Change notes – The Conference Board Total Economy Database™, November 2016

New and improved investment data, in particular for ICT assets

- The most important improvement in the November 2016 edition of the Total Economy Database are new and improved underlying investment data, and in particular investment in Information and Communication Technology (ICT) assets. See Erumban Inklaar and de Vries (forthcoming 2017) for more information.

Adjustment to ICT investment and GDP growth rates to account for rapid declines in the prices of ICT goods

- The November 2016 edition of the Total Economy Database consists of two versions, both of which use the same underlying investment data but differ in the set of prices used to deflate ICT investments.
    1. **TCB Original**: This version uses official ICT investment prices, whenever available, and harmonized US ICT deflators for the other countries. This version represents the most continuity with the previous TED versions, except that it uses new and improved (official) data on ICT prices whenever available, whereas in previous versions harmonized US deflators were used for all other countries.
    2. **TCB Adjusted**: This is our preferred version and uses alternative ICT investment prices for the US, and harmonized US ICT deflators for the other countries. These alternative ICT prices suggest faster declines compared to official ICT prices provided by the US Bureau of Economic Analysis. See Byrne and Corrado (2016a, 2016b) for more info on the construction of the alternative ICT prices. It is also used in our underlying calculations for the Global Economic Outlook 2017. The following four variables (and their derivative variables) are affected by the use of alternative ICT prices:
        i. *GDP growth:* As we account for the rapid declines in ICT prices, its impact is also reflected in a decline in the price of aggregate GDP in economies which produce or export ICT goods. Therefore, GDP growth is revised upward for 10 countries with significant ICT production and trade, including Singapore, Malaysia, Philippines, Ireland, Taiwan, South Korea, Japan, United States, Canada and China. See Erumban and de Vries (2016) for more information on this adjustment. Real GDP in the above-mentioned countries are obtained using this adjusted GDP deflator, and the resulting GDP growth rates are higher than the official GDP growth rates (see the table below for a comparison).
        ii. *The growth of capital:* Since the ICT assets are now deflated using prices that show faster declines compared to official data, the growth rate of ICT capital, and consequently aggregate capital, are generally higher in this version. As a consequence, the contribution of capital to GDP growth is larger.

**Total Factor Productivity (TFP) growth:* As TFP growth is calculated as a residual in the growth accounting equation, it reflects the changes made to the capital contribution for all countries and GDP growth for a number of countries. In general, TFP growth in the adjusted version is somewhat lower compared to the original version.

iii. *Real GDP levels:* Obviously, the GDP levels in this version differ from those of the original version for the 10 countries listed above, due to the ICT price adjustment. GDP levels expressed in PPPs in other countries also differ from the original version, even though their GDP growth rates do not. This is because country specific PPPs are updated to 2015 prices, using the change in the country specific GDP deflator relative to the US GDP deflator, and the latter is now different due to the use of alternative ICT prices (see 2.i).

Table 1: Comparison of official GDP growth rates and adjusted GDP growth rates

Country	*Version*	1995-2000	2001-2006	2007-2013	2014	2015
Canada	Adjusted	4.5	3.4	2.0	3.1	1.4
	Original	3.8	2.6	1.5	2.4	1.0
China (Alternative)	Adjusted	6.6	9.8	8.7	6.2	4.2
	Original	6.3	9.2	7.6	5.6	3.8
China (Official)	Adjusted	9.3	10.6	10.5	7.6	7.3
	Original	9.0	10.2	9.8	7.3	6.9
Ireland	Adjusted	12.6	7.6	0.6	5.7	8.5
	Original	10.0	5.4	0.3	5.2	7.8
Japan	Adjusted	1.8	1.6	0.6	0.2	1.0
	Original	1.0	1.3	0.4	0.0	0.6
Malaysia	Adjusted	8.9	8.0	6.5	7.0	7.2
	Original	5.6	4.9	4.6	6.0	5.0
Philippines	Adjusted	5.7	6.2	6.1	6.8	7.2
	Original	3.8	4.7	5.3	6.1	5.9
Singapore	Adjusted	12.2	11.3	9.2	4.5	6.8
	Original	5.9	5.5	5.5	2.9	2.0
South Korea	Adjusted	7.7	6.3	4.6	4.2	4.6
	Original	6.0	4.8	3.5	3.3	2.6
Taiwan	Adjusted	7.0	5.1	4.1	4.1	1.1
	Original	5.4	3.9	3.4	3.8	0.7
United States	Adjusted	4.5	2.9	1.1	2.6	2.8
	Original	4.0	2.6	0.9	2.4	2.6

Notes: Growth rates are presented as percent changes; The adjusted growth rates correspond to the Total Economy Database (Adjusted version) and the original growth rates correspond to the Total Economy Database (Original version); Chinese data is presented in two series, 'China (Alternative)' and 'China (Official)'. The latter is based on official data, while 'China (Alternative)' is from Wu (2014), revised and updated.
Source: The Conference Board Total Economy Database.

Change in the country coverage

- Countries that no longer exist, including Czechoslovakia, East Germany, West Germany, the USSR and Yugoslavia are removed from the dataset, but remain available from old TED data sets upon request.
- Both Total Economy Database sets ('Output, Labor and Labor Productivity' (TED I) and 'Growth Accounting and Total Factor Productivity' (TED II)) now have the same country coverage, including 124 countries (including two versions for China).

Change in the variable coverage

- The GDP GK series expressed in 1990 prices and its derivative variables, such as per capita income and labor productivity, are removed from the file 'Output, Labor and Labor Productivity'. This helps avoid confusion among users with data based on updated PPPs (EKS). This data, however, which is continued to be used as the PPP version in the historical Maddison Project Database, add is available upon request.

Change in 2016 GDP growth

- 2016 GDP growth rates for 65 countries included in The Conference Board Global Economic Outlook 2017 are revised.

Better presentation of data

- The excel files containing the TED data have been organized differently, to make it more user-friendly. In the past each variable was provided in a separate worksheet. In the current version, all indicators are provided in one single sheet, with the excel filter option allowing users for a personal selection of indicators and / or countries.

Reference list

Byrne, D. and C. Corrado (2016a), ICT prices and ICT services: What do they tell us about productivity and technology, The Conference Board Economics Program Working Paper Series, EPWP #16 – 05. https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=7214

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Erumban, A.A, R.C. Inklaar and K. de Vries (2017), "Global Growth Accounting: The Role of Shifting Investment Patterns", In Das, D.K. (eds) 'Essays for K.L.Krishna', forthcoming.

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Wu, H. (2014) "China's Growth and Productivity Performance Debate Revisited – Accounting for China's Sources of Growth with a New Data Set", The Conference Board Working Paper Series, EPWP #14 – 01. https://www.conference-board.org/publications/publicationdetail.cfm?publicationid=2690