 | 0 | 2 | | 0 | 10 | 0 | 2 | 15 | 18 | 0 | 45 | 0 |
| Peru | 1379 | 304 | 235 | 402 | 2105 | 2148 | 210 | 90 | | 76 | 2174 | 340 | 969 | 2649 | 251 | 875 | 14 |
| Uruguay | 1035 | 1 | 677 | 103 | 36 | 397 | 20 | 25 | 3 | | 248 | 276 | 604 | 218 | 10 | 232 | 4 |
| Venezuela | 752 | 41 | 453 | 182 | 569 | 32 | 424 | 92 | 69 | 33 | | 166 | 2077 | 5970 | 1580 | 590 | 0 |
| Africa | 5426 | 1 | 6851 | 249 | 42 | 1 | 1019 | 4 | 16 | 73 | 32 | | | | | | |
| Europe | 14622 | 291 | 60048 | 3998 | 19742 | 1249 | 10434 | 1191 | 881 | 613 | 4060 | | | | | | |
| North America | 5758 | 382 | 21401 | 5243 | 29149 | 7143 | 114406 | 279 | 4638 | 61 | 7518 | | | | | | |
| Rest of L. A. and the Caribbean | 955 | 3 | 3104 | 244 | 3085 | 2862 | 5027 | 111 | 213 | 15 | 1668 | | | | | | |
| Asia Pacific | 14903 | 12 | 68470 | 14491 | 584 | 1941 | 4603 | 23 | 4767 | 107 | 538 | | | | | | |
| Undeclared | 247 | 19 | 4571 | 666 | 137 | 345 | 647 | 0 | 172 | 11 | 0 | | | | | | |

Source: BTI (ECLAC). Data reported by importing countries, except for extra-regional exports.

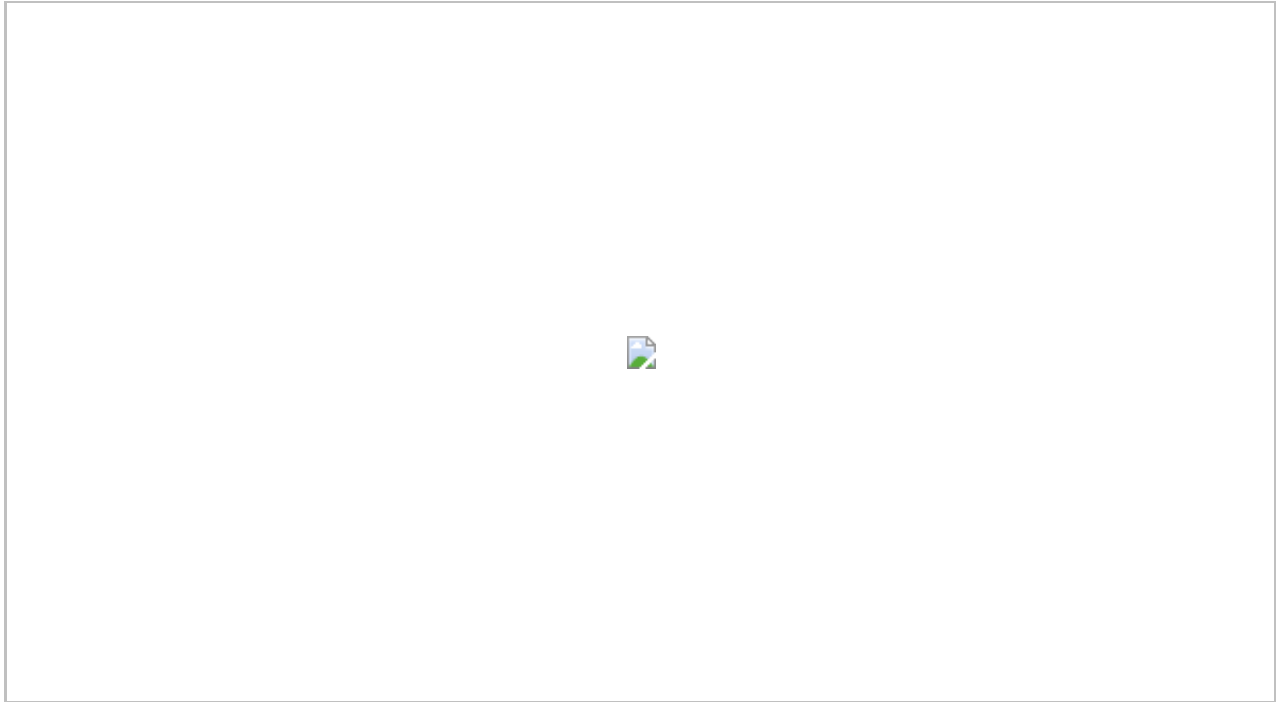
Using BTI, it is possible to generate equivalent tables restricted to a single transport mode or a single product or group of products. These can be generated with values in thousands of US dollars, in metric tons, or in ratios such as the US dollar value per metric ton.

