Replication files for "Asset-Price Redistribution" Journal of Political Economy

Andreas Fagereng Matthieu Gomez Émilien Gouin-Bonenfant
Martin Holm Benjamin Moll Gisle Natvik

1 Description of the replication directory

The replication directory contains fives folders, "Data", "Code", "Figures", "Numbers", "Tables", and "Save"

- Folder "Data" contains three subfolders: "Aggregate Data", "Worldscope", and "Micro Data". The following tables details the composition of each folder. We will give more detail on the origin of each dataset in the section "Data Availability" below.

Content of Folder "Data/Aggregate Data"

Name	Description
cpi.csv	Dataset from Statistics Norway (2024a)
IGOECD3M.xlsx	Dataset from OECD (2024)
JSTdatasetR6.dta	Dataset from Jordà et al. (2019)
nb_houseindices.csv	Dataset from Norges Bank (2024b)
nokusd.csv	Dataset from Norges Bank (2024a)
Table03013.csv	Dataset from Statistics Norway (2024c)
Table08175.xlsx	Dataset from Statistics Norway (2024d)
Table10788.csv	Dataset from Statistics Norway (2024b)

Content of Folder "Data/Worldscope"

Name	Description
worldscope.csv	ratio of total market value to total cash flow for public corporate sector for each country and year

Content of Folder "Data/Micro Data"

Name	Description
cooperative_transactions_by_sector.csv	aggregate transaction of cooperative housing units by year and sector
corr_welfare_revgain_sc_rank_1994.csv	correlation of welfare and revaluation gains scaled by total wealth
hist_revgain_total_1994.csv	histogram of revaluation gains
hist_revgain_total_sc_1994.csv	histogram of revaluation gains scaled by total wealth
hist_welfare_total_1994.csv	histogram of welfare gains
hist_welfare_total_diff_xi_XI_1994.csv	histogram of adjustment for borrowing constraints for XI $= 5, 10$
hist_welfare_total_sc_1994.csv	histogram of welfare gains scaled by total wealth
housing_transactions_by_sector.csv	aggregate housing transactions by year and sector
incomplete_markets_cons_iv _ASSET_total_YEAR.csv	result of regressing transactions on spending instrumented by income for cohort born in YEAR $= 1915, \ldots, 1991$ and ASSET $=$ debt, deposits, nt_equity, nt_housing
incomplete_markets_income _ASSET_total_YEAR.csv	result of regressing transactions in ASSET on income for cohort born in YEAR $= 1915, \ldots, 1991$ and ASSET $=$ debt, deposits, nt_equity, nt_housing
interest_rate_and_ltv_regression.csv	regression of mortgage rates on loan-to-value ratio
interest_rate_and_ltv.csv	binscatter of mortgage rates on loan-to-value ratio
planner_welfare.csv	aggregate welfare gain for utilitarian planner
sum_stats_stocks_1993.csv	financial and human wealth in 1993
sum_stats_transactions_YEAR.csv	summary statistics on transactions for YEAR $= 1994, \ldots, 2019$
sum_stats_welfare_1994.csv	summary statistics on welfare gains in 1994
sum_stats_welfare_total_diff_xi_XI_1994.csv	summary statistics on adjustment for borrowing constraints for XI $= 5, 10$
welfare_cohort_xi_XI.csv	welfare gains by cohorts adjusted for borrowing constraints for XI $= 0, 5, 10$
welfare_effect_decompose_100.csv	average welfare gains by percentile bins
welfare_revgain_sc_heatmap_5_1994.csv	fraction of population in 5x5 quantiles of welfare and revaluation gains, each scaled by total wealth
year_cohort_percentile.csv	total transactions by asset class within bins of year x year of birth x percentile of 1994 total wealth
year_cohort.csv	total transactions by asset class within bins of year x year of birth
year_mean_ltv.csv	average loan-to-value ratio by year

- Folder "Code" contains three subfolders: "Julia", "Stata", and "Pre"

Content of Folder "Data/Julia"

