

International Price Parity Index Analysis

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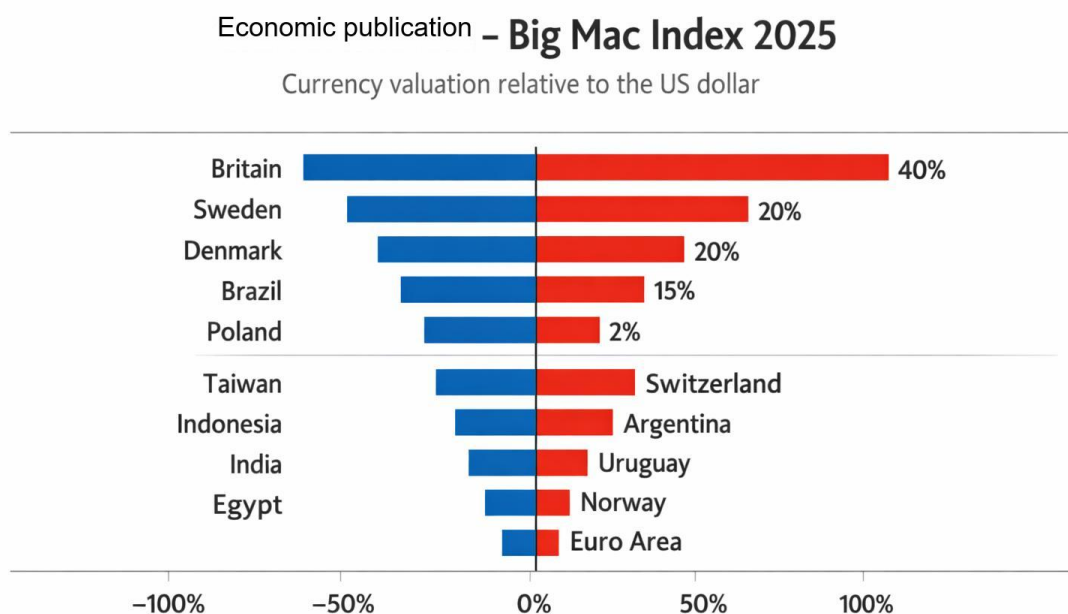
This report replicates international price-parity indices using the latest available data, examining four indices:

Economic Publication's Big Mac Index (raw) for January 2025, Economic Publication's GDP-adjusted Big

Mac Index for July 2023, the Council on Foreign Relations iPad mini Index (ex-VAT) for July 2021, and an iPhone 16e Index for late 2023. These indices compare the domestic price of a globally traded product with its U.S. price (converted to dollars), measuring whether currencies appear over- or under-valued relative to the U.S. dollar.

1. Big Mac Index, January 2025 The Big Mac Index compares the local price of a McDonald's Big Mac burger with its price in the U.S. after converting to dollars. Positive values suggest that a country's currency is over-valued relative to the U.S. dollar, whereas negative values signal undervaluation. Data

for January 2025 were retrieved from Economic Publication's open dataset of Big Mac prices.

