

Chapter 3

What's New in GTAP 9?

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The GTAP 9 Data Base is the ninth major public release of the GTAP Data Base since the Project began in 1992. A GTAP Data Base cycle typically begins with updating of the data base to a new reference year. For the second time in the history of GTAP Data Base, we have more than one reference years: 2004, 2007 and 2011 for version 9. The domestic data bases or input-output (I-O) tables are combined with international datasets on macroeconomic aggregates, bilateral trade, energy, agricultural input-output, and protection for the new reference years. Interim releases of the data base are constructed as significant updated datasets become available. Improvements are also made in data sourcing, scope, and construction procedures. Part III of this volume provides detailed information on the sources and procedures employed in the construction of the GTAP 9 Data Base. This chapter provides a summary of the changes that have been made since the GTAP 8 Data Base. Table 3.1 provides a quick comparison of the GTAP Data Base versions 8 and 9.

3.1 Domestic Data

3.1.1 New Regions

The disaggregation of each regional economy to 57 sectors remains the same in the GTAP 6, 7 and 8 Data Bases. A total of six new primary regions have been added to the GTAP 9 Data Base since GTAP 8.1 bringing the total to 140 regions. In GTAP 8.1, five new regions were added bringing the total to 134 from 129 in GTAP 8. Primary regions are the countries for which we have national input-output tables. Composite regions are geographical-region-based combinations of countries with no contributed IO tables. Following are the eleven new primary regions in GTAP 9 Data Base, compared to GTAP 8 Data Base: Benin, Burkina Faso, Guinea, Togo and Rwanda (new in GTAP 8.1); Brunei Darassalam, Jordan, Dominican Republic, Jamaica, Trinidad and Tobago and Puerto Rico (new in version 9).

In the GTAP Data Base, we collect a lot of non-I-O information at country-level. In the earlier releases prior to version 8, we had 226 standard GTAP countries, which were mapped to different numbers of GTAP regions (113 in version 7, for example). In GTAP 8 Data Base, we decided to include all the countries which have an ISO code and which existed in the reference years of the data base. We have 244 standard GTAP countries instead of the older 226 countries. A detailed listing of the 140 GTAP 9 regions and their country composition is available in Chapter 2.

3.1.2 Updated Regions

Aside from introducing new regions, updated input-output tables for regions that are already in the data base were also incorporated in the GTAP 9 Data Base. Since version 8, 19 more recent input-output tables have been incorporated for Australia, Belarus, Brazil, Colombia, China, India, Japan, Korea, Nigeria, Malawi, Mozambique, New Zealand, Norway, Pakistan, Paraguay, Senegal, Tanzania, Turkey and Zambia. Among these, Australia, Korea, New Zealand, Norway, Pakistan, Paraguay, Senegal and Turkey were updated in version 9, while others were updated in version 8.1.

3.1.3 Agricultural Production Targeting

The input-output tables of several countries, especially the OECD members, are pre-adjusted to match 2004, 2007 and 2011 agricultural production statistics by sector. This was done initially for the EU countries to more accurately reflect the shares of each member to total agricultural production in the EU and to more accurately reflect domestic support payments. The 2004, 2007 and 2011 agricultural production targets for the EU were contributed by the EU-IPTS team in Seville. The I-O tables for the EU27, Australia, New Zealand, Japan, Korea, USA, Canada, Mexico, Switzerland, Turkey and Norway are now pre-adjusted to match 2004, 2007 and 2011 agricultural production data. OECD supplied GTAP with the agricultural production targets for the non-EU27 OECD countries as well as some non-OECD countries (Brazil, China, Indonesia, Kazakhstan, Russia, Ukraine, South Africa, Israel and Chile). Agricultural production targeting is documented in the detailed documentation available online.

3.2 International Datasets: Sources and Procedure Changes

3.2.1 Macroeconomic Data

Macroeconomic aggregates (GDP, private consumption, government consumption, and investment) are used in updating the input-output tables to common reference years 2004, 2007 and 2011. The primary source of macroeconomic data used in the GTAP 9 Data Base is the World Bank.

