

Statistics	Real Effective Exchange Rate
<b>The Data: Coverage, Periodicity and Timeliness</b>	
<b>Coverage characteristics</b>	<p><b>Purpose of the study:</b> Since the nominal exchange rates do not show the relative price differences between countries, Real Effective Exchange Rate (REER) is calculated as an indicator of real value of Turkish Lira (TL).</p> <p><b>Data description:</b> Nominal Effective Exchange Rate (NEER) is weighted average value of TL with relative to a basket of currencies formed by the countries which have significant shares in Turkey's foreign trade. The weights are determined by using bilateral trade flows. Real effective exchange rate (REER) adjusts the nominal effective exchange rate for the effects of relative prices. REER released by the Central Bank of Republic of Turkey (CBRT), is computed as the weighted geometric average of the prices in Turkey relative to the prices of its principal trade partners in international markets.</p> <p><b>Statistical concepts and definitions:</b></p> <p><b>Weights:</b> Defines the ratios calculated for each country in REER basket using bilateral trade flows.</p> <p><b>CPI REER:</b> Defines the REER calculated by using CPI deflator.</p> <p><b>Domestic-PPI REER:</b> Defines the REER calculated by using domestic PPI deflator.</p> <p><b>ULC REER:</b> Defines the REER calculated by using Unit Labor Cost (ULC) deflator.</p> <p><b>Classification system:</b></p> <p>The classification convenient to the REER methodology calculated by international organizations (BIS, ECB, IMF).</p> <p><b>Statistical population:</b> CBRT and public.</p> <p><b>Reference area:</b> Turkey Geographical level: None.</p> <p><b>Sector coverage:</b> None.</p> <p><b>Time coverage:</b> Data starts from January 1994 and announced as a monthly index.</p> <p><b>Coverage, n.e.s.:</b> None.</p> <p><b>Exceptional circumstances on coverage:</b> None.</p> <p><b>Statistical unit:</b> Reporting division.</p> <p><b>Base period:</b> 2003</p> <p><b>Reference period:</b> Previous month (CPI REER, Domestic-PPI REER), previous year (ULC REER)</p>

	<p><b>Unit of measure:</b></p> <table border="1"> <thead> <tr> <th>Variable/Indicator</th> <th>Unit of measure</th> </tr> </thead> <tbody> <tr> <td>All Variables</td> <td>Index</td> </tr> </tbody> </table>	Variable/Indicator	Unit of measure	All Variables	Index
Variable/Indicator	Unit of measure				
All Variables	Index				

<b>Periodicity</b>	<p><b>Frequency of data collection:</b></p> <p><b>CPI REER:</b> Monthly</p> <p><b>Domestic-PPI REER:</b> Monthly</p> <p><b>ULC REER:</b> Yearly</p> <p><b>Frequency of data collection:</b></p> <p><b>CPI REER:</b> Monthly</p> <p><b>Domestic-PPI REER:</b> Monthly</p> <p><b>DC-ULC REER:</b> Quarterly</p>
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<b>Timeliness</b>	<p>Average production time for each release of data</p> <p><b>Time lag - first results (days):</b> 4 days</p> <p><b>Time lag - final results (days):</b> 4 days</p>
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## Access by the Public

<b>Advance dissemination of release calendar</b>	<p><b>Data release calendar:</b> Data release calendar is announced to the public in advance. It is published on official website of the Central Bank on the first business day of every year.</p> <p><b>Link to advance release calendar:</b> <a href="#">Data Release Calendar</a></p> <p><b>Data release policy:</b> The institutions and the organizations which are subscribers of the Central Bank Data Dissemination System are informed about the publication just after it's published on the official website of the Central Bank.</p>
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<b>Simultaneous release to all interested parties</b>	<p><b>Simultaneous release:</b> It is released simultaneously.</p> <p><b>Pre-release data share with press or other specific users under special agreements:</b> No.</p>
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## Integrity

