

Replication Code:

“Can Deficits Finance Themselves?”

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This document describes the replication files for the paper “Can Deficits Finance Themselves?”. The code produces all numbers and figures referred to in the paper. The files are organized into two main folders—one for the various analytically tractable models considered throughout the paper, and one for the quantitative HANK model of the Online Supplement, Angeletos et al. (2024, Section E.6.1). All codes have been run and tested on Matlab R2021b on iMac (27-inch, 2020). The total runtime for all experiments—including those for the Online Appendix and the Online Supplement—should not exceed around 15 minutes. To ensure that all codes run, the variable “local”—located near the top of the various m-files—needs to be changed to reflect the local machine.

In addition to code that we have produced, the replication material draws on the following files that have been wholly or partially produced by other authors:

- Our solution of the HANK model uses: first, several files from the replication codes of the article Ahn et al. (2017); second, the CompEcon toolbox of Miranda and Fackler, available here: www4.ncsu.edu/~pfackler/compecon; and third, the `ergodicdist.m` function, written by Marco Maffezzoli. The codes closely build on those used by one of the authors in Wolf (2024).
- For plotting purposes we use the file `jbfill.m`, available on Mathworks file exchange. The license is reproduced in the folder `_auxiliary_functions`.
- Our empirical targets for (cumulative) intertemporal marginal propensities to consume are taken from Fagereng et al. (2021). Specifically, the file `fhn_results`, stored in `.mat` and `.csv` format in `analytical/_inputs/_impcs`, is obtained from the publicly available replication codes of that paper, running the replication file `Fig2.m` and then

storing the four series `cumC1`, `lowCI`, `uppCI`, and `x` corresponding to the cumulative consumption panel of their Figure 2.¹

The rest of this readme describes the contents of each folder in detail.

1 Analytical

This folder contains the files necessary to produce all of the headline results of the paper—i.e., all figures (except for Figure E.2, see “HANK” below) in the Main Text, Appendix, and Online Supplement, as well as Table 2.

- The sub-folder `_auxiliary_functions` contains various functions that are used in our computations.
- The sub-folder `_inputs` contains files that compute the aggregate consumption function for our various analytical models: the baseline OLG model in `get_inputs_olg.m`; the quantitative hybrid model in `get_inputs_hybrid.m`; the extended three-type OLG model in `get_inputs_3type.m`; and finally a spender-saver model in `get_inputs_ta.m`. All results are stored in the sub-folder `_results`, and they are required inputs for almost all subsequent computations.
- The sub-folder `tau_base` contains files that produce most of the paper’s main results.
 - The file `compute_eqm_bytaud.m` produces the top panel of Figure 1.
 - The file `compute_eqm_byH.m` produces the bottom panel of Figure 1 (set `model_olg = 1`) as well as the top and bottom panels of Figure B.2 (set `model_ta = 1` and `model_hybrid = 1`, respectively).
 - The file `compute_eqm_2period.m` produces Figure 2.
 - The file `compute_eqm_empfiscal.m` produces Figure 3 and the top panel of Figure 4 (set `model_hybrid = 1`, `indic_behavioral = 0`, and `indic_kappa = 2`), the bottom panel of Figure 4 (set `model_3type = 1`, `indic_behavioral = 0`, and `indic_kappa = 2`), Figure C.1 (set `model_hybrid = 1`, `indic_behavioral = 0`, and `indic_kappa = 3`), and Figure E.3 (set `model_hybrid = 1`, `indic_behavioral = 1`, and `indic_kappa = 2`).

¹The replication materials are available at <https://doi.org/10.3886/E121561V1>.

- The file `plot_nu_continuity.m` produces Figure B.3.
- The sub-folder `tau_activemp` contains files that produce results for strictly active monetary policy rules.
 - The file `get_maxnu_table.m` produces Table 2.
 - The file `compute_eqm_empfiscal.m` produces Figure C.2.
- The file `plot_determinacy.m` in the sub-folder `determinacy` produces Figure B.1.
- The sub-folder `g_base` contains files that produce results for government spending shocks.
 - The file `compute_eqm_bytaud.m` produces the top panel of Figure E.1.
 - The file `compute_eqm_byH.m` produces the bottom panel of Figure E.1.

Results for all experiments are stored in the corresponding `_results` sub-folders.

2 HANK

This folder contains all files necessary to produce our quantitative HANK results—i.e., Figure E.2 in the Online Supplement.

- The sub-folder `_inputs` contains files that compute the aggregate consumption function for the quantitative HANK model: `get_hank_ss.m` first computes the steady state, and `get_hank_deriva.m` then computes the aggregate consumption function derivative matrices. The outputs of those files are needed for all subsequent computations. Auxiliary functions are collected in `_auxiliary_functions.m` and the income process is stored in `_income_process.m`.
- The file `compute_eqm_empfiscal.m` in the sub-folder `tau_base.m` produces Figure E.2.

References

- Ahn, S., Kaplan, G., Moll, B., Winberry, T., & Wolf, C. K. (2017). When Inequality Matters for Macro and Macro Matters for Inequality. *NBER Macroeconomics Annual*, 32.
- Angeletos, G.-M., Lian, C., & Wolf, C. K. (2024). Can Deficits Finance Themselves? Supplementary Materials. Working Paper.
- Fagereng, A., Holm, M. B., & Natvik, G. J. (2021). Mpc heterogeneity and household balance sheets. *American Economic Journal: Macroeconomics*, 13(4), 1–54.
- Wolf, C. K. (2024). Interest Rate Cuts vs. Stimulus Payments: An Equivalence Result. Working Paper.