

PENN WORLD TABLE

Real GDP data (NIPAs) for one country

Compare \$ GDP₁₉₈₀ \$ GDP₁₉₈₁

"DeFlate" with price indexes for each separable component of GDP, e.g. C (consumption)

For price index, get prices from both years of identical goods,

q quantities from both years,

To weight prices in index, which year's q 's do you use?

A kind of average of both years' q 's.

Result: for each pair of adjacent years,

$\% \Delta$ "price level"

$\% \Delta$ "output"

To get time series, define value for a "base year" as 1, 100, or \$GDP in that year,

& apply $\% \Delta$'s to get values for each year before & after ("chain")

PENN WORLD TABLE (cont.)

To compare across countries

\$ GDP₁₉₂₀

£ GDP₁₉₂₀

¥ GDP₁₉₂₀

For "benchmark years" (e.g. 1970, 1975, 1980, ...) UN collects prices of "identical" goods & services in lots of countries (146 in 2005).

Use these to construct a price index for each big component of GDP (e.g. C) with a value for each country in benchmark year,

so you can divide to get "real" GDP (or C) in that year.

Then, interpolate between benchmark years using each country's own real GDP series.

	<u>US</u>	<u>UK</u>	<u>Japan</u>	
1972	5	3	1	
1979	5	3	3	
1980	5	3	3	benchmark year
1981	2	2	2	

PENN WORLD TABLE (cont.)

International Price Index

Each country has different set of q 's.

Vary a lot across countries:

- e.g. in poor countries big shares in food
- in Asia big shares in rice
- in Russia big share in fuel

You could do comparisons across country pairs

e.g. US₁₉₂₀ ↔ UK₁₉₂₀

using same method you use for adjacent years in p index for US MIPA's

but then you'd end up with matrix of pairwise index numbers.

So what does PWT do?

"Geary-Khamis" method.

PENN WORLD TABLE

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Intl. Price Index

G-K Method (cont.)

Add up total q 's for all countries in data:
"world".

Construct a pairwise comparison for each country
with "world":

that is, use a sort of average of q 's for the
country (e.g. UK) vs. "world"

Note weights from "world" are dominated by
rich countries' consumption patterns,
because they consume a lot.

Obvious problems:

- goods consumed a lot in a country, but not in
"world" (e.g. goat)
- stuff that has no prices (e.g. govt.)

Understanding PPPs and PPP-based national accounts

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Version 6, but also to illustrate the changes that have taken place in the past with every new round of data collection. These revisions are often substantial. For example, the 2007 version of the World Development Indicators (WDI), World Bank (2007), lists 2005 per capita GDP for China as \$6,757 and for India as \$3,452, both in current international dollars. The 2008 version, World Bank (2008c), which includes the new ICP data, gives, for the same year, and the same concept \$4,088 for China and \$2,222 for India. For comparison, GDP per capita at market exchange rates is \$1,721 for China and \$797 for India. We shall have something to say about what drives these revisions but it is hard not to speculate about which previously established econometric results survive the incorporation of these revisions into the PWT.

Economists are most familiar with PPP accounts through the PWT and, secondarily, through Maddison's data. The underlying data all come from one or more rounds of the ICP, which started as a joint project between the United Nations Statistical Office (UNSO) and the University of Pennsylvania, then a UNSO project, and most recently—from the 1993 round on—a World Bank managed project endorsed by the UN Statistical Commission. The main business of the ICP is to collect data on the prices of thousands of comparable goods and services in many countries, 146 in the 2005 round. These prices, together with the national accounts for each country, are used to construct a set of price indexes that compare, for example, the price of consumption or investment in India relative to the price of consumption or investment in the US, expressed in rupees per dollar. "Volume" estimates—in temporally current prices—come from dividing expenditures by the price indexes, in the example, giving estimates of both Indian and US