<p><b>Dissemination of terms and conditions under which official statistics are produced, including those relating to the confidentiality of individually identifiable information</b></p>	<p><b>Responsibility for collecting, processing, and disseminating statistics:</b> CBRT Data Governance and Statistics Department, Balance of Payments Division.</p> <p><b>Data sharing and coordination among data producing agencies:</b> None.</p> <p><b>Confidentiality of individual reporters' data:</b> The statistical data does not have any private and personal nature.</p> <p><b>Staff, facilities, computing resources, and financing:</b> The number of people working is 3 in total; they are all university graduates and some have master degrees. There are no problems in terms of IT resources. When any technical problem is encountered during the working process on the statistics, IT department supports the statisticians with any technical support.</p> <p><b>Monitoring user requirements:</b> "Statistics User Survey Central Bank Application" is made on the website once a year.</p> <p><b>Quality policy:</b> Publishing the data in compliance with the international standards; and being one of the leading countries in terms of timeliness and consistency.</p> <p><b>Quality monitoring:</b> There is not any problem regarding the quality of the related statistics. Therefore, there is not any planned initiative on this issue. Related data are transferred to Electronic Data Delivery System and shared with users.</p> <p><b>Impartiality of statistics:</b> Data received from IHS Global Insight, EUROSTAT, OECD, TURKSTAT and CBRT are reflected directly to the tables. The statistics are unbiased.</p> <p><b>Data sources:</b> IHS Global Insight, EUROSTAT, OECD, TURKSTAT and CBRT</p> <p><b>Methodology:</b> For the missing data of CPI and PPI received from IMF and ULC received from OECD and IHS Global Insight up to the publication period, the data is estimated by applying the same rate of change for the same period of previous year.</p> <p><b>Modes of dissemination:</b> Tables are published in the pdf and excel format on CBRT website.</p> <p><b>Commenting on erroneous interpretation and misuse of statistics:</b> After the data are published, regular follow-up is made to prevent the wrong use of the data in the media.</p> <p><b>Disclosure of terms and conditions for statistical collection, processing, and dissemination:</b> Publishing the data timely in accordance with the data release calendar announced previously.</p> <p><b>Seasonal adjustment:</b> Seasonal adjustment is not applied.</p> <p><b>Legal acts and other agreements on collection, processing, and dissemination of statistics:</b></p> <ul style="list-style-type: none"> <li>• Article 43, Paragraph 5 of CBRT Law No. 1211, as amended on April 25, 2001 by the Law No. 4651</li> <li>• Decree No.32 on The Protection Of The Value Of Turkish Currency</li> </ul>
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<b>Identification of internal government</b>	None.
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access to data before release	
Identification of ministerial commentary on the occasion of statistical releases	Published without any interpretation.
Provision of information about revision and advance notice of major changes in methodology	<p><b>Revision schedule:</b> There can be revisions in REER indices starting from 1994 due to the updates in data sources.</p> <p><b>Identification of preliminary and/or revised data:</b> Published statistics embody the most up-to-date data.</p> <p><b>Advance notice of major changes in methodology, source data, and statistical techniques:</b> Country weights covered in indices are updated every three years and the changes to be made in table or methodology are announced in advance.</p>

## Quality

Dissemination of documentation on methodology and sources used in preparing statistics	The methodology and sources used in are explained in this metadata document.
Dissemination of component detail, reconciliations with related data, and statistical frameworks that support statistical cross-checks and provide assurance of reasonableness	<p><b>Internal consistency:</b> Statistics in the same data set are consistent with each other.</p> <p><b>Temporal consistency:</b> Comparable time series starts from January 1994. There is no breakdown in the time series data with respect to methodological change.</p> <p><b>Intersectoral and cross-domain consistency:</b> Consistent with chosen deflator and nominal exchange rate realisations.</p>

## Notes

Last updated	04/04/2024
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# **“Real Effective Exchange Rate” Methodology**

Data Governance and Statistics Department  
Balance of Payments Division

# I- Methodological Explanation <sup>1</sup>

Nominal effective exchange rate (NEER) is the weighted average value of Turkish lira relative to a basket of currencies of Turkey's major trade partners. The weights are determined by using bilateral trade flows. Real effective exchange rate (REER) adjusts the nominal effective exchange rate for the effects of relative prices.

REER released by the Central Bank of Turkey (CBT), is computed as the weighted geometric average of the prices in Turkey relative to the prices of its principal trade partners in international markets. The real effective exchange rate can be formulated as follows:

$$REER = \prod_{i=1}^N \left[ \frac{P_{TUR}}{P_i * e_{i,TUR}} \right]^{w_i}$$

where,  $w_i$  is country  $i$ 's weight in Turkey's REER index,  $P_{TUR}$  is the price index in Turkey,  $P_i$  is the price index in country  $i$ ,  $e_{i,TUR}$  is the nominal exchange rate of country  $i$  in terms of Turkish Lira (TL), and  $N$  is the number of countries included in the analysis.

