

Report on quality, sources and methods used for the compilation of Real Effective Exchange Rate statistics

Real Effective Exchange Rates (REER) are a concept on the borderline between statistics and economic analysis. They are entirely based on official statistics (exchange rates, trade data, deflators), but the selection of the specific statistical series used in their calculation (in particular the choice of deflator), and some of the modalities of their calculation (in particular the choice of a country basket), are a matter of choice for a particular REER specification that is the best suited for the analytic purpose at hand.

DG ECFIN has a long tradition of producing Effective Exchange Rates, and has been applying the same basic methodological approach since the mid 1990's, whilst further developing specific aspects of the indicator where useful. These REER are used within the European Commission for a variety of purposes such as competitiveness analysis or the Macro-economic Imbalances Procedure (MIP).

The REER specification found most suitable for use in the MIP has been motivated in European Economy Occasional Paper 92/2012: Scoreboard for the Surveillance of Macroeconomic Imbalances¹. The methodology of the REER used for MIP purposes has also been discussed and agreed in the LIME Group of the Economic Policy Committee (EPC).

This report is set in the context of initiatives undertaken by the European Statistical System (ESS) and the European System of Central Banks (ESCB) to enhance the quality monitoring of statistics underlying the MIP. For REER, it implements the third level (producer-specific reports) in the three-tiered reporting approach applied over all domains encompassing MIP relevant statistics. The report is structured according to selected principles of the ESS Code of Practice (CoP) and the ESCB Public Commitment (PC).²

1. INSTITUTIONAL ENVIRONMENT

1.1. Professional Independence (CoPI; PCI)³

1.1.1 Legal basis

REER are produced and disseminated by the Directorate-General for Economic and Financial Affairs (DG ECFIN), an entity of the European Commission under the provisions of Articles 19 to 21 of the European Commission's Rules of Procedures (Commission Decision C(2010)1200).⁴ The European Commission is an Institution of the European Union, as established by Article 13 of the Treaty on European Union.⁵

¹ http://ec.europa.eu/economy_finance/publications/occasional_paper/2012/op92_en.htm

² The ESS and the ESCB comprise the institutions compiling almost all of the MIP relevant statistics.

³ CoP: ESS Code of Practice; PC: ESCB Public Commitment.

⁴ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32000Q3614&from=EN>

⁵ <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:12016M/TXT&from=EN>

DG ECFIN is not a producer of official statistics and is hence not per se subject to the ESS European Statistics Code of Practice or the ESCB Public Commitment. Not all of the principles in these two frameworks lend themselves easily to application to DG ECFIN. DG ECFIN as producer of REER is, however, a producer of “other statistics” in the sense of Commission decision of 17 September 2012 on Eurostat (2012/504/EU)⁶ and in this role subject to coordination and guidance by Eurostat according to articles 5(2) and 6(4) of the Decision.

The Commission’s Commitment on Confidence in Statistics introduced by Regulation 2015/759⁷ of 29 April 2015 amending Regulation (EC) No 223/2009 on European statistics⁸ would however not cover the current production of REER.

1.1.2 Statistics work programme

DG ECFIN is a Directorate-general of the European Commission and hence subject to the planning and reporting requirements that apply to the entire Commission. In particular, DG ECFIN elaborates a strategic plan⁹, an annual management plan¹⁰ and subsequently an annual activity report on the implementation of management plan¹¹.

Both documents are publicly available. The production of statistics and indicators derived from statistics, including the calculation of REER, is an important element in the work of DG ECFIN and covered by the management plan and the activity report. With specific exceptions¹², they are however not an end in itself but intended to support economic analysis and policy making. DG ECFIN hence does not elaborate a dedicated statistical work programme.

1.2. Mandate for data collection (CoP2; PC2)

1.2.1 Allocation of responsibilities

Within DG ECFIN, the calculation of REER is assigned to Unit C3, “Macroeconomics of the euro area, monetary policy and euro convergence”. The mandate for compiling the REER indicator emanates from the MIP Regulation (Regulation (EU) No 1176/2011 of 16 November 2011 on the prevention and correction of macroeconomic imbalances)¹³ which gives the Commission the task to prepare the annual alert mechanism report (Art. 3, paragraph 1).

