Replication pack for "A Theory of the Term Structure of Interest Rates under Limited Household Risk Sharing"

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Abstract

This document describes the files that reproduce the results in "A Theory of the Term Structure of Interest Rates under Limited Household Risk Sharing". Section 1 describes our model's results. Section 2 describes our empirical results.

1 Model results

1. First, run the following files in order to generate model outputs:
   (a) model results\run1a_baseline_sr.m: this file computes the baseline model
   (b) model results\run1b_baseline_no_sr.m: this file computes the model without slow recoveries
   (c) model results\run5a_crra_sr.m: this file computes the crra version of the model
   (d) model results\run6a_time_varying_s_sr.m: this file computes a version of the model with time-varying separation rates
   (e) model results\run7a_Nstate_sr_fit_v3.m: this file computes a version of the model in which productivity follows an AR(1) process
2. After the first step, generate plots using the following files:
   (a) model results\gen_tableX.m generates (the model-implied results in) table X from the paper
   (b) model results\gen_figureX.m generates figure X from the paper

2 Empirical results

Due to copyright reasons, we cannot provide the input data. Data sources are indicated below. Except for the Fama-Bliss discount bond dataset from CRSP, all data are publicly available. Note that FRED sometimes updates their series; where applicable, this may lead to small differences between the replication results and those reported in the paper.

1. Figure 1: Slope of the yield curve
   - Go to the folder: empirical results\Figure1_replication
   - Run gen_Figure1_main.do and then run gen_Figure1.m
   - This program requires the following data:
     – Gurkaynak, Sack, and Wright (GSW) nominal yield curve data set, available here: https://www.federalreserve.gov/
     – GSW TIPS data set, available here: https://www.federalreserve.gov/data/tips-yield-curve-and-inflation-compensation.htm
     – University of Michigan survey for inflation expectations, available here: https://fred.stlouisfed.org/series/MICH
     – Chicago Fed National Activities Index, available here: https://fred.stlouisfed.org/series/CFNAI
     – Treasury transaction volume, available here: https://www.newyorkfed.org/markets/counterparties/primary-dealers-statistics

2. Figure 5: Third central moment of income growth and unemployment rate changes

   - Go to the folder: empirical results\Figure5_replication
   - Run prep_plot_data.do to prepare data and then run plot_mu3_vs_skew.m to plot the data
   - This figure uses the unemployment rate series from FRED (https://fred.stlouisfed.org/series/UNRATE) as well as the skewness series from Guvenen, Ozkan, and Song (JPE, 2014). The latter can be downloaded from Fatih Guvenen's website (https://www.fatihguvenen.com/s/gos-jpe2014-data.xlsx)

3. Table 1: Parameter values (data values) and Table 2: Moments of real variables and asset prices (data portion)

   - Go to the folder empirical results\Table1_Table2_replication.
   - Run compute_flows.m to generate flow rates in and out of unemployment. This program requires the following series from FRED: Civilian Labor Force (CLF16OV), Unemployment Level (UNEMPLOY), and Number of Civilians Unemployed for Less Than 5 Weeks (UEMPLT5)
   - Run macro_moments_1964_2016.do and asset_price_moments_1964_2016.do

4. Table 3: Term structure of bond yields and log excess holding period returns (data portion)

   - Go to the folder: empirical results\Table3_replication and run gen_Table3.do. The program uses the Fama-Bliss discount bond dataset from CRSP

5. Table 5: Labor markets predict bond excess returns (data portion), Table A2: Labor market search and bond risk premia, and Table A1: Summary statistics

   - Go to the folder empirical results\Table5_TableA2_replication
   - Run compute_flows.m to generate flow rates in and out of unemployment. This program requires the following series from FRED: Civilian Labor Force (CLF16OV), Unemployment Level (UNEMPLOY), and Number of Civilians Unemployed for Less Than 5 Weeks (UEMPLT5)
   - To generate the empirical results in Table 5, run gen_Table5.do. This files uses the following data sources: the Fama-Bliss discount bond dataset from CRSP, the Barnichon Help Wanted Index (downloadable from Regis Barnichon's website https://sites.google.com/site/regisbarnichon/), and the previously generated labor market flows
   - To generate Tables A1 and A2: run gen_TableA1_TableA2.do. This uses the following data sources: Fama-Bliss discount bond dataset from CRSP, the following series from FRED: PAYEMS, CPIAUCSL, UNRATE, and FEDFUNDS, the Barnichon Help Wanted Index, the previously constructed labor market flows, and MWD/GDP from Greenwood and Vayanos (RFS, 2014, Online Appendix)

6. Table 6: Fama-Bliss regressions (data portion)

   - Go to the folder: empirical results\Table6_replication. Run run replicate_FamaBliss.do
   - This program uses the Fama-Bliss discount bond yields dataset from CRSP

7. Table 7: Sign of mean reversion in $\mu^{inc}_{3,t,t+T}$

   - Go to the folder empirical results\Table7_replication and run est_mean_reversion.do. Data requirements: download https://www.fatihguvenen.com/s/gos-jpe2014-data.xlsx from Fatih Guvenen's website, and UNRATE from FRED

8. Table 8: Covariance of $\log \zeta_{t,t+T}$ over the business cycle

   - Go to the folder empirical results\Table8_replication and run gen_Table8.do