Why don't trade numbers add up?

Discrepancies in tropical timber trade data highlight the continuing need to strengthen capacity for data collection and analysis

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Mis-directed? Tropical timber trade data often show discrepancies between what is reported as exported by a supplying country and that reported as imported by the receiving country. *Photo: A. Sarre*

TRADE statistics published by ITTO and other international organisations often show discrepancies between what is reported as exported by a supplying country and what is reported as imported by the receiving country. The discrepancies appear particularly large in the case of tropical timber products and are apparent in the 'direction of trade' data presented in the ITTO *Annual review and assessment of the world timber situation*.

At its 31st session in November 2001, the International Tropical Timber Council authorised the preparation of case-studies assessing export and import data on tropical timber and timber products in the context of international trade, with a view to improving the accuracy of ITTO's economic and market intelligence.

By September 2004, case-studies for ten countries—Bolivia, Brazil, China, Indonesia, Japan, Malaysia, Papua New Guinea (PNG), Republic of Congo, the UK and the USA—had been completed. These ten countries represent tropical wood exports of US$5.6 billion, or approximately 64% of the ITTO-reported total in 2002, and imports of US$4.8 billion, or 51% of the ITTO-reported total in 2002.

This article summarises the major findings and recommendations of the ten country case-studies. To assist in the summary, the compilers of the case-studies were also requested to complete a short on-line survey, which canvassed their views on a range of issues; responses were received from eight of the ten case-study consultants.

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Sources of trade data used by ITTO

Compiling statistics on global production, trade and consumption of forest products each year is a formidable task. ITTO currently obtains and reports data on imports and exports of wood products from several sources, including: 1) annual responses to the Joint Forest Sector Questionnaire (JQ) administered jointly by the Food and Agriculture Organization of the United Nations (FAO), ITTO, Eurostat and the UN-ECE (United Nations-Economic Commission for Europe) Timber Committee; 2) the COMTRADE database maintained by the United Nations; 3) FAOSTAT and UN-ECE databases; 4) the Global Trade Information Service (GTIS); and 5) other official and unofficial sources. The primary sources of raw trade data are the official customs statistics of individual countries as organised through the Harmonized Tariff Classification System (HS). By international agreement, countries use the same definitions of products down to the HS six-digit level of classification. Beyond this level, more detailed product classifications often vary by country.

Major factors contributing to trade data discrepancies

Compilation of trade statistics

The JQ is a collaboration of country correspondents, each of whom provides a variety of data related to the production, consumption and trade of wood products. The reliability and consistency of the JQ-supplied data vary by country and from year to year; at least three of the case-study consultants cited the lack of consistent preparation and filing of the JQ as contributing to ITTO data discrepancies. In completing the JQ, some countries define tropical sawnwood and plywood using a relatively detailed list of six-, eight- and ten-digit HS codes that exclude all coniferous and temperate hardwood species. Other countries (and ITTO generally) work with more inclusive data at just the six-digit level. Thus, variability in the JQ responses is a source of data discrepancies.

Other aspects of the global data compilation process potentially cause errors or lead to discrepancies. It is impossible to use a single source for tropical timber trade statistics, so analysts rely on various estimating methods. Due to a lack of responses to the JQ, for some countries ITTO relies on the COMTRADE database or the GTIS to derive tropical wood trade flows based on country of origin or HS

codes. The manipulation of these various sources of data potentially results in discrepancies for one or more of three reasons. First, the categories for tropical timber are not always the same in each of the databases (or they may have been recorded incorrectly). Second, the use of varying weight estimates, and conversions between weight and volume, can lead to discrepancies between data derived from different sources. Third, in some cases data from two sources may be blended to produce an import estimate that may vary from the corresponding export statistic or vice versa. For example, the total volumes which ITTO calculated for USA imports of tropical sawnwood in 2001 (356 000 m^3) based on COMTRADE did not match the total volumes reported as imports by the USA in the JQ (277 000 m^3). To reconcile the two figures, ITTO adjusted the COMTRADE-derived volumes by country proportionately to the total volume reported in the JQ.

Inadequate trade data collection systems

The data collection, compilation and reporting systems of customs agencies vary in sophistication. In some countries they are highly automated and integrated: in the USA, for example, the vast majority of transactions is recorded and tracked electronically (less than 1% of USA import transactions is filed manually). The USA system networks all facets of the import/export process.