DG ECFIN’s work on the REER, as far as it concerns the MIP, is discussed within the EPC’s LIME group.

⁶ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32012D0504&from=EN>

⁷ http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:JOL_2015_123_R_0009&from=EN

⁸ <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32009R0223&from=EN>

⁹ https://ec.europa.eu/info/publications/strategic-plans-2020-2024-economic-and-financial-affairs_en

¹⁰ https://ec.europa.eu/info/files/management-plan-2021-economic-and-financial-affairs_en

¹¹ https://ec.europa.eu/info/publications/annual-activity-report-2020-economic-and-financial-affairs_en

¹² Such as the EU Programme of Business and Consumer Surveys. The regular production of macro-economic forecasts, though not statistics in the proper sense, is another case of data production explicitly addressed in the public planning documents.

¹³ <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R1176&qid=1438688030649&from=EN>

1.2.2 Legal basis

The source data underlying the REER is compiled by national statistical institutes and the European Central Bank. The compiling institutions derive their mandate for data collection from the relevant national legislation and from Regulation (EC) No 223/2009 of 11 March 2009 on European statistics¹⁴ and are bound by the ESS European Statistics Code of Practice or the ESCB Public Commitment.

For the specific domains that provide the source data for the calculation of REER, data collection in the EU is regulated by legal acts. For the price statistics, the central reference is Regulation (EC) No 2494/95 of 23 October 1995 concerning harmonized indices of consumer prices¹⁵, for trade statistics the central references are Regulation (EC) No 638/2004 of 31 March 2004 on Community statistics relating to the trading of goods between Member States¹⁶ and Regulation (EC) No 471/2009 of 6 May 2009 on Community statistics relating to external trade with non-member countries^{17, 18}.

Exchange rate statistics are compiled by the European Central Bank.

1.3. Impartiality and objectivity (CoP6; PC6)

1.3.1 Advance release calendar

REER are published by DG ECFIN on a monthly basis, in a broadly stable rhythm but without advance release announcements. Release dates may take into account the needs of the annual MIP cycle and the release of the Commission's macro-economic forecasts but are not determined by these.

1.3.2 Revision policy

On release, data are revised for the entire reporting period. Accumulated revisions to the source data, if any, are incorporated at that time. None of the source statistics is subject to routine revisions. Trade statistics and consumer price indices can be revised for either replacement of provisional figures, correction of errors or introduction of changes to methodology. Exchange rates are not usually open for revision.

¹⁴ See footnote 8.

¹⁵ <http://eur-lex.europa.eu/legal-content/EN/AUTO/?uri=CELEX:01995R2494-20090807&qid=1431512046244>

¹⁶ <http://eur-lex.europa.eu/legal-content/EN/AUTO/?uri=CELEX:02004R0638-20140717&qid=1431518605792>

¹⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32009R0471&qid=1635544210169>

¹⁸ See also

<https://ec.europa.eu/eurostat/en/web/products-statistical-reports/-/ks-ft-17-007>

for an overview of further legislation in the field of international trade in goods and services.

2. STATISTICAL PROCESSES

2.1. *Sound methodology (CoP7; PC7)*

DG ECFIN's methodology for calculating REERs broadly follows the conventional framework used by the majority of international REER data compilers: the BIS¹⁹, the ECB²⁰, the IMF²¹ and the OECD^{22, 23}.

Regarding the basket of trade partners: on grounds of data quality and availability, DG ECFIN prefers to limit the basket to the Member States' main trading partners (broad group of 42 countries, including the 27 EU Member States)²⁴, which for the EU covers more than 85% of total trade. The inclusion of countries with non-convertible or severely depreciating currencies or countries facing hyperinflation has been deliberately avoided. Experience has shown that even low-weighted contributions from such countries could lead to (economically unfounded) biased NEER results.

Regarding the weighting system: DG ECFIN compared the results produced through the use of bilateral exports weights, bilateral imports weights, double exports (i.e. taking account of third market effects) weights and global (i.e. a weighted average of double exports and bilateral imports) weights. The results produced by both the double export and the global weight schemes appeared to be highly comparable. It was decided to restrict the weighting system to double exports. However, if need should arise, DG ECFIN could easily switch to using global weights.

