

# Interpreting PPPs under a Dual Exchange-Rate System

*Evidence from Turkmenistan*

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## KEY MESSAGE

*Applying a parallel-market exchange rate to the ICP PPP for GDP can imply an implausibly low price level, apparently indicating that the PPP is underestimated. Evidence from Turkmenistan suggests that this paradox instead reflects a mismatch between the economic transactions represented by PPPs and exchange rates, rather than a mismeasured PPP.*

## WHY THIS MATTERS

PPPs are widely used to compare GDP and expenditure levels across countries (see World Bank 2024, [PRN2611](#)). Such comparisons implicitly assume that PPPs and exchange rates can be meaningfully combined. However, when an economy operates under multiple exchange-rate regimes, this assumption may no longer hold. Turkmenistan provides an unusually clear illustration. While the official exchange rate has remained close to 3.5 TMT (Manat) per US dollar, the parallel-market rate is widely believed to be several times higher. Mechanically applying the parallel-market exchange rate would reduce the implied production price level to an implausibly low level, raising the question of whether the ICP PPP substantially understates domestic prices.

## A PARADOX OF PRICE-LEVEL COMPARISONS

The ICP 2021 PPP for GDP for Turkmenistan is 1.5 TMT/USD. Combined with the official exchange rate of 3.5 TMT/USD, this yields a price level index (PLI)—defined as the ratio of the PPP to the exchange rate—of about 0.43, a plausible value for a middle-income economy. By contrast, parallel-market transactions suggest that the market exchange rate was substantially weaker than the official rate. Although the exact rate is difficult to observe and appears to have varied across transactions (roughly 15–30 TMT/USD), a representative value of 25 TMT/USD is adopted here for illustrative purposes. Using this rate reduces the implied PLI to only 0.06, suggesting an implausibly low production price level.

## EVIDENCE FROM AN INDEPENDENT PRICE SURVEY

To examine this question, a small exploratory price survey covering approximately 30 products was conducted in Ashgabat in May 2026. Rather than attempting to reproduce the ICP methodology, the survey classifies products by domestic production and essentiality and constructs PPPs using alternative basket specifications. Motivated by the conceptual distinction among PPPs developed by Nomura et al. (2019), the objective is not to estimate a single “true” PPP, but to approximate alternative price structures relevant to different economic uses.

A production-oriented basket emphasizing domestically produced essential products generates a PPP close to 2.0 TMT/USD, while a visitor-oriented basket placing greater weight on imported and discretionary products yields a PPP of 9.1 TMT/USD (Table 1). Although these estimates are illustrative, the qualitative distinction remains robust across alternative basket specifications.

Table 1. Implied PLIs under Alternative PPPs and Exchange Rates

PPP used for PLI calculation	Official ER (3.5)	Parallel-market ER (25)
ICP 2021 PPP for GDP (1.5)	0.43	0.06
Survey 2026 Production PPP (2.0)	0.57	0.08
Survey 2026 Visitor PPP (9.1)	2.59	0.36

Note:  $PLI = PPP / ER$  (exchange rate). Red values indicate implausibly low PLIs for production-side comparisons.

## INTERPRETATION

Table 1 shows that applying the representative parallel-market exchange rate to either the ICP PPP for GDP or the production-oriented PPP yields implausibly low PLIs, suggesting that neither provides a meaningful interpretation of domestic production prices under the market exchange rate. By contrast, the visitor-oriented PPP yields plausible PLIs under both exchange-rate assumptions, although with different economic interpretations: under the official exchange rate, it reflects the high prices effectively faced by visitors exchanging currency at official rates, whereas under the representative parallel-market exchange rate, it represents the purchasing power of visitors with access to foreign-currency markets. These findings suggest that the apparent contradiction arises not because the ICP PPP is underestimated, but because PPPs and exchange rates refer to different economic transactions. The ICP PPP for GDP primarily reflects domestic production and is therefore appropriate for comparing GDP and labor productivity across countries. Combining the representative parallel-market exchange rate with the ICP PPP for GDP conflates measures of different economic transactions, thereby producing misleading PLIs.

## DISCUSSION

In economies operating under segmented exchange-rate regimes, compiling nominal national accounts and interpreting PPPs are distinct measurement problems. In the APO Productivity Database 2026, nominal aggregates such as mining output and external transactions are adjusted to improve consistency under the dual exchange-rate system. The present note addresses the latter issue. The Turkmenistan case suggests that a parallel-market exchange rate may accurately reflect certain economic transactions without necessarily being the appropriate exchange rate to combine with every PPP. A mismatch between the two measures may produce misleading PLIs.

## IMPLICATIONS

### 01

PPP-based GDP comparisons remain meaningful under multiple exchange-rate regimes when PPPs are interpreted as measures of domestic production prices.

### 02

Applying a parallel-market exchange rate directly to the PPP for GDP may lead to misleading interpretations of production price-level indices (PLIs).

### 03

Meaningful international comparisons require matching PPPs and exchange rates to the economic transactions they are intended to represent.

## REFERENCES

Nomura, K., K. Miyagawa, and J.D. Samuels (2019). Benchmark 2011 Integrated Estimates of the Japan–US Price-Level Index for Industry Outputs. In *Measuring Economic Growth and Productivity: Foundations, KLEMS Production Models, and Extensions*. Academic Press.

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](mailto:sankenoffice@info.keio.ac.jp).