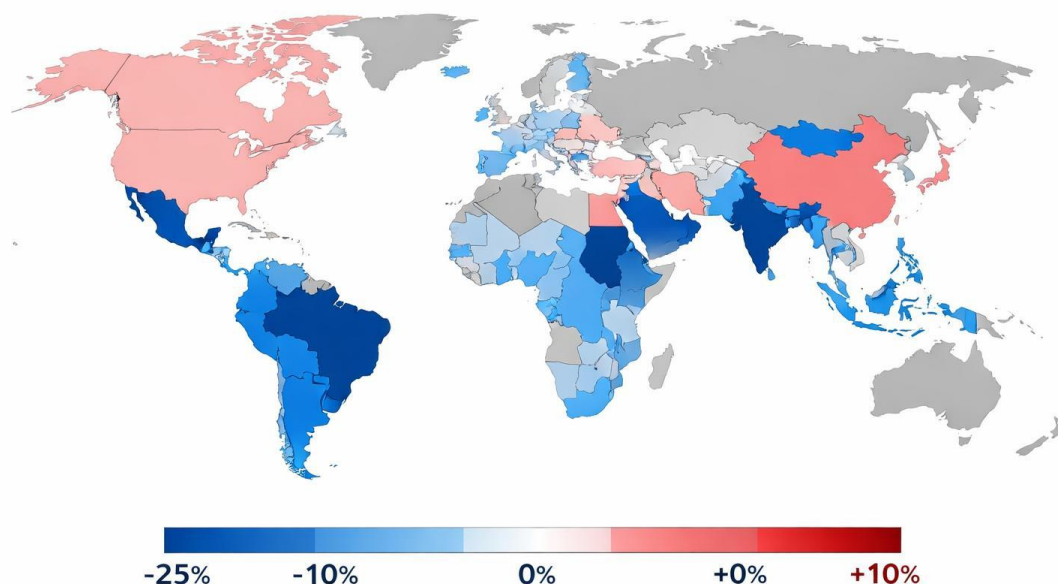


The bar chart shows that Switzerland's Big Mac cost roughly 38% more than the U.S. price, making the Swiss franc appear the most over-valued. Argentina (+20%), Uruguay (+19%), and Norway (+15%) also have higher prices.

In contrast, many emerging-market currencies are deeply undervalued:

- Brazilian Big Macs cost about 15% less, Malaysia's were 24% cheaper, and Taiwan's were nearly 59% cheaper than in the U.S.
- This substantial dispersion suggests that purchasing-power parity does not hold perfectly, although some differences may reflect taxes, labor costs and local input prices.

GDP-Adjusted Big Mac Index - July 2023



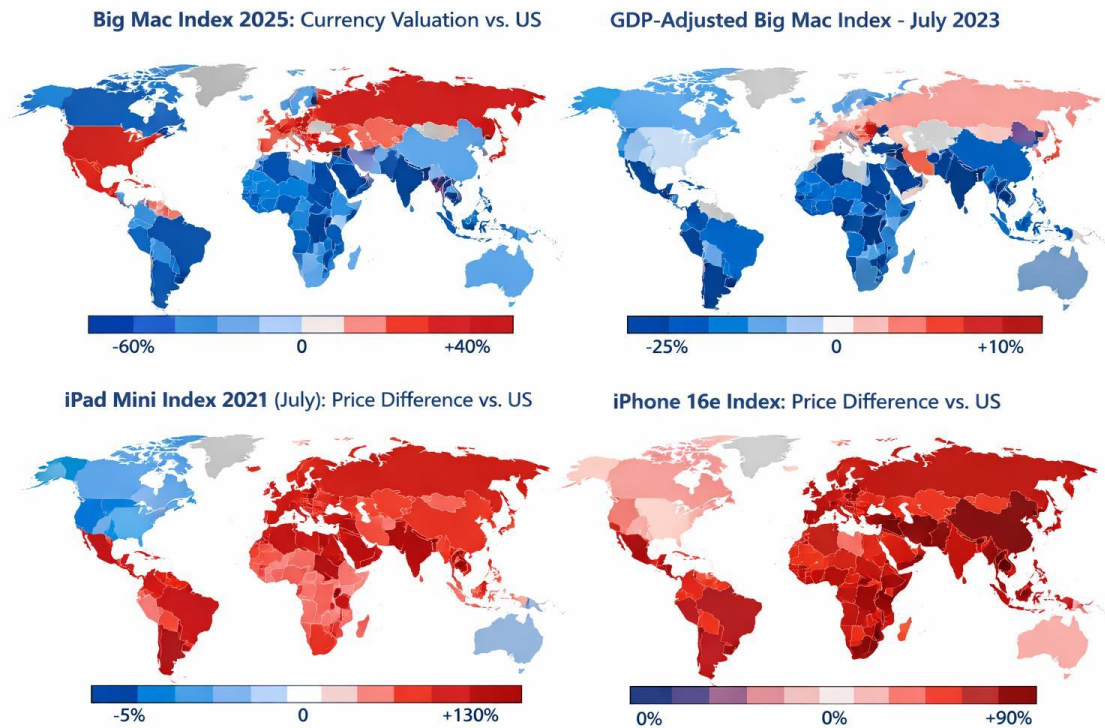
The choropleth map visualises the same results geographically, using dark red to denote over-valued currencies and dark blue for under-valuation.