The example in table 1 shows that trade between Brazil and Argentina accounts for 38% (nearly 30 million tons) of a total of 55 intraregional bilateral trade flows (imports and exports) between the 11 countries. Of total external trade of the 11 countries considered, 12% corresponds to reciprocal exchange. Paraguay has the highest relative dependence on any one country, with 35% of its import volume coming from Argentina.

Transport mode: exports and imports from eight Latin American countries

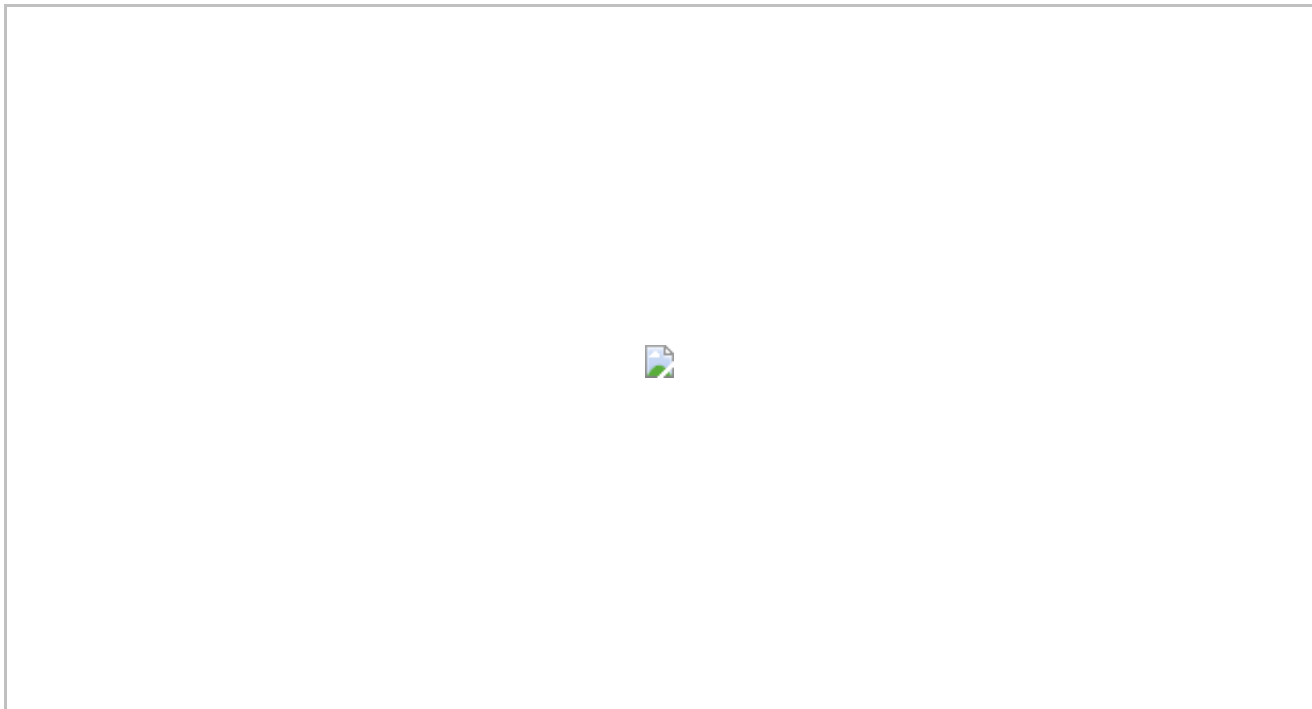
Tables 2 and 3 are examples of queries concerning the transport modes used in each country's international trade.

