Replication files for

Fiscal Multipliers and Foreign Holdings of Public Debt

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This document describes the data and codes necessary to reproduce the 26 tables and 17 figures in the paper and online appendices. We first describe the data sources, and then outline how to use the model codes to replicate our empirical results. We include details of the statistical software and packages used. We also provide all of the model outputs displayed in the paper and online appendices.

A. Data availability statement

We use publically-available data for all of our US analysis. We source data for US military news shocks, nominal government purchases, nominal GDP, GDP deflator and real GDP from Ramey, V.A and Zubairy, S. (2018). "Government spending multipliers in good times and in bad: Evidence from US historical data", *Journal of Political Economy*, 126(2): 850-901. These series are contained in the "RZDAT" excel file in the folder "Ramey_Zubairy_replication_codes". The file is available for download at: https://www.journals.uchicago.edu/doi/suppl/10.1086/696277

We source data for the US federal government's treasury securities liabilities, the rest of the world's US treasury security assets and private credit-to-GDP from Federal Reserve Economic Data (FRED), an online database maintained by the Research Department at the Federal Reserve Bank of St. Louis. We source data for US nominal private investment, the current account balance, and nominal exports and imports of goods and services from the National Income and Product Accounts, maintained by the Bureau of Economic Analysis at the US Department of Commerce. We provide the FRED variable identifiers and NIPA line numbers of these series, and for the series sourced from Ramey and Zubairy (2018), in Appendix A in our paper.

We source data on exchange rate classifications for the US from Ilzetzki, E., Reinhart, C.M. Rogoff, K.S. (2019). "Exchange Arrangements Entering the 21st Century: Which Anchor Will Hold?", *Quarterly Journal of Economics*, 134(2): 599-646. The series is in the "Coarse" worksheet of the ERA_Classification_Monthly_1940_2016" excel file, available for download from the Harvard Dataverse https://doi.org/10.7910/DVN/IDEXPY We use the value of the last month in a quarter as the value for that quarter, and create a dummy variable that takes a value of one when the US exchange rate is free floating.

We use the estimated US government spending shock from a structural VAR, identified using the Blanchard and Perrotti (2002) approach, from Ramey, V.A. (2016). "Macroeconomic shocks and their propagation", *Handbook of Macroeconomics*, 2: 71-162. These replication files are available for download at: https://econweb.ucsd.edu/~vramey/research.html#govt The shock is the variable "bpshock", created on line 155 from the estimated equation on line 154 of "jordagov.do" in the folder "Ramey_HOM_govtspending". This is just for Figure 2 and Table A1 in the online appendix. In the empirical analysis, we follow the approach of Ramey and Zubairy (2018) and capture the BP shock by including current government spending as a regressor while controlling for lagged GDP and government spending. See Section 4 of our paper for details.

We use publically-available data for all but one series of our international panel analysis. We source data for population, government spending, nominal GDP, GDP deflator, real GDP, potential GDP, budget deficit, private investment and net exports from the OECD's Economic Outlook No. 95 (November 2015). We source data on public debt, the foreign holdings of public debt, the current

account and exchange rates from numerous public sources. We describe where we access these data in detail in Appendices D2-D5 respectively, including the database-specific identifiers.

We source data on the narrative fiscal consolidation shocks from 1978-2009 from Guajardo, J., Leigh, D. and Pescatori, A. (2014). "Expansionary Austerity? International Evidence", *Journal of the European Economic Association*, 12(4): 949-968. The dataset is available for download from https://doi.org/10.1111/jeea.12083 We source data on the narrative fiscal consolidation shocks from 2010-2014 and Kataryniuk, I. and Valles, J. (2018). "Fiscal consolidation after the Great Recession: the role of composition", *Oxford Economic Papers*, 70(2): 563-585. The dataset is available for download from https://doi.org/10.1093/oep/gpx032

We source data on total foreign assets, total foreign liabilities and GDP in US dollars from Lane, P.R., and Milesi-Ferretti, G-M. (2018). "International Financial Integration in the Aftermath of the Global Financial Crisis", *IMF Economic Review*, 66: 189-222. The dataset is available for download from the IMF website http://www.imf.org/~/media/Files/Publications/WP/2017/datasets/wp115.ashx.

We source data on systemic bank crises from Laeven, L. and Valencia, F. (2020). "Systemic Banking Crises Database II", *IMF Economic Review*, 68: 307-361. The dataset is available for download at https://doi.org/10.1057/s41308-020-00107-3

We use the same source for data on exchange rate classifications for our international panel as we did for the US (described above). In this case, we use the median of the monthly values as the value for that year, and create a dummy variable that takes a value of one when the exchange rate is fixed.

