

Chapter 7

Time-series data for merchandise trade

Mark Gehlhar

7.1 Country and regional definitions

Time-series trade data for bilateral merchandise trade are provided as an extension to the base year data in the version 4 data base. The series cover the years 1965-1995. These series, built at the Global Trade Analysis Project (GTAP) version 4 aggregation level, are included in the CD-ROM GTAP data base that accompanies this document. For the purpose of having consistency in regional aggregates and for individual countries, current national identities are adopted and applied to the historical series. In some cases historical trade data are consistent with current regional definitions and in other cases they are not. For example, the former East and West Germany are now treated as a unified Germany, throughout the entire time-series, and therefore, the reported bilateral trade between the two countries (prior to 1991) is excluded from the series, since this trade would not be considered as 'international trade' using the current single-German definition. Likewise, Vietnam is treated as a single aggregate throughout the time-series. In cases where a new reporting country comes into existence in the later years, data in the earlier years will not represent the new regional definition because the region did not then exist. The GTAP data base treats the Former Soviet Union (FSU) as an aggregate of the 15 individual republics. Prior to 1992, intra-FSU trade was not relevant and the data were not available. Starting from 1992, however, all individual FSU countries are treated as separate reporting and partner countries in the United Nations trade system, therefore, the issue of intra-FSU trade became relevant. But even after 1992, the reported trade between the

member countries of the FSU would still not represent intra-FSU trade. This is because the date of commencement for reporting trade statistics by individual countries varies. By way of example, Lithuania began reporting in 1992, while the Republic of Moldova started reporting in 1994, Kyrgyzstan in 1995, and Russia's trade is still not yet compiled in the United Nations data base. A similar problem exists for the Central and Eastern European countries. Intra-trade flows between the countries of Bosnia, the Czech Republic, Slovakia, Croatia, Slovenia, and the newly defined Yugoslavia are not reported until after 1993. Similarly, a complete representation of the intra-trade flows for South Asia is not possible because prior to 1972, Pakistan and Bangladesh did not exist as separate nation states.

7.2 *Hong Kong re-exports*

In order to make the time-series data consistent with base year data, Hong Kong re-exports are converted to a direct-trade basis. General imports are also converted to retained imports for all historical years in the time-series data base. This is done using the procedures described in chapter 11A. Country of origin for Hong Kong's re-exports is not available across time. Hong Kong, however, does report the origin of its general imports and the destination of its re-exports, separately from the destinations of the national exports. To convert time-series re-exports to a direct trade basis, re-exports by destination are apportioned across the same set of exporting countries 'to Hong Kong'. This is done by using the reported general import flows to calculate the source-shares by individual sectors. The same sectoral-bilateral re-export margins which were used to construct the base year (1995) data are then applied to all the years in the time-series data. Retained imports are calculated by subtracting the re-export flows, adjusted for the margins, from the general import flows. In cases where retained import flows became negative after the subtraction, they were set to zero. Because the time-series data do not include trade in services, the value-added from Hong Kong's re-export margin is not accounted for in the time-series data.

7.3 *Reconciling bilateral time-series*

Time-series trade data are reconciled in a manner similar to the one used to reconcile trade data in the base year, and that is described in chapter 11A. All trade flows in the time-series data base are valued at *f.o.b* prices. As pointed out earlier, the quality of the data can vary from year to year. The change in quality has partly to do with fluctuations in the share of trade that is reported as 'unclassified'. Some countries are better reporters in the earlier years while others are better reporters in the latter years. Because the quality of the reported data by individual countries can

change from year to year, it is important to calculate reliability indexes on an annual basis. This would mean that, for a given trade flow, the chosen (reliable) reporter could be the exporter for some years, and the importer for other years. This will be dictated by the value of the reliability index which obviously can change over time for each reporter.

7.4 *Commodity classifications and time-series*

Most countries currently report their trade based on the Harmonized System (HS) of international trade classification. Construction of a global time-series data base, however, cannot be based on the HS classification because many countries have only recently adopted this system. To prepare a time-series data base, the trade data must first be converted from the HS to the Standard International Trade Classification (SITC) system. Since 1965, there have been 3 revisions of the SITC system. Concordances are established to link the GTAP sectoral classification with the HS and the SITC revisions. To extend the time-series data base over a 30-year period, some compromises had to be made. One important compromise occurs in the fisheries sector where the early SITC revision did not have basic headings that would permit a break-out of fresh fish from fresh fillets or frozen fish. In GTAP, processed fish including frozen and fillets are assigned to 'other food products'. This does not present a problem for the base year data because the SITC revision 3 provides adequate details for these items. But for the time-series data, it was necessary to derive the level of trade in fisheries, by calculating the share of fresh fish in total fish, on a bilateral basis. The share was calculated for the earliest 3-years when data were available. This was then used to derive the level of bilateral fisheries trade, back to 1967.