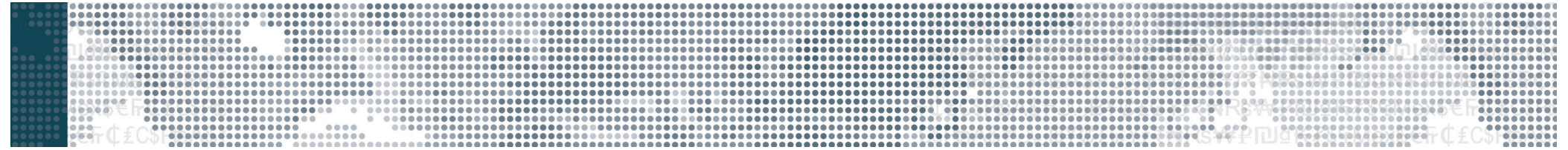


Fundamentals of Purchasing Power Parities



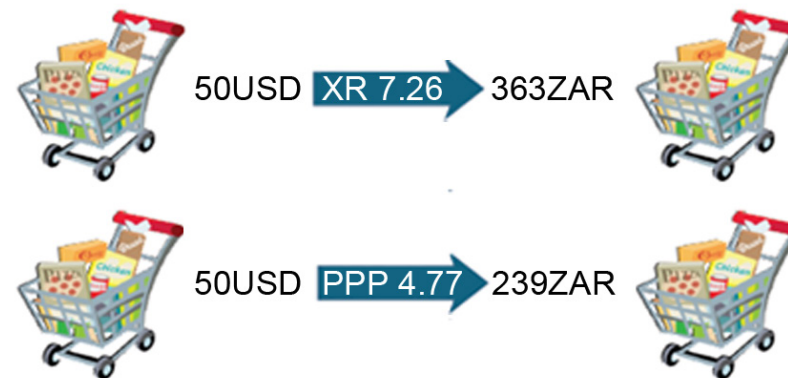
What is the International Comparison Program?

The International Comparison Program (ICP), is a worldwide statistical initiative led by the World Bank under the auspices of the United Nations Statistical Commission, with the main objective of providing comparable price and volume measures of gross domestic product (GDP) and its expenditure aggregates among countries within and across regions. Through a partnership with international, regional, sub-regional and national agencies, the ICP collects and compares price data and GDP expenditures to estimate and publish purchasing power parities (PPPs) of the world's economies.

What are PPPs?

PPPs measure the total amount of goods and services that a single unit of a country's currency can buy in another country. The PPP between countries A and B measures the amount of country A's currency required to purchase a basket of goods and services in country A as compared to the amount of country B's currency to purchase a similar basket of goods and services in country B. PPPs can thus be used to convert the cost of a basket of goods and service into a common currency while eliminating price level differences across countries. In other words, PPPs equalize the purchasing power of currencies.

A: United States B: South Africa



Suppose that there is a basket of goods and services that costs 50 United States dollars (USD). 50 USD would be equivalent to 363 South African Rand (ZAR) when using a market exchange rate of 7.26. However, due to South Africa's lower price level in relation to the United States, the cost of a similar basket is actually 239 ZAR. Therefore, 50 USD would buy a larger basket of goods and services in South Africa than it would in the United States; the PPP of South Africa to the United States would be 239 ZAR/50 USD, which is equal to 4.77.

Twelve Largest Economies by Share of World GDP, 2011

Ranking by GDP (PPP-based)	Economy	Share of world GDP (PPP-based, world = 100)	Share of world GDP (exchange rate-based, world = 100)
1	United States	17.1	22.1
2	China	14.9	10.4
3	India	6.4	2.7
4	Japan	4.8	8.4
5	Germany	3.7	5.2
6	Russian Federation	3.5	2.7
7	Brazil	3.1	3.5
8	France	2.6	4.0
9	United Kingdom	2.4	3.5
10	Indonesia	2.3	1.2
11	Italy	2.3	3.1
12	Mexico	2.1	1.7

Source: ICP, <http://icp.worldbank.org>

Why use PPPs?

Due to large differences in price levels across economies, market exchange rate-converted GDP does not accurately measure the relative sizes of economies and the levels of material well-being. PPPs make it possible to compare the output of economies and the welfare of their inhabitants in 'real' terms, thus controlling for price level differences across countries. The preceding table lists 12 economies with the largest share of world GDP in PPP terms, and the corresponding shares using market exchange rates in 2011. For example, if market exchange rates were used in converting GDP, India would be ranked 9th or 10th in the share of world GDP. When PPPs are used instead, it is ranked third, which is a more accurate reflection of its share of world GDP.

What are PPP Data Requirements?

- National annual average prices for a selection of goods and services included in the GDP. Goods and services need to be:
 - Comparable and well-defined in order to ensure price comparability within countries as well as between countries.
 - Representative and reflect the consumption in the region and country.
- National accounts expenditures, which need to be:
 - Conforming to the System of National Accounts (SNA) concepts, definitions and valuation methods.
 - Compiled according to a common detailed classification.

How are PPPs Calculated?

At the regional level, PPPs are calculated based on collected price and expenditure data:

- A common basket of well-defined regional and global goods and services is established and subsequently priced.
- Price relatives (i.e. ratios of prices in national currencies of the same good or service in two countries) are calculated for individual items, such as “white rice,” “brown rice,” etc.
- Price relatives calculated for the goods and services in a classification heading such as “rice,” are averaged to obtain PPPs for that classification heading.
- PPPs for the classification headings covered by an aggregate, such as “Food”, are weighted and averaged to obtain weighted PPPs for the aggregate. National accounts expenditures are used as weights for each classification heading.