We source data on sovereign credit ratings from datasets produced by Fitch, Moody's and S&P. Access to the underlying raw data provided by each credit rating agency requires subscriptions. We accessed these data using the ESM's subscription to the web data platforms of these agencies while one of the authors was employed there. The subscription fees vary depending on the breath of data a user wishes to access. We average the rating across the three agencies to get the overall rating used in the empirical analysis. We provide this series in our replication package, as it is not possible to derive the agency-specific rating covered by the subscription from the material we provide.

B. Model codes

We conducted our analysis using Stata/SE 14.0. We use the following non-standard Stata packages: eststo, esttab, grstyle, hprescott, ivreg2, listtab, listtab_style, listtab_vars, s2colorjournal, xtivreg2. We have included these packages in the folder "Empirical_analysis". These are the .ado and .scheme files. All except one package can be downloaded using the command "ssc install [*package-name*]". The exception is the "s2colorjournal" package. This was created by us by modifying the publically-available "s2color" package, which can be installed as described above.

BCEM_us_data.do imports (from BCEM_us_data.xlsx) and prepares the data for the US analysis, and replicates Figures 1 and 2. This file is located in the "Data_preparation" folder. Instructions on lines to comment in/out to prepare the data for the subsample analyses are contained in the code. Run this file before conducting any US analysis and paste the different .dta files into the "Empirical_analysis" folder.

BCEM_us_main.do replicates Figures 3-5 and Tables 1 (LHS), 2, 3 and B1-5. This file is located in the "Empirical_analysis" folder.

BCEM_us_subsample.do replicates Figures 6a, 6b and 8e and Tables C1, C2 and C9. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. To produce the combined plot Figure 6, paste the output in the "irfs_us_subsample.csv" into the "irfs_us_precrisis_both.csv" file and then run **BCEM_us_precrisis_plots.do**. See below for instructions on combining the results from the post-Vietnam war sample (Figure 8e) with the rest of Figure 8.

BCEM_us_other.do replicates Figures 7a and 7b and Tables C3 and C4. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. To produce the combined plot Figure 7, paste the output in the "irfs_us_other.csv" into the "irfs_us_other_both.csv" file and then run **BCEM_us_other_plots.do**.

BCEM_us_races.do replicates Figure 8a-8d and 8f and Tables C5-C8 and C10. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. To produce the combined plot Figure 8, paste the output in the "irfs_us_`race'.csv" into the "irfs_us_races_all.csv" file and then run **BCEM_us_race_plots.do**. For Figure 8e, paste the output in the "irfs_us_subsample.csv" into the "irfs_us_races_all.csv" file.

BCEM_us_oneinstr.do replicates Figures A1a, A1b, A2a and A2b as well as Tables A1, A2 and A3 from the online appendix. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. The output .tex (for Tables) and .eps (for Figures) files are then pasted into the "Output" folder. To produce the combined plots Figures A1 and A2, paste the output in the "irfs_us_oneinstr.csv" into the "irfs_us_oneinstr_both.csv" file and then run **BCEM_us_oneinstr_plots.do**.

BCEM_panel_data.do imports (from BCEM_panel_data.xlsx) and prepares the data for the international panel analysis, and replicates Figures 9, 10 and 11. This file is located in the "Data_preparation" folder. Instructions on lines to comment in/out to prepare the data for the subsample analyses are contained in the code. Run this file before conducting any panel analysis and then paste the different .dta files into the "Empirical_analysis" folder.

BCEM_panel_main.do replicates Figures 12 and 13 and Tables 1 (RHS), 4, 5, E1-E4. This file is located in the "Empirical_analysis" folder.

BCEM_panel_races.do replicates Figure 14a and 14b and Tables F2 and F3. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. To produce the combined plot Figure 14, paste the output in the "irfs_panel_`race'.csv" into the "irfs_panel_race_both.csv" file and then run **BCEM_panel_races_plots.do**.

BCEM_panel_aipw.do replicates Figure F3 and Tables F1 and C5 in the online appendix. This file is located in the "Empirical_analysis" folder.

BCEM_panel_robust.do replicates Figures F1a, F1b, F2a and F2b as well as Figures B1a, B1b and Tables B1, B2, C1-C4 in the online appendix. Instructions on lines to comment in/out to generate different results are included in the code. This file is located in the "Empirical_analysis" folder. To produce the combined plots Figures F1 and F2, paste the output in the "irfs_panel_robust.csv" into the "irfs_panel_robust_all.csv" file and then run **BCEM_panel_robust_plots.do**. To produce the combined plot Figure B1 in the online appendix, paste the output in the "irfs_panel_robust.csv" into the "irfs_panel_other_both.csv" file and then run **BCEM_panel_other_plots.do**.