

February 2014

This document describes the construction of the variables used in the paper, "Exiting from QE" (February 2014 version) by F. Hayashi and J. Koeda. It should be read along with Appendix A of the paper.

1 Raw Data

The following three Excel files contain all the raw data used in the paper.

"raw monthly data.xls"

This Excel file has only one sheet, "data". It has the following columns (the data source is in the second row of each column, the name in quotes is in the first row of each column):

Column A: "yr_month". Year and month (e.g., 197001, meaning January 1970).

Column B: "r_bar". The rate paid on reserves. In annualized percents.

Column C: "collateralized_r_BOJ". Collateralized call rate, monthly average of daily rates, annualized percents.

Column D: "M". Level of actual reserves, in 100 million yen. Average over the reserve maintenance period of daily values. For example, the entry for 197001 is for the reserve maintenance period of January 16, 1970 to February 15, 1970.

Column E: "M_req". Required level of reserves, in 100 million yen.

Column F: "base". Monetary base, monthly average of daily values, in 100 million yen. Seasonally adjusted. (This series was not used in the paper.)

Column G: "core_CPI_NSA". The "core" CPI (excluding fresh food).

Column H: "core_core_CPI_NSA". The "core-core" CPI (excluding food and energy).

Column I: "core_core_CPI_SA". The "core-core" CPI, seasonally adjusted.

“raw daily data.xls”

This Excel file has two sheets. The first sheet, “uncollateralized (Nikkei)”, has daily data on uncollateralized call rate. The other sheet, “collateralized (Nikkei)”, has daily data on collateralized call rate. The data source is *Nikkei* (the data vending arm of the Nikkei Daily).

“raw quarterly and monthly output.xls”

This Excel file has nine sheets.

“Cabinet Office 1” has the CSV file whose link is

http://www.esri.cao.go.jp/en/sna/data/sokuhou/files/2010/qe104_2/___icsFiles/afielddfile/2012/02/29/gaku-jk1042.csv

Its column B has seasonally-adjusted chained quarterly real GDP (benchmark year=2000) from 1980:Q1 to 2010:Q4.

“Cabinet Office 2” has the CSV file whose link is

http://www.esri.cao.go.jp/jp/sna/data/data_list/sokuhou/files/2013/qe134/___icsFiles/afielddfile/2014/02/13/gaku-jk1341.csv

Its column B has seasonally-adjusted chained quarterly real GDP (benchmark year=2005) from 1994:Q1 on.

“Cabinet Office 3” Its column D has the official (by the Cabinet Office of the Japanese government) of GDP gap.

“all industry index” Its column P has the METI’s (the Ministry of Economy, Trade, and Industry of the Japanese government) index of the seasonally-adjusted “all-industry activity index”. The base year is 2005. From January 2003 on.

“all industry index, old” Its column T has the METI’s “link index” of the seasonally-adjusted “all-industry activity index”. For various base years. From January 1988 to December 2002.

“IP from Datastream” Its column B has the seasonally-adjusted Index of Industrial Production compiled by METI. The source is *Datastream*.

“IP from METI 1”, “IP from METI 2” The two sheets have the IP indexes (current and link indexes) directly from METI. The sheet **“verify Datastream”** verifies the Datastream series.

The paper won’t use the IP index.

2 Matlab Codes for Creating the Working File

Three Matlab code files, “Step_1_obtain_raw_monthly_data.m”, “Step_2_convert_daily_call_rates_to_monthly.m”, and

"Step_3_creating_monthly_GDP_using_METI_all_index.m", when run in this order, create the Excel file "working file.xls". They call up user-defined Matlab functions "allocate_between_months_f.m", "merge_fh.m", and "HPfilter.m". (This process also creates the Matlab data "temporary_data.mat" as a by-product, but this file is redundant.) Those three Matlab code files perform the operation described in Appendix 1 of the paper, except for (i) the seasonal adjustment of the "core" CPI, (ii) the adjustment of the seasonally adjusted "core" CPI for the 2007-2008 energy price swing, (iii) calculation of p (the monthly inflation rate) and π (the year-on-year inflation rate) in (A1.2) and (A1.3) of Appendix 1, (iv) calculation of m (the excess reserve rate) in (A1.4), and (v) calculation of x (the output gap) in (A1.9)

The Excel file "working file.xls" has the information for producing all the results of the paper.

Column A: "yr_month". year and month (e.g., 197001, meaning January 1970)

Column B: "r_bar". The rate paid on reserves. In Annualized percents.

Column C: "r_ave". This is the policy rate r_t used in the paper. In annualized percents.

Column D: "M". Actual reserves in 100 million yen.

Column E: "M_req". Required reserves in 100 million yen. Use this and the series in the previous column to create the m by (A1.4).

Column F: "core_core_CPI_SA". The "core-core" CPI (excluding food and energy), seasonally adjusted.

Column G: "core_CPI_NSA_ctax". The "core" CPI (excluding fresh), adjusted for the consumption tax rate hikes, but *not* seasonally adjusted.

Column H: "core_CPI_NSA". The "core" CPI, not seasonally adjusted, and not adjusted for the consumption tax hikes. This series and the one in the next column are needed for Appendix Figure 1 of the paper.

Column I: "core_core_CPI_NSA". The "core-core" CPI, not seasonally adjusted, and not adjusted for consumption tax.

Column J: "interpolated_monthly_GDP". Real, seasonally-adjusted monthly GDP at annual rates.

Column K: "interpolated_monthly_potential_GDP". Potential monthly GDP at annual rates. Use this series and the series in the previous column to calculate the x in (A1.9).

Column L: "IP". The Index of Industrial Production. Seasonally adjusted. This series is not used in the paper.

Column M: "base". The monetary base in 100 million yen. Seasonally-adjusted monthly averages. Not used in the paper.

Column N: "core_CPI_ctax_SA". The "core" CPI (excluding fresh food), adjusted for the consumption tax rate hikes *and* seasonally adjusted. This is the paper's measure of the price index. To reproduce this series, you need to perform seasonal adjustment on "core_CPI_NSA_ctax" (the series in Column G). The seasonal adjustment is by "Decomp" applied for the period of January 1970 - December 2012 (see Appendix 1 of the "Decomp" URL where you can perform the seasonal adjustment on-line).