## The predictive power of equilibrium exchange rate models: Data guide

This document is intended to provide an overview of the database used for the project “The predictive power of equilibrium exchange rate models”. It (i) sketches the data sources and tickers used to retrieve the data and (ii) provides instructions on how to update the database for future use.

The sample covers ten advanced economies with flexible exchange rate regimes, namely Australia (AUS), Canada (CAN), Switzerland (CHE), euro area (EA)[[1]](#footnote-1), United Kingdom (GBR), Japan (JPN), Norway (NOR), New Zealand (NZL), Sweden (SWE) and United States (USA) at quarterly frequency over the period 1975:1 – 2018:4. Data are seasonally adjusted.

The database is based on two excel workbooks, a raw version (“data\_AEs\_quarterly“) for data retrieval and variable transformations and a clean version (”data\_AEs\_quarterly\_clean”) for the Matlab import. In general, data updates should be performed in the raw file as all variables are linked to the raw file (with the exception of current account elasticities and trade weights). The only actionable point in the clean version is the extension of formulas to additional rows to account for new data points.

1. **REAL EFFECTIVE EXCHANGE RATES**

In order to obtain a consistent set of real effective exchange rates across countries, we construct them manually based on nominal bilateral exchange rates, weighted by trade shares (based on fixed 1995 weights from the BIS effective exchange rates dataset) and deflated by the consumer price index.

**Bilateral exchange rates against the US Dollar**

Bilateral exchange rates against the US Dollar are obtained from the BIS through Haver Analytics uisng the following ticker: Q???XUSE@BIS. Exchange rates are taken at their end-of-period values.

To update the series, refresh the excel sheet “ner\_eop”.

**Trade weights**

Trade weights are obtained from the BIS through Haver Analytics and the following ticker: B???X??@BIS. Weights are static and based on bilateral trade in 1995, i.e. the start of the forecasting period.

**Consumer price index**

Consumer price indices are obtained from the IMF’s International Financial Statistics database through Haver Analytics and the following ticker: C???PC@IFS. Euro area data before 1996Q1 is calculated as the weighted average of individual euro area member states’ CPI (EA11 aggregate).

To update the series, simply refresh the excel sheet “cpi”.

1. **EBA VARIABLES**

**GDP per capita**

GDP per capita is manually constructed by dividing real PPP GDP with population data. Real PPP GDP data are obtained from the OECD National Account database through Haver Analytics and the ticker B???GDPC@OECDNAQ. Population data are retrieved through Haver Analytics and the ticker C???TB@UNPOP from United Nations Population Statistics. Given that population data are only available at annual frequency, the data are interpolated to quarterly frequency using cubic splines. Real GDP and population data for the euro area refer to EA11 data.

To update real GDP data, refresh the excel sheet “rgdp\_usd” and extend the formulas in the sheet “gdppc”. To update population data, the do-file “load\_data\_AEs\_quarterly” needs to be executed.

For future updates, data could be amended to include EA19 (dynamic composition) instead of EA11 after 1999.

**Terms of trade**

Terms of trade are calculated as the ratio of export to import prices, more precisely export and import deflators of goods and services. Data are obtained from the OECD Economic Outlook through Haver Analytics and the tickers Q???JX@OUTLOOK and Q???JM@OUTLOOK for exports and imports, respectively. Series are rebased to 2010Q1. Euro area data denote EA11 data.

To update the series, refresh the excel sheets “price\_imports”, “price\_exports” and extend the formulas in the sheets “price\_imports\_rebased”, “price\_exports\_rebased” and “tot\_all”.

For future updates, data could be amended to include EA19 (dynamic composition) instead of EA11 after 1999.

**Net foreign assets**

Net foreign assets are expressed relative to GDP. Data on net foreign assets are obtained from two sources, (i) from IMF International Financial Statistics through Haver Analytics and the tickers C???VC@IFS and C???VD@IFS for assets and liabilities, respectively and (ii) from the External Wealth of Nations (EWN) database[[2]](#footnote-2). The latter are interpolated from annual to quarterly frequency using cubic splines. IMF data serves as the primary source and is complemented with EWN data, where necessary. Nominal GDP data are obtained from OECD National Accounts through Haver Analytics and the ticker B???GDP@OECDNAQ. Net foreign asset data for the euro area includes intra-euro area positions prior to 1999 due to data limitations and is defined as EA11 excl. LUX for that period.

To update the series, refresh the excel sheets “nfa\_assets\_haver”, “nfa\_liab\_haver” and “gdp\_usd” and extend the formulas in the sheets “nfa\_abs\_haver”, “nfa\_abs\_combined ” and “nfa2gdp”. EWN updates are only released irregularly (every couple of years) and do not need to be updated for the purpose of this paper.

For future updates, data could be amended to use nominal GDP instead of PPP GDP as the denominator for net foreign assets. Data availability of nominal GDP series in USD needs to be checked, as well as related volatility concerns.

1. **OTHER VARIABLES**

**Export and import shares**

Export and import shares are expressed relative to GDP. Export and import of goods and services are obtained from the OECD Economic Outlook through Haver Analytics and the tickers Q???XA@OUTLOOK and Q???MA@OUTLOOK for exports and imports, respectively. Nominal GDP data are obtained from OECD National Accounts through Haver Analytics and the ticker FX(A???GDP@OECDNAQ, 111). Euro area data prior to 1999 refer to EA11 data. As such data include both intra and extra-euro area trade, we assume the share of intra-euro area to be constant at 50% prior to 1999, in line with earliest available data points, to obtain a series for extra-euro area trade. Extra-euro area trade data starting in 1999Q1 are retrieved through the tickers FX(S025C100@EUDATA,111), FX(S025C200@EUDATA,111), FX(S025D100@EUDATA,111) and FX(S025D200@EUDATA,111), respectively for exports and imports of goods and services separately.

To update the time series, refresh the excel sheets “imports\_gs\_usd”, “exports\_gs\_usd” and “gdp\_nom\_usd” and extend the formulas in the sheets “imports\_gs\_usd”, “exports\_gs\_usd” and “xm\_shares\_gs”.

For future updates, data could be amended to use EA19 GDP in static composition as the denominator instead of EA19 GDP in dynamic composition, to be in line with the definition used for export and import values.

**Current account**

Current account data are expressed relative to GDP and primarily obtained from the OECD Main Economic Indicators through Haver Analytics and the ticker S???UBTR@OECDMEI. Prior to 2000, data are taken from the OECD Economic Outlook and the ticker Q???BCAP@OUTLOOK. Euro area data prior to 1999 refer to EA11 data.

To update the series, refresh the excel sheets “ca\_oecd” and “ca\_oecd\_outlook” and extend the formulas in the sheet “ca\_calc”.

**Current account elasticities**

Current account elasticities are taken directly from the IMF External Sector Report 2018. Updates need to be inserted manually.

**GDP weights**

GDP weights are calculated based on real GDP data from OECD National Accounts obtained through Haver Analytics and the ticker B???GDPC@OECDNAQ.

To update the weights, refresh the sheet “rgdp\_usd” and extend the formulas in the sheet “weights\_gdp”.

1. Prior to 1999, we define euro area, where appropriate, as a weighted average of the eleven original member states (EA11), using PPP adjusted GDP as weights. [↑](#footnote-ref-1)
2. Lane, P. R., Milesi-Ferretti, G. M., 2018. The external wealth of nations revisited: International financial integration in the aftermath of the Global Financial Crisis. IMF Economic Review 66 (1), 189-222. [↑](#footnote-ref-2)