

Reshaping Asia's Economic Landscape

PPP Revisions and Level Comparisons

Koji Nomura (Keio University) and Mun S. Ho (Harvard University)

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KEY MESSAGE

Cross-country comparisons of GDP are highly sensitive to PPP revisions. Updates to benchmark PPPs can significantly alter the relative size and income levels of economies and reshape perceptions of economic success even if there is no real change.

WHY THIS MATTERS

Comparing GDPs of different countries using exchange rates is misleading, as it ignores differences in prices even for identical goods, and purchasing power parities (PPPs) are introduced to reflect what a common currency can actually purchase in different economies. However, comparisons of PPP-adjusted GDP or productivity depend critically on which benchmark PPP is used, and since they are periodically revised, cross-country comparisons can change substantially even though nothing real has changed.

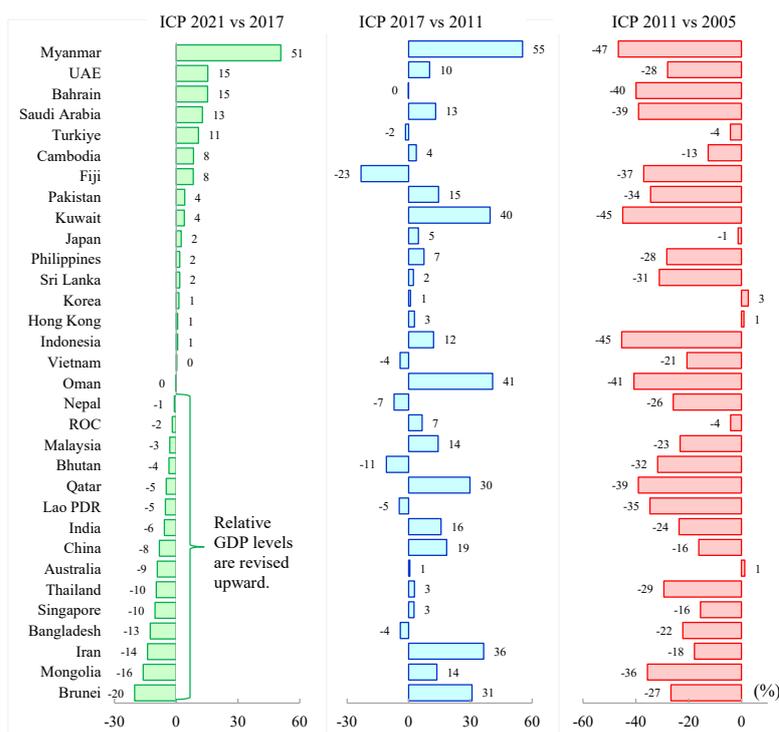
EVIDENCE FROM ICP REVISIONS

To illustrate this effect, we take the PPP of a country based on the International Comparison Program (ICP) 2017 benchmark and calculate its 2021 level based on the inflation rate from the country's own national accounts. We then compare that extrapolated PPP with the corresponding PPP based on the new ICP 2021 benchmark (World Bank 2024). We repeat this for the 2011 and 2005 benchmarks. Figure 1 shows the effects of these benchmark revisions in Asia.

Figure 1. PPP Revision History for Asian Countries

—Ratios of ICP 2021 to 2017 (left), 2017 to 2011 (center), and 2011 to 2005 (right)

Unit: Percentage. Sources: World Bank (2008, 2014, 2020, and 2024).



Across successive revisions, two patterns emerge. First, revisions are often substantial, particularly in rapidly developing economies. For example, the transition from ICP 2005 to 2011 (right panel) resulted in large downward revisions of the price level in 2021, ranging from +3% for Korea to -47% for Myanmar. This lower price effectively raises the relative size of developing economies in the new benchmark. Second, revisions are not monotonic. The upward revisions observed from 2011 to 2017 (center panel) for countries such as China and India partially offset earlier adjustments, while the latest 2021 benchmark (left panel) introduces further changes, including another large revision for Myanmar and an even bigger income gap between Singapore and Japan.

INTERPRETATION

These revisions can alter historical narratives. Under the latest PPP, Singapore is estimated to have overtaken Japan in per capita GDP around 1980, compared to an early 1990s crossover in previous ICPs. This shift raises questions about the temporal consistency of comparisons using a single benchmark; it is difficult to reconcile the new view with widely held perceptions of relative economic conditions at the time. Such discrepancies become more pronounced over longer horizons.

These jarring changes arise from the construction of PPPs. PPPs extrapolated from domestic price indices may diverge from benchmark PPPs based on detailed international price surveys. The latter introduce discrete revisions across benchmark rounds, leading to discontinuities in measured relative prices. As a result, updates to PPP benchmarks can induce substantial changes in relative GDP and productivity levels without any change in underlying national accounts.

MEASUREMENT CONSIDERATIONS

Level comparisons are inherently more fragile than growth rate comparisons. Revisions tend to be larger in rapidly developing economies where new products are introduced more frequently, and historical comparisons are particularly sensitive; revisions shift the timing of convergence or overtaking. These features underscore the need for a clearer understanding of PPP-based indicators.

IMPLICATIONS

01

Cross-country comparisons of economic size and productivity levels are not stable and may change with PPP revisions.

02

Apparent shifts in relative economic positions may reflect measurement updates rather than real changes.

03

Policy discussions should distinguish between growth dynamics and level comparisons, recognizing the inherent uncertainty of the latter.

REFERENCE

World Bank (2024), *Purchasing Power Parities and the Size of World Economies: Results from the 2021 International Comparison Program*, Washington, DC.

This note is part of the Productivity Research Notes series, examining key issues in productivity and economic performance in Asia. The views expressed are those of the author(s). Inquiries may be directed to sankenoffice@info.keio.ac.jp.