In contrast, mechanisms to ensure the validity of trade data collection, recording and reporting in many developing countries covered by the reports—including PNG, the Republic of Congo and Indonesia—are much less sophisticated. While all countries require the filing of import and export documents (electronically or by paper), the types of information collected are not necessarily the same (or even similar) across all countries. Thus, the lack of sophistication and consistency of the raw data collection systems produce trade discrepancies.

Classification practices

In the follow-up survey for this synthesis report, misclassification was rated by investigators as the most important contributing factor to data discrepancies. Six of the eight respondents rated misclassification as either very significant or highly significant.

Classification practices differ widely and in many cases do not adequately distinguish tropical from temperate sources. For example, until 2003 Chinese imports of tropical roundwood reported to ITTO apparently also included logs from temperate countries. China has since implemented procedural changes that should correct some of the discrepancies by sorting trade data to the eight-digit level before conveying the data to international organisations. Malaysian roundwood statistics apparently also include some portions of the HS 4401 (chips) and HS 4409 (molding) classifications, and sawnwood includes HS 4406 (railway sleepers). According to the China case-study, inconsistencies in classification practices could account for 3–5% of data discrepancies.

One of the consultants (for the Brazil case-study) noted that the classification of tropical plywood is particularly problematic. Data for plywood laminated with a combination of tropical hardwood and conifer (and/or temperate) species is often classified in incorrect HS codes when recorded officially.

Product measures and conversions

Among the most frequently cited and significant causes of data discrepancies was the use of differing product measures and conversion factors. Documentation in some countries requires that both weight and volume units be recorded for timber products. In others, either weight (kg) or volume (usually m^3 but sometimes m^2 for plywood or veneer) are recorded. Often, conversions from weight to volume are inconsistent; according to the Indonesia case-study, using different conversion factors could explain as much as 8–14% of trade data differences. Conversion factors from weight to cubic volume range from 650 kg/m^3 to 750 kg/m^3. In some cases, part of the export trade is recorded by weight and the other part by volume. For example, while most Indonesian exports of logs and lumber are reported in m^3, some are recorded in kg; Hong Kong reports plywood exports in m^2. In veneer trade, units and conversions for reported volume are perhaps the most variable, with little consistency in practices among countries or agencies.

Differences in log-scaling practices were also cited as a significant cause of trade data differences. Indonesia uses an average-diameter and shortest-length methodology to determine volume. Malaysia employs two standards: one for Sabah and one for Sarawak. The Japan case-study suggested that scaling differences could account for as much as 10% of trade discrepancies with that country's trading partners. Similarly, most roundwood data are collected 'underbark', but at least one reporter noted that roundwood measures were 'overbark'.

Illegal activity and trade data

Illegal behaviour, including smuggling and the intentional misclassification of products or species, was cited in many of the reports as a potential contributor to trade data discrepancies. However, such discrepancies by themselves would not appear to be a reliable indicator that illegal trade or trade in illegal timber products is occurring because too many other factors contribute to the differences in reported exports and imports. Vincent (2004) also found that trade data discrepancies were not reliable indicators of illegal activity: such discrepancies occur even where trade flows are known to be legitimate and legal.

Nevertheless, according to several of the case-studies, misclassification or under-reporting to either disguise trade of illegal products or avoid paying duties is a likely source of trade data discrepancies. By definition, smuggling activities are difficult to monitor or measure and are made more so in the timber trade by the remote nature of some border crossings. Several of the reports also noted that illegal products could be misclassified, mislabelled or trans-shipped to disguise the country of origin, thus making detection through trade statistics difficult. In the follow-up survey, seven of the eight respondents indicated that illegal trade was either somewhat important (5) or very important (2) in explaining data discrepancies.

The Indonesia case-study suggested that smuggling was the most significant factor in explaining discrepancies involving Indonesian trade data. This is supported by the fact that reported Indonesian exports of major forest products are consistently orders of magnitude smaller than trading partner import reports. In some countries there is a clear incentive to under-report or misclassify products in order to circumvent export duties. In Indonesia, for example, the case-study investigators suggested that veneer could be listed as plywood to avoid a 15% export duty. Similarly, green lumber, on which an export duty is normally assessed, may be mixed in a shipment with kiln-dried lumber, for which there is no export duty.

Trans-shipments and triangular trade

Incomplete or fraudulent documentation of trans-shipments contributes to data discrepancies. Some of the problems relate to poor administration and monitoring of export/import documentation and processing; others are the

result of purposeful and fraudulent deceit to move illegal products or avoid levies. Products might be moved through a third country with falsified documentation to take advantage of transport discounts or shipment routes, legalise their production and transport if restricted in the country of origin, or avoid paying royalties or export taxes.