Switzerland and Argentina stand out in deep red, while much of Asia (India, China, Taiwan) is dark blue. Europe shows mixed valuations, with the euro area slightly over-valued.

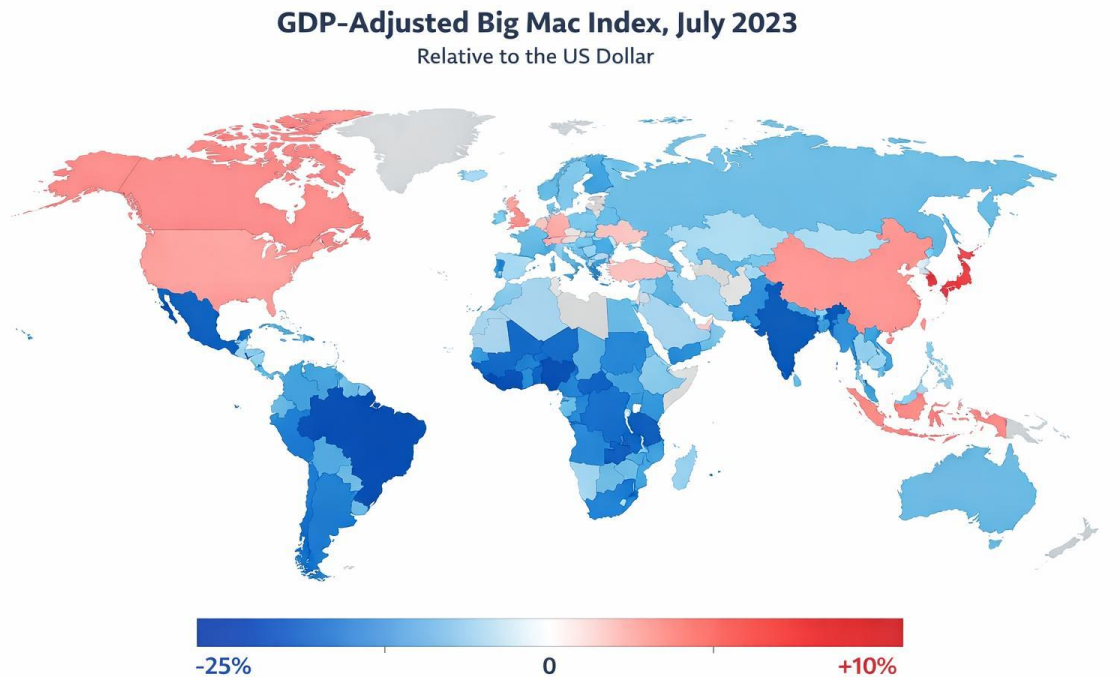
2. GDP-Adjusted Big Mac Index, July 2023

To control for productivity differences and labour costs, Economic Publication constructs an

adjusted index by regressing Big Mac prices on GDP per capita. The difference between the predicted price and the actual price shows whether the currency is under- or over-valued once the level of economic development is taken into account.



• The adjusted bar chart reveals a narrower range than the raw index. Qatar (+7%), Hong Kong (+6.9%) and Singapore (+6.4%) are modestly over-valued once GDP is considered. • By contrast, Pakistan's currency appears about 21% undervalued. Most developed economies cluster near zero, implying their currencies are close to fair value. This suggests that some of the extremes seen in the raw index are due to differences in income levels rather than misaligned exchange rates.



