Computational Appendix to "Risk Aversion and Precautionary Savings in Dynamic Settings"

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The folder available at `http://francois-le-grand.net/docs/codes/BL_PrecautionarySavings_codes.zip` contains a set of procedures that enable to replicate the numerical example of Section 5 of the paper "Risk Aversion and Precautionary Savings in Dynamic Settings".

We provide here a documentation for the code.

1 How to run the programs

For a detailed description of Fortran individual files, please see the next section.

1.1 Linux users

You simply need to run one of the three bash files:

1. `run_rs.sh` for risk-sensitive preferences;

2. `run_ez.sh` for Epstein-Zin-Weil preferences;

3. `run_weil.sh` for Weil (1993)'s preferences.

You need `gfortran` installed (version 4.9.2 used for the paper).

If `gnuplot` is also installed (version 4.6 for the paper), the script also computes the png image file entitled `graph-ez/rs/weil.png.`

If `ristretto` is installed in addition to `gnuplot` (version 0.6.3 for the paper), the script also display the relevant png image.

1.2 Windows users

Warning: these codes have not been tested on any Windows machine (but there is no reason why they should not work)

You need to compile files by yourself.

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1. For risk-sensitive preferences, the main file is `prec-savings-rs-pfi.f90` and it needs to be compiled with the following modules: `mod_myfzero.f90`, `mod_myinterp1.f90`, `mod_tools.f90`, `mod_params.f90`, `mod_vars.f90`.

2. For Epstein-Zin-Weil preferences, the main file is `prec-savings-ez-pfi.f90` and modules are the same as for risk-sensitive preferences.

3. For Weil's (1993) preferences, the main file is `prec-savings-weil-pfi.f90` and modules are the same as for risk-sensitive preferences.

The program generates a text file entitled `res-ez/rs/weil.dat` that can then be plotted using any visualization software.

2 Description of individual files

We describe below all Fortran files.

For every choice of preferences, there is a main file accompanied by a set of module files. Module files are common to the three cases.

2.1 Main files

Main files are `prec-savings-rs-pfi.f90`, `prec-savings-ez-pfi.f90` as well as `prec-savings-weil-pfi.f90`, respectively for risk-sensitive, Epstein-Zin-Weil, and Weil (1993)'s preferences.

2.2 Module files

There are 5 module files.

- `mod_myfzero.f90`: defines a root search procedures (based on a simple dichotomy algorithm).

- `mod_myinterp1.f90`: defines a linear interpolation procedure.

- `mod_tools.f90`: contains several simple yet important procedures.

- `mod_params.f90`: defines most parameters (whose values are unchanged throughout the execution).

- `mod_vars.f90`: defines variables whose value is likely to change throughout the procedure. It also contains two procedures of initialization (a global one, run once and a local one, run for every new value of the risk aversion parameter, to reset the value of several variables).

2.3   Other files

- `run_ez.sh`, `run_rs.sh`, and `run_weil.sh` are three bash scripts only useful for Linux users (see Section 1.1).

- `plot.plt` is a gnuplot script that plots the results of savings computations, saved in the files `res-ez/rs/weil.dat`. It is automatically launched with any bash script. It requires the package **gnuplot** (version 0.6.3 for the paper).

- `res.zip` is a zip archive containing the results of the simulations as `.dat` files and corresponding graphs as `.png` files (the same as in the paper). All result `.dat` files are text files and are similarly organized: first column contains the values for the risk aversion parameters, while the second column contains the corresponding saving decisions.