Most Chinese imports of tropical forest products from Indonesia, Malaysia and Thailand are trans-shipped through Hong Kong, and data discrepancies arise from the incorrect specification of origin or destination of shipment. Products are often further processed or re-traded in Hong Kong, confusing the original source. According to the Malaysia case-study, trade data discrepancies between Malaysia and China are significantly reduced when trade through Hong Kong is factored into an analysis. Because of the procedures used in the Netherlands, European trade through Dutch ports was cited in the UK case-study as a potential source of data discrepancies. The USA case-study investigators believed that a data discrepancy in Bolivian/USA sawn timber trade was likely the result of trans-shipments (legal, but poorly tracked) through Chile.

Conclusions

Data discrepancies are not unique to tropical timber trade; they also occur in discrete categories of coniferous forest products, pallet and secondary processed wood products. However, trade data discrepancies involving tropical timber trade are in many cases very large and significant.

In general, import data tend to be more reliable than export data because most countries are more vigilant inspecting and ensuring duty collections on imports. One might expect that countries that impose export-related duties would also monitor exports carefully to ensure payments, but several case-studies noted that significant data discrepancies occur in these cases because of undervaluing or under-reporting exports to circumvent export duties.

The data collection, compilation and reporting systems of customs agencies vary in sophistication. In some cases, data discrepancies are a product of simple data-entry errors, which in turn are a consequence of the sheer volume of transactions, inadequate training and/or carelessness: in some of the trade flows described in the case-studies, discrepancies could be explained by a simple misplacement of decimal places.

Customs and port officials are not well-trained in identifying species or types of specific products. The lack of familiarity with timber species could make it easier for illegally traded CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora)-listed species to pass through export/import inspections.

Product definitions and classifications beyond the six-digit HS level are rarely consistent between countries. Measurement standards and product conversions also vary. Several case-studies highlighted confusing product classifications and differences in log-scaling methods for reporting volume as contributing to observed discrepancies.

The most common factors that result in trade data discrepancies would appear to be misclassification, shipments of mixed product types or species, inconsistent units of measure and conversions, data entry errors and illegal trade (including the avoidance of taxes). Triangular trade and trans-shipments are a significant factor in data discrepancies, particularly with respect to trade through Taiwan Province of China, Hong Kong and Singapore.

Recommendations

Discrepancies in the reporting of the tropical timber trade could be reduced by the implementation of a wide range of measures, some of which are listed below.

Actions for ITTO consideration

1) Provide guidance and/or conduct a workshop on unifying tropical timber product classifications, standard units of measure, log-scaling techniques, and conversions for trade data reporting purposes
2) Consider additional studies (eg to more specifically compare required documentation for forest products' production, transport and trade in ITTO member countries)
3) In preparing data for publication in the *Annual review of the world timber situation*:
   a) to the extent possible, rely on originally sourced country data and avoid multiple manipulations of the same data
   b) where data are made available on-line, consider obtaining data directly from the customs collection organisations in member countries

Actions for ITTO consideration in conjunction with other international organisations

1) Provide guidance to country correspondents to improve consistency in identifying and recording HS classifications for traded tropical timber products (FAO, UNECE)
2) Co-sponsor a workshop to define common routines and procedures for checking and guaranteeing the consistency, integrity and quality of reported data (FAO, UNECE, COMTRADE)
3) Consider working with the World Customs Organization (WCO) to sponsor workshops or provide technical assistance to ITTO countries in the areas of customs collection and enforcement procedures
4) Consider working with the WCO and/or FAO to provide technical assistance in the identification and recording of tropical timber species
5) Consider convening an international expert group to assess the need for changes to HS codes relating to timber products with the goal of making less confusing the separation of tropical timber products from temperate and coniferous products

Recommendations for member countries

1) Ensure more accurate reporting of trade data to ITTO and other international organisations through the consistent administration of the JQ
2) Sponsor reconciliation studies with partner countries where timber products' trade data show large discrepancies and/or sponsor internal audits of customs procedures and data collecting and reporting
3) Consider alternatives to export levies and/or improve enforcement to reduce incentives for misclassifying traded products
4) Where data collection and compilation systems are antiquated or inefficient, increase funding and oversight, provide more training and automate systems.