

## National Accounts in PWT8.0

### Sources

The main source of National Accounts data in PWT8.0 is the United Nations Main Aggregates Database (see <http://unstats.un.org/unsd/snaama/Introduction.asp>). This is unchanged from PWT7.1 and other recent versions. In version 8.0, we use the database release of December 2011, which covers the period 1970-2010 for most countries.<sup>1</sup> Since revisions to these data can often be substantial, we also provide a version of the National Accounts data based on the release of December 2010.

For most countries, we are able to provide data going back further, including 54 countries for which we have National Accounts data back to 1950 and another 55 countries with data starting after 1950 but before 1970. These data are mostly based on two sources; the exceptions are discussed below. The first source is the UN National Accounts Official Country Database. These data are often based on earlier versions of the System of National Accounts and/or expenditure classification schemes. We always use the most 'modern' version of the data that is available and extrapolate using growth rates at current and at constant prices. These series are used to extrapolate backwards from the 1970 Main Aggregates data. In case data from the first source is not available, we use the National Accounts data underlying version 7.1, again extrapolating backwards from the 1970 Main Aggregates data using growth rates at current and at constant prices.

There are a few exceptions to this:

- *China*: there is considerable academic uncertainty about the growth of China, with some arguing that official statistics get it broadly right (Holz, 2006) and others arguing that official statistics systematically overstate growth (Maddison 2006; Maddison and Wu, 2008). We find the 'overstatement' argument convincing and construct alternative National Accounts series based on data from Harry Wu. He has a long track record in constructing alternative GDP estimates for China, most recently described in Wu (2011) and he has provided us with an alternative series for GDP at constant prices and an alternative price deflator for gross fixed capital formation. We assume that all official values at current prices are correct, to maintain internal consistency of the accounts, and we assume that exports and imports at constant prices are also correct. We adjust the constant prices data for household and government consumption, the change in inventories and valuables and the statistical discrepancy (China's official GDP and Harry Wu's numbers are built up from the production side; the statistical discrepancy is the difference between GDP and the sum of final expenditure). In our adjustments, we follow the official statistical approach of using a fixed-weight Laspeyres index, under which the expenditures at constant prices can simply be summed to get to overall GDP.

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<sup>1</sup> Countries that were part of the Soviet Union, Czechoslovakia or Yugoslavia have data since 1990; Yemen has data since 1989.

- *Ethiopia*: data for the period 1970-1990 are based on the growth rates for the former territory of Ethiopia (i.e. including Eritrea).
- *Germany*: recent editions of PWT have not provided data for Germany back to 1950, thanks to the split of West and East Germany. For PWT8.0, we follow current practice of using growth rates for West Germany to proxy for growth rates of unified Germany. Total GDP at current and constant prices is taken the Long Time Series National Accounts publication of Statistics Germany ([www.destatis.de](http://www.destatis.de)). For the distinction by expenditure category, we use data from PWT5.6, the last with information for West Germany, covering the period since 1950. To separately distinguish exports and imports from the overall openness given in PWT5.6, we use historical Comtrade series on merchandise imports and exports.
- *Netherlands and United States*: for these two countries, more recent versions of National Accounts for the period 1950-1969 were downloaded from the websites of Statistics Netherlands (<http://statline.cbs.nl>) and the Bureau of Economic Analysis ([www.bea.gov](http://www.bea.gov)).
- *Sudan*: National Accounts data for 2011 (after the separation of South Sudan) are not available, except for an estimate of overall GDP growth of 4.7%. This growth rate is applied to all GDP subcomponents.
- *Swaziland*: from 2003 onwards, the most recent vintage of UN National Accounts data shows negative investment in most of the years. The National Accounts data from the World Bank's World Development Indicators did not have this problem, so those series are used instead.

### National Accounts variables

Our basic National Accounts data covers a number of expenditure categories. These categories follow the definitions of the System of National Accounts (SNA), see <http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf> for the most recent detailed documentation.<sup>2</sup> Our data cover the following expenditure categories:

**GDP**: gross domestic product

**C**: household final consumption expenditure;

**I**: gross capital formation;

**G**: general government final consumption expenditure;

**X**: exports;

**M**: imports;

**R**: residual.

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<sup>2</sup> Only few countries currently follow the rules laid out in SNA 2008; most still follow SNA 1993 and some even follow SNA 1968. More details on this can be found in the UN National Accounts Official Country Data, where a variable code indicates which System is used for the figure shown for a particular year.

## GDP growth

We also include a variable  $q\_gdp$ , which is GDP at constant national prices. This variable is particularly suited for computing GDP growth, as it only reflect national prices and does not aim to be comparable in levels across countries. This variable is drawn directly from the UN National Accounts data.

## Trade variables and statistical discrepancies

For exports and imports we confront the National Accounts data on exports and imports of goods and services with merchandise export and import data from Comtrade. We distinguish two cases:

1. Merchandise exports < Exports of goods and services AND Merchandise imports < Imports of goods and services
2. Merchandise exports  $\geq$  exports of goods and services OR Merchandise imports  $\geq$  imports of goods and services

In case 1, **X** refers to merchandise exports and **M** refers to merchandise imports. Other trade, including trade in services is moved to the residual category **R**. In case 2, **X** refers to exports of goods and services and **M** refers to imports of goods and services. Residual category **R** includes no trade.

The residual category also includes any statistical discrepancy. For example, in India, GDP from income side is considered more reliable than the output or production-side estimates. This leads to a difference between **GDP** on the one hand and  $C+I+G+X-M$  on the other hand.<sup>3</sup> This difference is also moved to the residual category **R**, to ensure our expenditure-side accounting adds up to **GDP** from the National Accounts.

## References

- Holz, Carsten A. (2006), "China's Reform Period Economic Growth: How Reliable Are Angus Maddison's Estimates?" *Review of Income and Wealth* 52(1): 85-119.
- Maddison, Angus (2006), "Do Official Statistics Exaggerate China's GDP Growth? A Reply to Carsten Holz" *Review of Income and Wealth* 51(1): 121-126.
- Maddison, Angus and Harry X. Wu (2008), "Measuring China's Economic Performance" *World Economics* 9(2): 13-44.
- Wu, Harry X. (2011), "The Real Growth of Chinese Industry Debate Revisited - Reconstructing China's Industrial GDP in 1949-2008", *The Economic Review*, Institute of Economic Research, Hitotsubashi University 62(3): 209-224.

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<sup>3</sup> Assuming **X** and **M** for India refer to exports and imports of goods and services.