An increase in the REER represents an appreciation of the TL in real terms, denoting a rise in the value of Turkish commodities in terms of foreign commodities.

Methodologies followed by the European Central Bank and Bank of International Settlements are adopted in the REER computation of the CBT, including 60 countries and 1994-1996, 1997-1999, 2000-2002, 2003-2005, 2006-2008, 2009-2011, 2012-2014, 2015-2017 and 2018-2020 periods manufacturing trade data. Indices that are created for each period, using country weights calculated for each period, are combined with chain index formula that is located below.

$$REER_t = REER_{t-1} \prod_{i=1}^N \left[ \frac{\frac{P_{t,TUR}}{P_{t,i} * e_{t,i,TUR}}}{\frac{P_{t-1,TUR}}{P_{t-1,i} * e_{t-1,i,TUR}}} \right]^{w_{t,i}}$$

( $t$ : current month,  $t-1$ : previous month,  $w_{t,i}$ : current month weight of country  $i$ ,  $REER_{t-1}$ : real effective exchange rate index of previous month).

In addition to the Consumer (CPI) and Producer Price Index (PPI) based indices, Unit Labor Cost (ULC) based real effective exchange rate index is produced. The CPI based REER and ULC based REER indexes are also computed separately for developed and developing partner countries<sup>2</sup>. The number of countries

<sup>1</sup> For detailed information see: [Kocakale, Y., Toprak, H.H. \(2015\). Türkiye'nin Reel Efektif Döviz Kuru Endekslerinin Güncellenmesi \(Updating Real Effective Exchange Rate Indices of Turkey\). CBT Working Paper No: 15/06.](#)

<sup>2</sup> 2014 United Nations classification is used for grouping countries according to their development level. Developed countries: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, Malta, Netherlands, Norway, Portugal, Serbia, Singapore, Slovakia, Slovenia, Spain, Sweden, Switzerland, U.K. and USA. Developing countries: Algeria, Argentina, Azerbaijan, Brazil, Bulgaria, Chile, China,

used to calculate the various REER indices vary depending on data availability. 58 countries are included in the calculation of the CPI based REER, whereas 49 and 35 countries' trade weights are used in forming the PPI and ULC based REER indices, respectively. The starting date of REER indices is set as January 1994 and base year is selected as 2003.

Data sources are as follows:

- CPI and PPI
  - o CBT Electronic Data Delivery System (CBT EDDS)
  - o International Financial Statistics (IMF IFS)
- Exchange Rates (monthly averages of nominal exchange rates)
  - o CBT EDDS
  - o IMF IFS (For pre-April 2009, IMF IFS database is used for Czech Republic, Poland, Slovakia, Hungary, Bulgaria, Romania, Malaysia, Russia, Kazakhstan, Ukraine, Azerbaijan, Thailand, Iran, China, Indonesia, Egypt, India, Brazil, Jordan and Slovenia. Figures are converted to TL).
  - o Oanda ([www.oanda.com](http://www.oanda.com)) (For Algeria)
- Unit Labor Cost Indices<sup>3</sup>
  - o IHS Global Insight and Organisation for Economic Cooperation and Development (OECD)
- Bilateral Trade (SITC 5-8)
  - o UN Comtrade
- GDP and Manufacturing Production
  - o United Nations, "National Accounts Main Aggregates"

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Croatia, Colombia, Egypt, Hungary, India, Indonesia, Iran, Iraq, Jordan, Kazakhstan, Libya, Malaysia, Mexico, Morocco, Poland, Qatar, Romania, Russia, Saudi Arabia, South Africa, Thailand, UAE, Ukraine and Viet Nam.

<sup>3</sup> OECD database is used for Türkiye's nominal unit wage index data for 2003-2006. Starting from 2007, "Hourly Labor Productivity" is calculated by dividing "Industrial Production Index", disseminated by TÜİK quarterly, by "Hours Worked Index". Then, "Nominal Unit Wage Index" is calculated as "Hourly Labor Productivity Index" divided by TÜİK's quarterly "Hourly Labour Cost Index". Averaging quarterly indexes results in Türkiye 's yearly "Nominal Unit Wage Index (BIM)".