Name	Language	Description
run.jl	Julia	sets some variables and outputs Tables And Figures in Appendix D.1.2. ("Quantifying welfare gains in models of incomplete markets")
IncompleteMarkets.jl	Julia	defines some utility functions called by "Julia/run.jl"

Content of Folder "Data/Stata"

Name	Language	Description
run.do	Stata	sets some global variables and runs Stata files
programs/gen_transactions.ado	Stata	program to compute consolidated transactions
programs/gen_welfare.ado	Stata	program to compute welfare based on consolidated transactions
1 - prices.do	Stata	generates price shocks by asset class
2 - kappa.do	Stata	generates indirect holdings associated to public equity (and private equity before 2005)
3 - individuals.do	Stata	outputs Tables and Figures in Section III.A ("Redistribution across individuals")
4 - bycohort.do	Stata	outputs Tables and Figures in Section III.B and Section IV ("Redistribution across cohorts" and "Generalizations of the baseline sufficient statistic approach")
5 - bywealth.do	Stata	outputs Tables and Figures in Section III.C ("Redistribution across wealth percentiles")
6 - bysector.do	Stata	outputs Tables and Figures in Appendix C ("Redistribution across sectors")

Content of Folder "Data/Pre" (requires private data)

Name	Language	Description
worldscope.do	Stata	Generates spreadsheet worldscope.csv given access to private data from Worldscope
run_all_microdata.do	Stata	sets paths and runs all microdata programs
P_clean_bequest_data.do	Stata	cleans up the bequest and death event data to prepare to include in the analysis
P_copy_data.do	Stata	copies the main household file, merges in bequest and death data, and creates net transaction variables
P_inheritance_events.do	Stata	makes the corrections needed when there is an inheritance event in the data
P_final_Data.do	Stata	adjusts for bequest events, constructs total wealth measure, merges in prices.dta and kappa.dta, and generates the transactions needed for welfare calculations
year_cohort_files.do	Stata	generates the files year_cohort.csv and year_cohort_percentile.csv
aggregate_housing_transactions.do	Stata	generates the files cooperative_transactions_by_sector.csv and housing_transactions_by_sector.csv
summary_statistics.do	Stata	generates the files sum_stats_transactions_YEAR.csv and sum_stats_stocks_1993.csv where YEAR covers the years from 1993 to 2019
welfare_histograms.do	Stata	generates all files based on individual welfare measures: corr_welfare_revgain_sc_rank_1994.csv, hist_revgain_total_1994.csv, hist_revgain_total_sc_1994.csv, hist_welfare_total_1994.csv, hist_welfare_total_sc_1994.csv, hist_welfare_total_diff_xi_XI_1994.csv, planner_welfare.csv, sum_stats_welfare_1994.csv, sum_stats_welfare_total_diff_xi_XI_1994.csv, welfare_cohort_xi_XI.csv, welfare_effect_decompose_100.csv, welfare_revgain_sc_heatmap_5_1994.csv, and year_mean_ltv.csv
incomplete_markets.do	Stata	generates the files incomplete_markets_cons_iv_ASSET_total_YEAR.csv and incomplete_markets_income_ASSET_total_YEAR.csv where ASSET = debt, deposits, nt_equity, and nt_housing, and YEAR covers the cohorts from 1915 to 1991
interest_rate_and_ltv.do	Stata	generates the files interest_rate_and_ltv.csv and interest_rate_and_ltv_regression.csv

- Folder "Figures" stores the figures created by the programs.
- Folder "Numbers" stores the numbers created by the programs.
- Folder "Tables" stores the tables created by the programs.
- Folder "Save" stores intermediary datasets created by the programs.

2 Instructions to replicate tables and figures

- To replicate the tables and figures in the paper, please follow these steps.