Table 2. Exports, percentage of each transport mode; 1998 (metric tons)



Source: BTI (ECLAC). Figures indicate the transport mode by which the merchandise leaves the country.

Table 3. Imports, percentage of each transport mode; 1998 (metric tons).



Source: BTI (ECLAC). Figures indicate the transport mode by which the merchandise arrives in the country.

The figures highlight the predominance of maritime transport in both imports and exports. This is mainly explained by dry and liquid bulk cargo trade in products such as minerals, grain and oil. The column "other and not declared" reflects gas exports from Argentina to Chile which is transported by

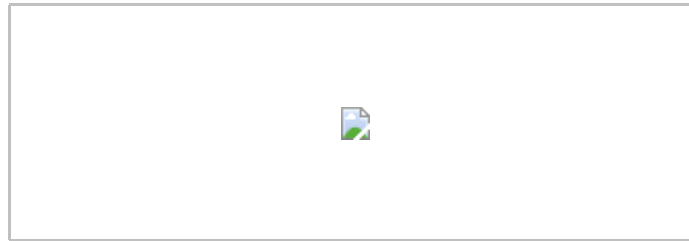
pipeline; for that reason Argentina shows a relatively high percentage in the export column, and Chile a relatively high percentage in imports.

Equivalent tables can be generated by individual product, and by origin or destination.

Products: the example of Argentine grain exports

Table 4 is an example providing a more detailed description of exports of a given product, in this case wheat:

Table 4. Argentina: Exports of unmilled wheat (SITC: 041) to the five leading countries by volume; 1998



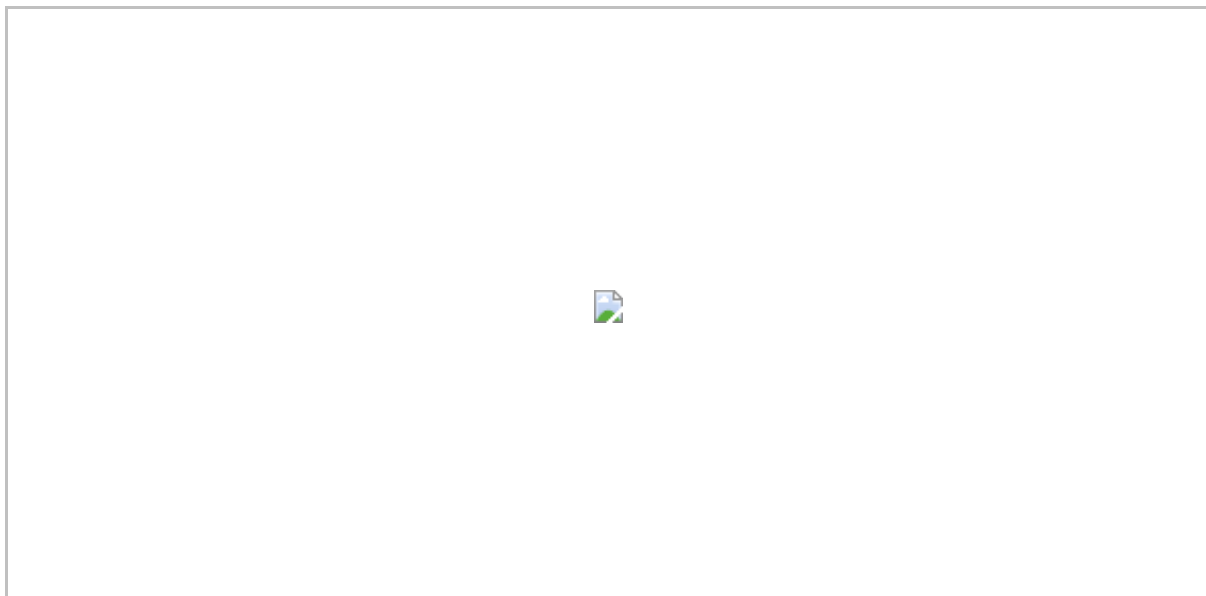
Source: BTI (ECLAC).