Whatever basket of trade partners is used, DG ECFIN's calculation of trade weights is performed on the exact corresponding bilateral trade matrix, and not a reduced matrix calculated for a larger group.

Regarding the frequency of weight matrix revisions: in order to capture changes in trading patterns, DG ECFIN opted for moving annual weights: for each year, the weight matrix based on trade data for the previous year is used; the results are chain-linked.

2.2. *Appropriate Statistical procedures (CoP8; PC8)*

Basic data needed in the calculations are taken from publicly available and trustworthy sources.

Regarding the exchange rates: the daily fixings collected and published by the ECB are used. As the currency unit used in DG ECFIN's EER calculations is the USD, the daily data quoted in EUR are first converted to USD rates, from which monthly and yearly averages are derived.

For currencies not reported for the whole time range needed by the ECB, the USD exchange rates published by Refinitiv are utilised.

¹⁹ <https://www.bis.org/statistics/eer.htm> (for methodology see https://www.bis.org/publ/qtrpdf/r_qt0603e.pdf)

²⁰ <https://sdw.ecb.europa.eu/browse.do?node=9691299> (for methodology see <https://www.ecb.europa.eu/pub/pdf/scpops/ecbocp134.pdf>)

²¹ <https://data.imf.org/?sk=4c514d48-b6ba-49ed-8ab9-52b0c1a0179b&slid=1409151240976> (for methodology see <https://www.imf.org/external/pubs/ft/wp/2005/wp0599.pdf>)

²² <https://stats.oecd.org/Index.aspx?querytype=view&queryname=168> (for methodology see <https://www.oecd.org/economy/outlook/inventory.htm>)

²³ There is a number of REER series published by other institutions as well following the same methodology.

²⁴ https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/price-and-cost-competitiveness/price-and-cost-competitiveness-data-section_en

Regarding the price deflators: headline inflation data (HICP, index number series) collected and published by Eurostat are used. For countries not reported by Eurostat, national CPI data series collected and published by either the IMF (IFS database) or the OECD (MEI database) are used.

Regarding the trade data: data on exports of goods published by the IMF (DoT database) are utilised since it seemed preferable to make use of a single consistent dataset.²⁵ As far as EU Member States are concerned, the source for these IMF data is Eurostat's Comext database.

DG ECFIN is aware that other data providers use trade in manufactured goods (SITC 5-8). For simplicity, consistency and data availability reasons, total trade in goods was chosen. The resulting REER series do not appear significantly different in all cases.

3. STATISTICAL OUTPUT

3.1. *Relevance (CoP11; PC11)*

The REER indicator is a part of the 'scoreboard' of the macroeconomic imbalances procedure (MIP), aiming to identify and address imbalances that hinder the smooth functioning of the economies of Member States, the economy of the EU, and may jeopardise the proper functioning of the economic and monetary union.

In that context, a measure of REER based on consumer prices has been chosen in order to capture the drivers of persistent changes in price and cost competitiveness of each Member State relative to its major trading partners. This indicator accounts for broad price developments and thus casts a comprehensive picture of global 'price' pressure on domestic producers in a medium-term perspective. Since it is closely related to the terms-of-trade concept, this indicator also exemplifies the attractiveness of imports over domestic production. Hence, with its focus on exchange rates and prices, REER mainly assess price and cost competitiveness developments, and hardly account for several other aspects of competitiveness like product quality, overhead costs, or marketing efficiency.

In the economic literature, the REER has often been found to be a statistically significant predictor of the incidence of economic crises; and it is, thus, frequently considered among early warning indicators.

For consistency and communication reasons, it is important that the REER statistics used in the context of the MIP are the same as the ones published by DG ECFIN for its macroeconomic forecast exercises and used in regular monitoring and analysis outside the MIP. One central use in that respect is in the European Commission's macro-economic forecasts²⁶, currently produced four times per year by DG ECFIN.

²⁵ However, the complexity of this database implies some delays in updating weights for the REER calculations.