3.2.2 Trade Data

As in previous versions of the GTAP Data Base, reconciled bilateral merchandise trade data, based on data from COMTRADE, was contributed by Mark Gehlhar of ERS/USDA. Documentation on the reconciliation procedure is given in the online detailed version. Significant improvements that had been made to the bilateral services trade data in GTAP 7 as a result of the efforts of Nico van Leeuwen and Arjan Lejour from the CPB, have been further carried forward to GTAP 9 Data Base, for 2004, 2007 and 2011. In the past bilateral services trade has been estimated based on data obtained from the IMF. Since the GTAP 7 Data Base, bilateral data on services trade was obtained for the OECD countries and this is now combined with the IMF data to significantly improve the quality of the estimated bilateral services trade data.

3.2.3 *Protection Data*

Domestic Support

Domestic support data for 2004, 2007 and 2011 from the OECD PSE/CSE database are incorporated in the GTAP 8 Data Base. In the GTAP Data Base releases prior to version 7, we had been using activity-specific domestic support payment data to calculate the powers of support for each sector. Hsin Huang (OECD) provided us a new format of data for five domestic support categories for the OECD countries - output subsidies, input subsidies, land-based payments, labor-based payments and capital-based payments. This data gives us the breakup of activity-specific, group-generic and activity-generic payments. IPTS provided this data for 2011. Hans Jensen (FOI) provided this data for all the EU-27 countries in 2007 and EU-25 countries in 2004.

Domestic support data are now available for the following OECD countries: Australia, Canada, European Union (EU27), Iceland, Japan, Korea, Mexico, Norway, Switzerland, Turkey, and the United States. The non-OECD member economies covered in the domestic support dataset for all three years are: Brazil, China, Indonesia, Kazakhstan, Russia, Ukraine, South Africa, Israel and Chile. One significant improvement in the domestic support dataset is that for all countries except the EU-27, the data sources (OECD) as well as country coverage are identical for all the three reference years.

Agricultural Export Subsidies

Agricultural export subsidy data for 2004, calculated from country notifications to the WTO and “Financial report on the European Agricultural Guidance and Guarantee Fund”, was contributed by Aziz Elbehri of the Food and Agriculture Organization of the United Nations (FAO), with inputs from David Laborde (IFPRI) and Hans Jensen. Agricultural export subsidies are identified for the year 2004 for Canada, Switzerland and the European Union. Data is still for 2003 for Panama and Israel, for 2002 for United States, Tunisia and Morocco, and for 2001 for Norway. We continue to use a common agricultural export subsidy rate for the EU member countries.

For 2007, David Laborde contributed a much richer export subsidy data, based on a bilateral and disaggregated-sector-level monthly export subsidy and bilateral trade dataset, for 36 exporting countries, 15 GTAP sectors (in agriculture and manufacturing) and 230 importing countries. However, this has not been updated for 2011 in GTAP 9 Data Base.

MFA Export Tax Equivalents

Estimates of the export tax equivalent (ETE) of the export quotas on textiles and clothing (wearing apparel) exports under the Agreement on Textiles and Clothing (ATC) were provided by Joseph Francois and Julia Wörz. For Canada and the EU15, the ETE estimates are for 2003 and for the USA, the ETE estimates are for 2004. For 2007, all of these ETE's are zero, given the phasing out of MFA quotas, but quotas on Chinese exports remain in US, Canada and EU. We extrapolated ETEs from 2004 data to 2007 for China, based on the extent to which the quotas for Chinese exports were allowed to grow in each of these countries.

Import Tariffs

Unlike in the past, we obtained the tariff data in GTAP Data Base directly from the [ITC](#) MAcMap data base, which is compiled from primary national customs information, for 2007 and 2011. Its documentation is available from chapter 10.D of this book. For 2004, we continue to use the dataset contributed for version 7 by David Laborde through the joint efforts of ITC and CEPII.

3.2.4 Energy Data

For version 9, the IEA energy volume, taxes and prices data has been incorporated for the years 2004, 2007 and 2011.