1. Run "Code/Stata/run.do" with Stata, after manually changing the global MyPath, at the beginning of the file, to your local path of the replication folder
2. Run "Code/Julia/run.jl" with Julia, after manually changing the variable MyPath, at the beginning of the file, to your local path of the replication folder

- The code will generate figures in .pdf format in "Figures", numbers in .tex format in "Numbers", and tables in .tex format in "Tables", with names corresponding to the ones given in the paper.
- The code replicates all tables and figures in the paper except for Figures 1, Figure A11, and Table A1, which simply summarize theoretical results. Similarly, the code does not output Table A10, which simply corresponds to an interest rate schedule extracted on October 26 2022 from Bulder Bank's website (https://www.bulderbank.no/priser).
- Confirmed to run on an Mac Studio 2022
  - Julia v1.11.1 with installed packages Statistics v1.11.1, LinearAlgebra v1.11.0, StatsBase v0.34.3, Printf v1.11.0, SparseArrays v1.11.0, Plots v1.40.9, SpecialFunctions v2.4.0, InfinitesimalGenerators v2.4.0, EconPDEs v1.1.1, Optim v1.10.0, PGFPlotsX v1.6.2.
  - Stata MP 16.0 with installed commands gather v1.0.0 and spread v1.0.0 from the package tidy, heatplot v1.1.1, colorpalette 1.2.3 from the package palettes, colrspace v 1.2.1, autorename v1.0.1, listtab (v 04 November 2012). The package tidy can be downloaded from Github (https://github.com/matthieugomez/tidy) and the packages heatplot, colorpalette, colrspace, autorename, listtab can be downloaded from the SSC Archive.
- Expected running time is 5 mins.
- The code takes the set of files in "Data" as given. We discuss the source of these files in the section "Data Availability" below.

3 Data Availability

We now give details on the origin of the datasets contained in the folder "Data".

3.1 Datasets in "Data/Aggregate data"

All files in "Data/Aggregate data" correspond to publicly available data. See the column description in Table 1 for the references.

3.2 Datasets in "Data/Worldscope"

The spreadsheet in "Data/Worldscope" is generated from the Worldscope dataset.

Availability. Generating this spreadsheet requires access to the Worldscope (Refinitiv) datasets "wrds_ws_funda.dta" and "wrds_ws_company.dta", which are available in SAS format on the WRDS SAS server at the address /wrds/tfn/sasdata/worldscope/. These datasets can be accessed by subscribing to Thomson/Refinitiv through Wharton Research Data Services (WRDS) (single user license around $20K/year).

Instructions. To generate the spreadsheet, run the Stata file "Code/Pre/worldscope.do" after manually changing the global variable WorldScopePath to the address of a local folder containing the Stata files "wrds_ws_funda.dta" and "wrds_ws_company.dta". Expected running time is 1m.

3.3 Datasets in "Data/Micro Data"

Availability. Access to Norwegian micro data is restricted to researchers with affiliations in Norwegian institutions and follows a two-step process: (1) Approval of data application from the Norwegian Agency for Shared Services in Education and Research and (2) applying for access to the data from Statistics Norway (https://www.ssb.no/en/data-til-forskning) to your institution's secure server. Inquiries about data access to data from Statistics Norway should be addressed to mikrodata@ssb.no.

This study is based on several administrative datasets maintained by Statistics Norway, in addition to housing and cooperatives transaction data from Ambita. We list here each separate data source:

1. Income and wealth tax registers (Stastics Norway).
2. The population event data based FD Trygd (Statistics Norway).
3. Stock ownership register (Statistics Norway).
4. Firm income statements and balance sheets (Statistics Norway).
5. Housing and cooperative transaction register (Ambita).

While generating the csv-files in "Data/Micro Data" requires access to above-mentioned administrative data from Norway, the codes start from a set of generated panel datasets listed in the table "Content of Folder "$MicroDataPath/data"

Instructions. To generate the spreadsheets, run the Stata file "Code/Pre/run_all_microdata.do" after manually changing the global variable MicroDataPath to the address of your local folder. The folder structure needs to have three subfolders: (i) "$MicroDataPath/data" with the datasets listed in the table "Content of Folder "$MicroDataPath/data", (ii) "$MicroDataPath/programs" with the program files gen_transactions.ado and gen_welfare.ado (available in "Code/Stata/programs"), and (iii) $MicroDataPath/output, which will store the results.