²⁶ For an example, see the autumn 2021 forecast at https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/autumn-2021-economic-forecast_en

3.2. Accuracy and reliability (including stability) (CoP12; PC12)

Calculating REER involves a certain degree of subjectivity by their very nature ("sui generis"), which requires conscious methodological choices to be made in the process: definition of the basket of trading partners, weighting scheme, etc.

No commonly agreed standard exists against which the quality of a REER series can be measured; the only possible assessment is a comparison with differently calculated series (see point 3.4.1 – external consistency), where no dataset seems superior to any other. Nevertheless, given conceptual and data limitations, changes in REER should be interpreted with caution.

3.3. Timeliness (including punctuality) (CoP13; PC13)

In principle, DG ECFIN's EER data are published on a monthly basis (covering both NEER and REER), after all basic data have become available. If needed, these calculations can be performed at any time on an ad-hoc basis.

3.4. Coherence/consistency and comparability (CoP14; PC14)

3.4.1 Consistency with related statistics (external consistency)

A comparison of monthly REER series 1999-2014 published by the five main international providers of this type of data²⁷ has been carried out by DG ECFIN. Notwithstanding significant differences in approach (number and composition of trading partners, weighting methods) a remarkable degree of correlation was observed for every country, both in levels (index number series) as in year-on-year changes.²⁸

A similar exercise, specifically related to the MIP criterion, covering the last thirteen years showed a broad agreement (better than 95%) in results based on these five data sources.

3.4.2 "Time" and back data consistency

Every REER release is based on the latest available data series from the underlying basic statistics: the complete dataset is recalculated every month. Any revisions or corrections in the underlying data are therefore taken into account. Time consistency is ensured through the use of geometric averages in all EER calculations.

3.4.3 Consistency across frequencies

Use is made of yearly moving weight matrices: therefore chain-linking needs to be applied. Data for all frequencies are calculated individually, and not derived from each other. As the last period to which data for the subsequent year are linked is different for all frequencies (last month in (y-1) for monthly series, last quarter in (y-1) for quarterly series, or last year for annual series), yearly REER data cannot directly be derived from monthly or quarterly REER data alone.

²⁷ ECFIN, ECB, OECD, IMF, and BIS.

²⁸ https://ec.europa.eu/info/files/comparison-consumer-price-deflated-reer_en

3.5. Accessibility and Clarity (CoP15; PC15)

3.5.1 Dissemination policy

The MIP Regulation²⁹ stipulates that “The Commission shall make the set of indicators and the thresholds in the scoreboard public.” (Art. 4, paragraph 6) and that “The Commission shall update the values for the indicators on the scoreboard at least on an annual basis.” (Art. 4, paragraph 8). The dissemination means listed in the following section comply with these requirements.

3.5.2 Access to data and metadata

DG ECFIN publishes REER data including related documentation on the “Price and Cost Competitiveness” pages³⁰ on its website, covering all data releases back to 1999. This site also gives relevant metadata.³¹ Further documentation is also provided in European Economy Occasional Paper 92/2012³². REER are further disseminated in other DG ECFIN products and publications, notably the macro-economic forecast publications and the AMECO online database³³.

In the MIP context, data for the REER (and other MIP relevant statistics) are publicly accessible through Eurostat’s website³⁴ and DG ECFIN’s MIP scoreboard data platform³⁵. They are also published in the annual Alert Mechanism Report³⁶ and its statistical annex³⁷.

²⁹ See footnote 13

³⁰ http://ec.europa.eu/economy_finance/db_indicators/competitiveness/index_en.htm

³¹ See in particular

https://ec.europa.eu/info/sites/default/files/economy-finance/technical_annex_en_1.pdf

³² See footnote 1

³³ https://ec.europa.eu/info/business-economy-euro/indicators-statistics/economic-databases/macro-economic-database-ameco_en

³⁴ <http://ec.europa.eu/eurostat/web/macroeconomic-imbances-procedure/indicators>

³⁵ https://ec.europa.eu/info/business-economy-euro/economic-and-fiscal-policy-coordination/eu-economic-governance-monitoring-prevention-correction/macroeconomic-imbances-procedure_en

³⁶ https://ec.europa.eu/info/publications/2021-european-semester-alert-mechanism-report_en

³⁷ https://ec.europa.eu/eurostat/documents/16624/9862137/2021_statistical_annex_en.pdf