3.2.5 Behavioral Parameters

The GTAP Data Base includes a parameters file that consists of the various behavioral parameters used in the standard GTAP Model. Armington elasticities and Trade elasticities in GTAP 9 Data Base are the same as those in version 8. As in the GTAP 8 Data Base, CDE (Constant Difference Elasticity) parameters were calibrated from expenditure elasticities that are calculated using parameters from the AIDADS model estimated using GTAP data, as reported in Reimer and Hertel (2004).

3.2.6 Other Features

As mentioned in chapter 2, we have five labor categories in this version of the data base. Estimates of income taxes and factor taxes (payroll, land, etc.) based on data from the IMF Government Financial Statistics, assembled by Jan Hagemeyer and Robert McDougall, were incorporated into the GTAP 9 Data Base, as in the previous version. Population data, in millions, is reported in the global flows data file (header POP). This may be useful for use in post-simulation calculations. Population data is not read in by the current standard version of the GTAP Model file (GTAP.TAB). Reconciled bilateral time series trade data for 1995 to 2013 from Mark Gehlhar (ERS/USDA) have been incorporated into the time series trade data, separately from the standard data base, unlike in the past, wherein they were all together in a single package.

Table 3.1: Comparison of features in GTAP 7.1, 8 and 9 Data Base releases

	GTAP 7.1	GTAP 8	GTAP 9
Reference year	2004	2004, 2007	2004, 2007, 2011
No. of Sectors	57	57	57
No. of Regions	112	129	140
New Primary Regions	14 since Version 6	16 since version 7.1	11 since version 8
Updated I-O Tables	29 since Version 7	15 since version 7.1	19 since version 8
Regional Classification	Composite regions changed in Version 7: 2 eliminated and 4 created.	New Classification, with 244 GTAP countries	New Classification, with 244 GTAP countries
Macroeconomic Data	2004, using World Bank Data; EU: Eurostat	2004 & 2007: World Bank & other sources	2004, 2007 & 2011: World Bank & other sources
Govt. Consumption	2004, using World Bank Data; EU: Eurostat	2004 & 2007: World Bank & other sources	2004, 2007 & 2011: World Bank & other sources
Trade Data	2004, COMTRADE through ERS, USDA	2004 & 2007, COMTRADE, by Mark Gehlhar	2004, 2007 & 2011 COMTRADE, by Mark Gehlhar
Domestic Support	2004, New OECD dataset and different methodology.	2004 & 2007: OECD, revised	2004, 2007 & 2011: OECD
Export Subsidies	2004 or the latest available	2007: New Data from Laborde; 2004: No Change	No Change
MFA Export Tax Equivalent	2004, Francois and Wörz	No Change	No Change
Agricultural Tariffs	2004, ITC-CEPII MacMAP	2004: No Change; 2007: MacMAPv3 from ITC/CEPII	2004: No Change; 2007, 2011: ITC MacMAP
Merchandise Tariffs	2004, ITC-CEPII MacMAP	2004: No Change; 2007: MacMAPv3 from ITC/CEPII	2004: No Change; 2007, 2011: ITC MacMAP
Energy Data	2000 energy prices data updated to 2001 using price indices; 2004 IEA energy volume data	2004 & 2007 IEA energy price & volumes data	2004, 2007 & 2011 IEA energy price & volumes data
Agricultural Factor Split	Updated using new literature	No Change	No Change
Income & Factor Taxes	No change	No Change	No Change
Demand Elasticities	Updated using 2004 GTAP Data	Update: 2004/2007 GTAP dataset	Updated: 2004/07/11 GTAP dataset
Trade Elasticities	No change	No Change	No Change
Population Data	2004, using World Bank Data	2004 & 2007, using World Bank Data	2004, 2007 & 2011 using World Bank Data
Time Series Trade	Extended to 2006 using new data for 1992-2006, by Mark Gehlhar	New data from 1995-2009 by Mark Gehlhar	New data from 1995-2013 by Mark Gehlhar