Content of Folder "$MicroDataPath/data"

Name	Description
households_9319_PE_r.dta	Panel dataset covering 1993 to 2019 with detailed data on wealth and income of all individuals in Norway. When an individual is part of a household consisting of more than one individual, income and wealth data contains the average of each variable among the adults in the household. The dataset also includes variables describing indirect ownership via private business ownership (all variables with "_PB" suffix in the Table "List of the variables used in the micro-files and their definitions")
inheritance95_13.data	Dataset covering 1995 to 2013 with all inheritance events containing information on giver, recipient, and amount of inheritance. The inheritance tax was abolished in 2014
lnr_mlnr_flnr_updated2013.dta	Dataset containing family links of individuals to their mother and father
death19612016.dta	Dataset containing all death events
housing_transactions.dta	Dataset covering 1993 to 2019 with all housing transaction events containing information on seller, buyer, the price, and the unit id
borett_transactions.dta	Dataset covering 2006 to 2019 with all housing cooperative transaction events containing information on seller, buyer, the price, and the unit id
cpi_1960_2020_USD.dta	Dataset with cpi and cpi also adjusted to USD using "cpi.csv" and "usd-nok.csv" listed above
prices.dta	Dataset created by the main replication package above ("1 - prices.do") and saved in "Data/save"
kappa.dta	Dataset created by the main replication package above ("2 - kappa.do") and saved in "Data/save"

For clarity, we now give the list of variables generated and used in the micro data.

List of the variables used in the micro-files and their definitions

Name	Description
Panel A: Assets	
housing	housing wealth, the sum of ownership of housing units, cooperative housing units, cabins, and other housing
housing_PB	housing wealth indirectly owned via private business ownership
debt	total debt, the sum of mortgage, student, and consumer debt
debt_PB	debt indirectly owed via private business ownership
deposits	deposits and cash.
deposits_PB	deposits indirectly owned via private business ownership
stocks	stocks
stocks_PB	stocks indirectly owned via private business ownership
mfund	stock funds
bonds	bonds
equity_PB	book equity in private businesses, net of housing, deposits, stocks, and debt in the same firms.
net_private_debt	ownership of private debt.
stocks_nonreg	ownership of firms not listed on the stock exchange (used before 2005 when we do not have the stock ownership registry).
LTV	loan-to-value, defined as total debt (held directly) divided by housing (held directly).
LTV_debt	loan-to-value multiplied by debt.
Panel B: Net transaction variables	
nt_housing	net transactions in housing units (buy transactions minus sell transactions).
nt_housing_PB	net transactions in housing indirectly owned via private business ownership
nt_debt	change in debt
nt_debt_PB	change in debt indirectly owed via private business ownership
nt_deposits	change in deposits
nt_deposits_PB	change in deposits indirectly owned via private business ownership
nt_stocks	net transactions in stocks, defined as the change in stock wealth net of imputed capital gains
nt_stocks_PB	net transactions in stocks indirectly owned via private business ownership
nt_mfund	net transactions in stock funds, defined as the change in stock fund wealth net of imputed capital gains
nt_bonds	net transactions in bonds
nt_equity_PB	net transactions in book equity in private businesses, defined as the change in ownership share multiplpied with equity_PB
nt_net_private_debt	change in ownership of private debt
Panel C: Income	
earned_income	sum of wage and business income
transfers	all transfers received (pensions, DI, ...)
net_income	disposable income (sum of earned income, transfers, and capital income, all net of taxes)
Panel D: Wealth	
financial_wealth	the sum of housing, housing_PB, bonds, deposits, deposits_PB, mfund, stocks, stocks_PB, net_private_debt, and equity_PB, minus debt and debt_PB
human_wealth	the net present value of earned income net of taxes (assumed to be 35% flat), discounted at 5% annually
total_wealth	financial_wealth + human_wealth
Panel E: Spending	
cons_excl_housing	net_income minus the sum of net transactions (used in incomplete_markets.do)

References

Jordà, Òscar, Katharina Knoll, Dmitry Kuvshinov, Moritz Schularick, and Alan M Taylor, "The rate of return on everything, 1870–2015," *The quarterly journal of economics*, 2019, *134* (3), 1225–1298.

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