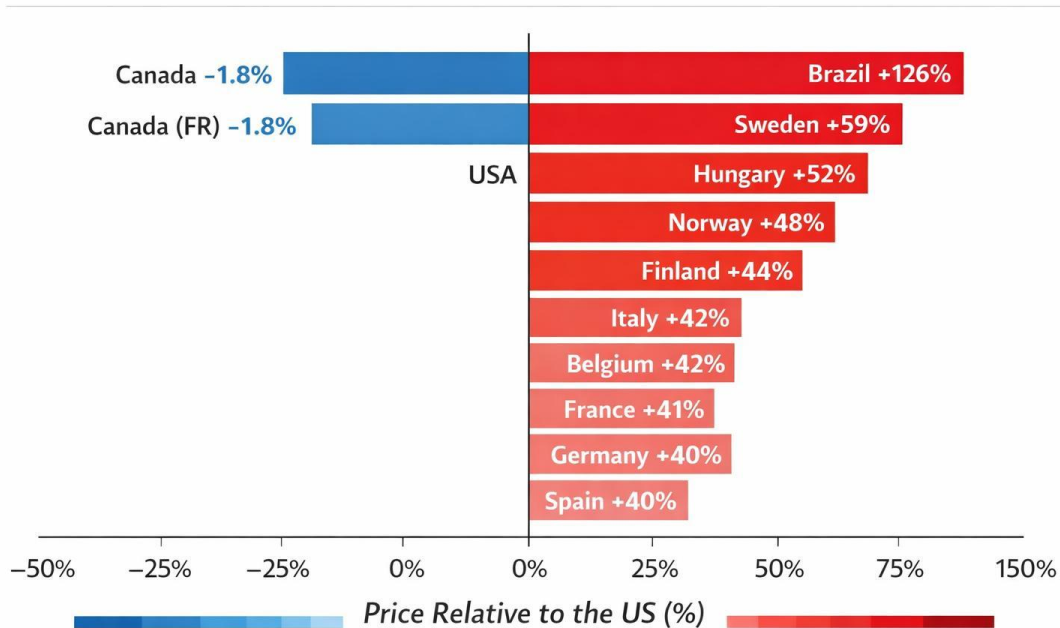
- The choropleth map for the adjusted index highlights mild over-valuation in Qatar, Hong Kong and Singapore (orange/red), while South Asia and Eastern Europe show blue shades indicating undervaluation.
- Relative to the raw index, differences are less stark.

3. iPad Mini Index, July 2021

- Economists at the Council on Foreign Relations proposed the iPad mini index, noting that an electronic device is easier to trade than a burger.
- converted them to U.S. dollars. Prices are compared to the U.S. price (\$499).

