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Latest Developments in the Canadian Economic Accounts

New projection methodology for purchasing power parities

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.. not available for a specific reference period
... not applicable
0 true zero or a value rounded to zero
0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
^{p} preliminary
^{r} revised
x suppressed to meet the confidentiality requirements of the *Statistics Act*
^{E} use with caution
F too unreliable to be published
* significantly different from reference category ($p < 0.05$)

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New projection methodology for purchasing power parities

Purchasing power parities (PPPs) are estimates of relative purchasing power between two or more currencies. By adjusting to a common currency and a common set of prices, they can be used to make international comparisons of the relative volumes of goods and services invested in or consumed.

With the latest release of the bilateral PPP (Purchasing Power Parities) estimates for Canada and the U.S. (United States), an improved projection methodology for the non-benchmark years has been employed. This note explains the new methodology and its rationale.[1]

PPP (Purchasing Power Parities) data are typically built up from detailed final demand (i.e. (that is) expenditure) categories, with adjustments for inventories to portray the data in terms of gross domestic product (GDP). In nominal terms, GDP (Gross Domestic Product) equals gross domestic income (GDI), the sum-of-incomes approach to arriving at the same aggregate, and the two terms are often used interchangeably. In real terms, however, there is an important distinction between GDP (Gross Domestic Product) and GDI (gross domestic income) which arises primarily from changes in the prices of the commodities a country exports and imports. These terms-of-trade adjustments can affect the relative purchasing power of a country's currency and thus represent real income changes without necessarily directly impacting output.

Previously published data were extrapolated from the benchmark year using the relative movements in the GDP (Gross Domestic Product) implicit price indexes, which failed to capture the real income changes after 2002. The terms-of-trade adjustments were essentially treated as price changes and thus removed from the real income measure. This approach is better suited to deriving measures intended for productivity comparisons, as opposed to purchasing power. Estimates of PPP (Purchasing Power Parities)s are now extrapolated from the benchmark year using relative movements in real GDI (gross domestic income), a more appropriate concept when examining purchasing power.

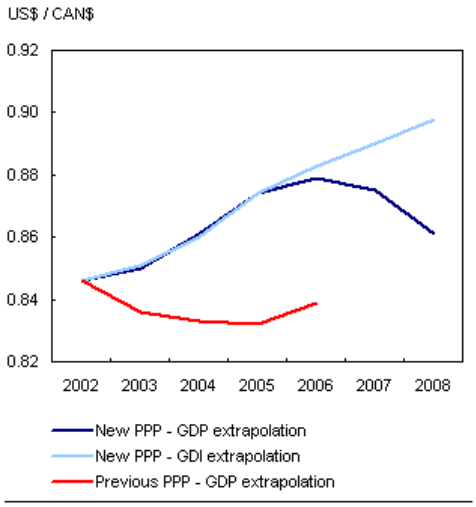
The difference in the two methodologies lies in the choice of the deflator used for imports and exports. In the past, U.S. (United States)/Canada bilateral PPP (Purchasing Power Parities) studies typically made use of exchange rates as proxies for net exports. This is primarily because comparative import and export prices are difficult to collect, given that countries do not tend to import and export the same goods and services. However, this approach is not without criticism. It assumes that exchange rate changes are immediately and fully reflected in market prices of traded goods and services, which is not supported by empirical evidence.[2] With the new methodology, a PPP (Purchasing Power Parities) aggregate for domestic consumption and investment is now used for the trade

balance. This is because a measure of relative domestic prices is more appropriate for use in estimating purchasing power over items bought with the income generated through trade. This is similar to the procedure used in country comparisons for the Penn World Tables[3] and is consistent with the calculation of quarterly real GDI (gross domestic income) for Canada.[4]

The result is a PPP (Purchasing Power Parities) consistent with the measure of purchasing power for the benchmark year, and should help to minimize future revisions to the data. It more accurately depicts the improvements in Canada's terms of trade since 2002 due to changes in relative prices of exports and imports arising largely from a stronger Canadian dollar vis-à-vis the U.S. (United States) dollar.[5]

In Chart 1, below, it can be seen that the incorporation of benchmark data for 2005 shifted the overall PPP (Purchasing Power Parities) level higher in that year, as compared to previously published data which were the result of an extrapolation using a GDP (Gross Domestic Product) deflator. The positive trend, which continues with the use of the GDI (gross domestic income) deflator, reflects the Canadian terms-of-trade improvements since 2002. This increase in purchasing power is not captured in an extrapolation using the relative movements in the Canada/U.S. (United States)GDP (Gross Domestic Product) deflator.

Chart 1: Total purchasing power parities - Alternative extrapolations from 2005



Notes:

1. A more detailed article, "Purchasing Power Parities and Real Expenditures, United States and Canada" will be released in early 2010.
2. Baldwin, J.R. and B. Yan, 2004, "The Law of One Price: A Canada-U.S. (United States) Exploration." 50, 1: 1-10.
3. See Deaton, Angus and Heston, Allan," Understanding PPP (Purchasing Power Parities)s and PPP (Purchasing Power Parities)-Based National Accounts", Cambridge, MA; National Bureau of Economic Research, Working Paper 14499, November 2008.
4. CANSIM Table 380-0062.
5. See Baldwin, John and Macdonald, Ryan, "PPP (Purchasing Power Parities)s - Purchasing Power or Producing Power Parities" (forthcoming) for more detail. Economic Analysis (EA) Research Paper Series. Ottawa: Statistics Canada.