This example highlights the predominance of Brazil as the main destination for this product, and maritime transport as the leading transport mode. In other cases, such as rice, a large proportion of exports are carried by road to Brazil and other neighbouring countries. Japan is the leading destination country for soybeans.

Transport costs: the example of imports from Colombia

Table 5 is an example giving details of the CIF and FOB values of Colombia's main import products arriving by sea.

Table 5. Colombia: import volume of the 10 leading products, arriving by sea, 1998



Source: BTI (ECLAC).

The difference between the CIF and FOB value is an indicator of transport costs, since it reflects freight and transport insurance. What does this cost depend on? The main factor determining the difference between the CIF and FOB values is economies of scale. If a large volume of a certain merchandise is imported, larger ships and specialized ports can be used, and discounts can be obtained from carriers. The second factor is the value of the merchandise itself. High-value goods automatically require higher insurance premiums, together with more careful handling and better packaging. In addition, the shipper will probably be willing to pay more for higher frequency and faster service. Table 5 shows that imports of low value per ton bulk cargo, such as grains, or crude and manufactured fertilizers, have a higher transport cost relative to FOB value, but a lower cost per ton. Imports in the "Other products" category, however, include all types of manufacturers and consumer goods, where transport cost is a smaller percentage of value, despite the relatively large difference between the CIF and FOB value per ton.

Difficulties and prospects

BTI is permanently being updated with recent years' figures, and the intention is also to incorporate data from Central American and Caribbean countries. In the long-run we hope reporting countries will also provide data on ports and border crossings.

One problem in all international trade statistics is that figures provided by pairs of countries are not always identical. For example, exports from country A to country B, as registered by A, are nearly always different from the corresponding figures registered by B. There are many reasons for this, including different trading systems (special and general) used for recording transactions (duty-free zones and maquila industry), or the two sides of a transaction are not registered at the same time: for example, a product leaves one country in December but is not recorded in the other country until January the following year. There also may be definition errors, merchandise simply may not arrive at its destination owing to losses, or the destination is altered after the merchandise has left the country in response to changing market conditions. Figures may also be affected by the commercial interests of the importer or exporter in underdeclaring imports and overdeclaring exports. In the vast majority of recorded bilateral trade flows between the 11 BTI countries, the importing country reports lower values and volumes than the exporting country. The exception to this is oil, where there may be motives for not reporting all exports actually made, because of OPEC (Organization of Petroleum Exporting Countries) quotas.

Apart from these inconsistencies, each data field is susceptible to various types of error. The recorded value of the merchandise, together with freight and insurance charges, largely depend on the declaration made by the importer in customs. The volume measured in tons ought to be somewhat more objective, but errors can still arise here in the conversion of units (number of animals, for example) into kilograms. As regards transport modes, any given transaction normally uses several modes, but the records only show how the merchandise arrives in the importing country. The terms CIF and FOB are normally not applied strictly, but simply refer to the declared export value, plus all freight and insurance costs. Lastly, users of foreign trade statistics will always have the problem of interpreting the concepts of "origin" and "departure" country since many products pass through several different countries during the production and distribution process.

Aware of this type of difficulty, the quality of data specific to BTI such as transport modes of departure/arrival in the country, volumes in metric tons, and freight and insurance costs, are of the same quality as those used by traditional international trade statistics, which are limited to merchandise values in US dollars.