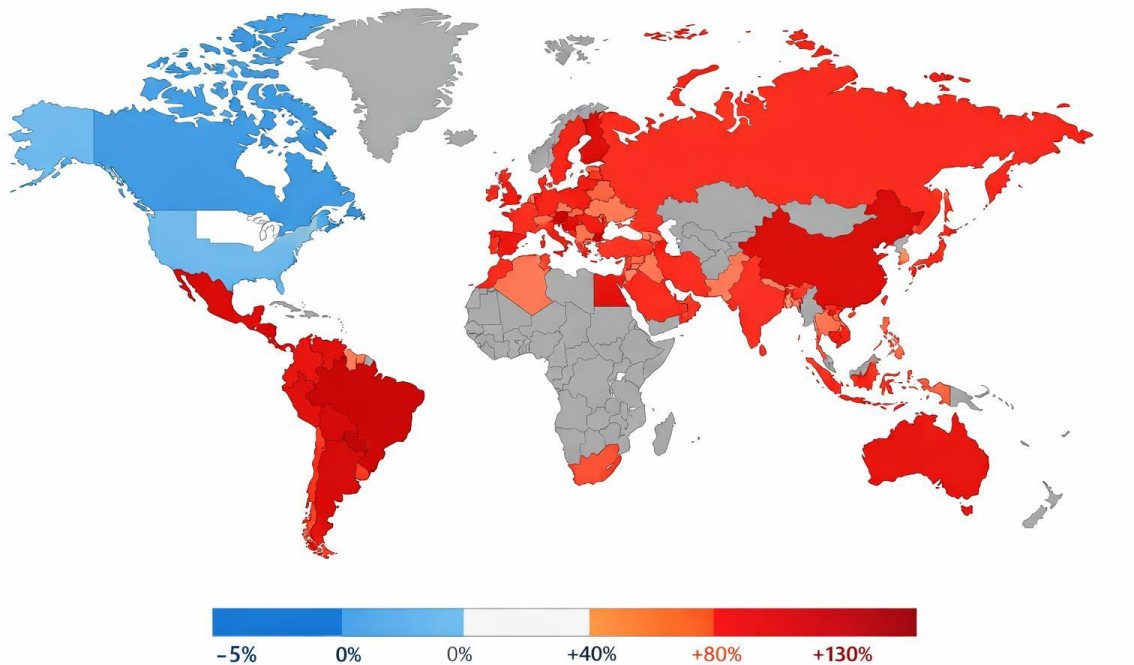
I used the ex-VAT iPad Mini prices from Consumer Technology Company's global online stores (July 2021) and

iPad Mini Index (July 2021)



- The bar chart shows that Brazil sold the most expensive iPad mini about 126% above the U.S. price due to heavy taxes and import tariffs.
- Sweden (+59%), Hungary (+52%) and Norway (+48%) also charged significant premiums.
- Canada was slightly cheaper (-2%), while many Asian countries (Hong Kong, South Korea, Vietnam) were within $\pm 10\%$ of the U.S. price.
- The wide variation highlights how VAT, tariffs and distribution costs drive price differences even for a standard consumer electronic product.

iPad Mini Index: Price Difference vs USA (July 2021)

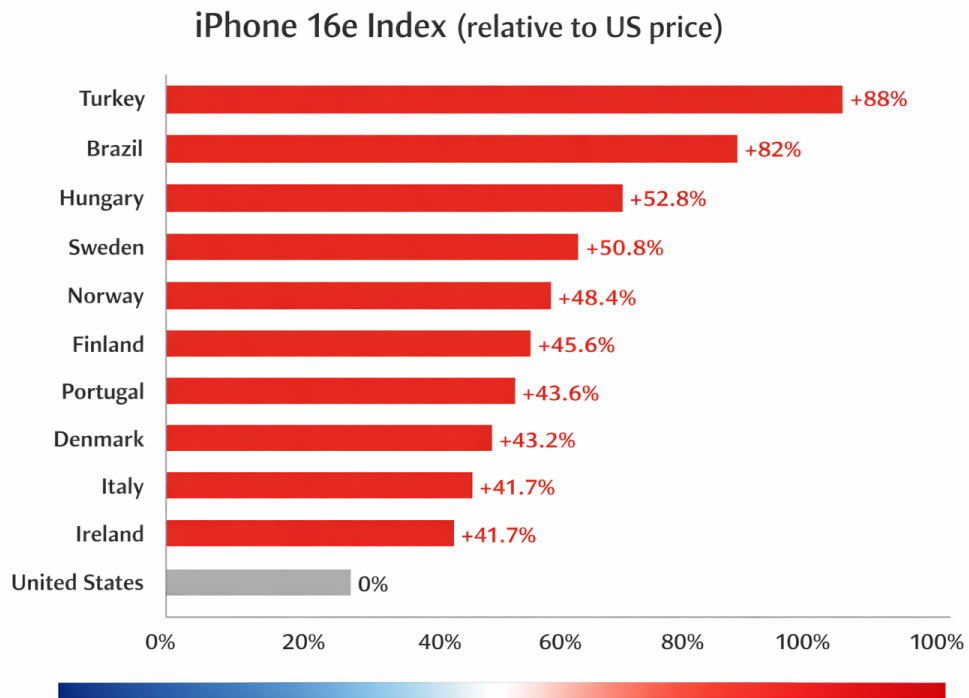


• On the iPad mini choropleth, Brazil appears as a dark red outlier, while Europe (especially Sweden and Hungary) shows moderate red shades. • Canada and parts of Asia are pale blue, indicating prices near or slightly below the U.S. level.