At the global level, regional PPPs are linked to form a set of global PPPs:

- Between-region linking factors are calculated based on the prices collected for goods and services common across regions at the classification heading level.
- Regional PPPs are then linked to form a set of global PPPs for each classification heading.
- Global PPPs of classification headings are weighted and averaged to obtain weighted PPPs for each aggregate.
- Aggregate PPPs are adjusted to maintain regional fixity of the results.

What are the Key Characteristics of PPPs?

- Base country invariance: PPPs between any pair of countries should be the same regardless of which country is the base.
- Transitivity: A direct PPP between any two countries should be equal to an indirect PPP via any other third country, i.e. $A \rightarrow B$ equivalent to $A \rightarrow C \rightarrow B$.
- Fixity: The relative size of countries in PPP-terms within a region should be maintained in global estimates.

Who uses PPPs?

PPPs are widely used to convert national accounts data, like GDP, into a common currency, while also eliminating the effect of price level differences between countries. Since the demand for comparable volume aggregates is high, PPPs play a key role in the analyses carried out by policymakers, multilateral institutions, and private sector actors, among others. Examples of uses and users of PPPs include:

- Sustainable Development Goals and Millennium Development Goals (United Nations).
- Human Development Index (United Nations Development Programme).
- Poverty rates at international poverty line, size of the economy, and price levels in the World Development Indicators (World Bank Group).
- Country group aggregates and growth rates in the World Economic Outlook and country quota formula (International Monetary Fund).
- Allocation of the European structural and investment funds (European Union).
- Analysis of national competitiveness (Policymakers).
- Welfare measures, consumption patterns, trade, productivity and competitiveness, energy efficiency, health and education costs and other uses (Academic and research institutions).
- Evaluation of investment costs across countries (Private sector).

How Reliable are PPPs?

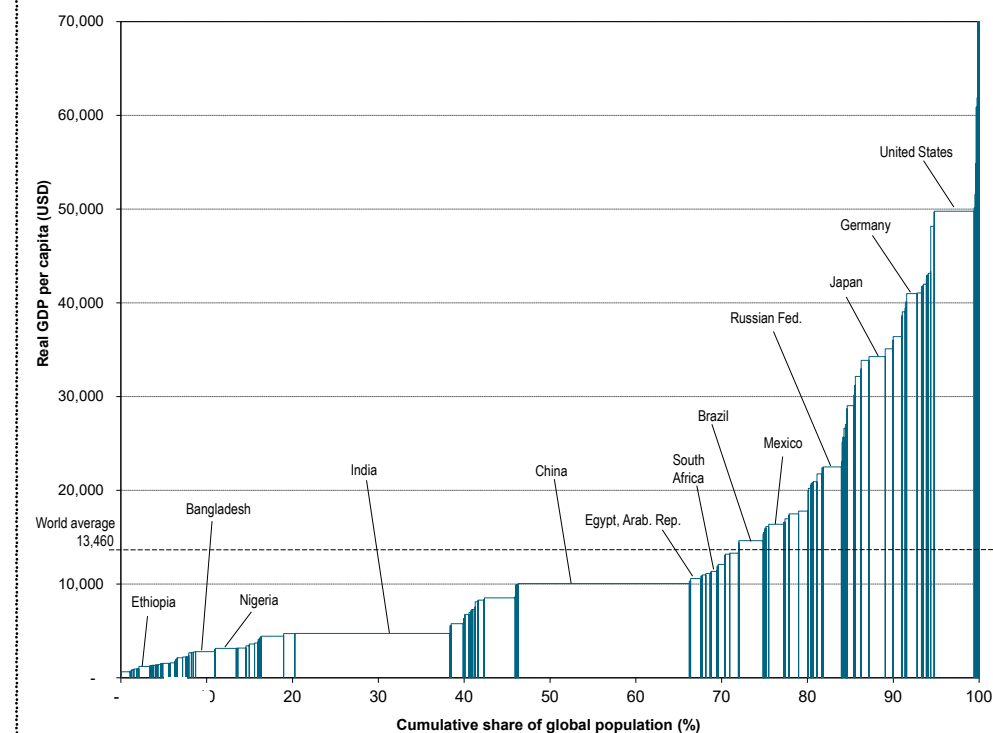
- The reliability of PPPs depends on the quality of the underlying price and expenditure data reported by the participating economies, as well as the extent to which the goods and services priced reflect the consumption patterns and price levels of participating countries.
- Comparisons between economies that are similar are more precise than comparisons between economies that are dissimilar.
- PPPs for goods are more precise than PPPs for services.

What are the Latest PPPs Produced by the ICP?

The most recent ICP results covering 199 economies were released in April 2014 for the reference year of 2011. ICP results and their in-depth analysis help to better understand the structure of the world economy. For example, the following chart shows the relationship between the PPP-based real GDP per capita and cumulative share of the global population.

The full set of results are available at <http://icp.worldbank.org>.

Real GDP Per-Capita and Shares of Global Population, 2011



Source: ICP, <http://icp.worldbank.org>

Resources

World Bank. 2013. Measuring the Real Size of the World Economy: the Framework, Methodology, and Results of the International Comparison Program. Washington, DC: World Bank

World Bank. 2015. Purchasing Power Parities and the Real Size of World Economies: A Comprehensive Report of the 2011 International Comparison Program. Washington, DC: World Bank

World Bank. 2015. Operational Guidelines and Procedures for Measuring the Real Size of the World Economy. Washington, DC: World Bank

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