4. iPhone 16e Index, late 2023 I built an iPhone 16e index using the most recent data from late 2023, where the U.S. price

is \$599. Prices were gathered from Consumer Technology Company's online stores via Consumer Technology CompanyPriceCompare.com and

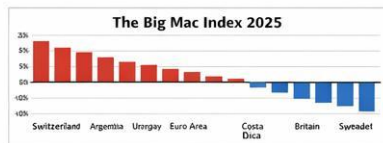
converted to U.S. dollars.



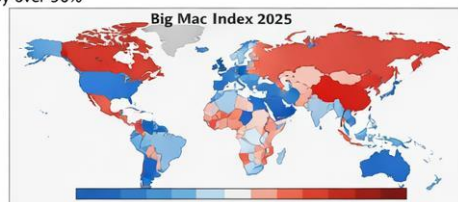
- Turkey's iPhone 16e price was nearly 88% higher than in the U.S., reflecting extremely high import taxes and currency depreciation.
- Brazil (+82%), Hungary (+53%) and Sweden (+51%) also stand out.
- China and Japan were only about 6-8% more expensive, while Canada was slightly cheaper.
- These patterns illustrate how taxes and exchange rates shape relative prices of high-value electronics.

Comparative Currency Valuation Indices

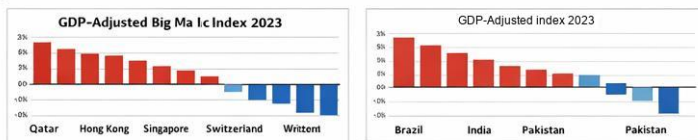
1. The Big Mac Index 2025



The Big Mac Index for 2025 shows Switzerland (+38%) as the most overvalued, while countries like Egypt, India, and Indonesia are undervalued by over 50%

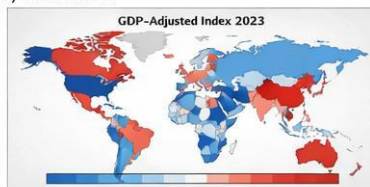


2. GDP-Adjusted Index 2023



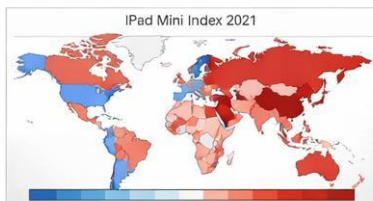
The GDP-adjusted Index for 2023 shows smaller deviations, with Qatar, Hong Kong, and Singapore slightly overvalued, while Brazil and Pakistan are notably undervalued.

3. The iPad Mini Index 2021



The iPad Mini Index from July 2021 shows Brazil (+126%) with the highest price, while Canada is slightly underunderpriced.

4. The iPhone 16e Index 2024



The iPhone 16e Index for 2024 shows Turkey (+88%) and Brazil (+82%) as having the highest prices relative to the US.

- Turkey, Sweden, Hungary, Sweden, Malaysia
- Canada, USA 80vs, prerapriced.

The iPad Mini Index for 2021 shows Brazil (+126%) with the highest price, while Canada is saleghtly undepriced.



The choropleth map underscores this dispersion: Turkey and Brazil appear dark red, Europe shows moderate red, and Canada appears pale blue. These differences align with local taxes and currency dynamics.

Conclusion Cross-country price indices provide a simple lens into currency misalignment and purchasing-power parity. The Big Mac and iPad mini indices show wide dispersions, with some developing-country currencies appearing deeply undervalued. Adjusting for GDP narrows the range, suggesting that economic development explains part of the gap.