Optimal Unemployment Insurance with Monitoring

This document includes instructions for replicating the model's results for "Optimal Unemployment Insurance with Monitoring", by Ofer Setty, which is published at *Quantitative Economics*. In addition to this 'readme' document, the package includes a folder titled: 'fortran code'.

The code is written in Fortran. The Fortran compiler version used to run the program is: Intel fortran compiler for linux 13.1.1m ifort (IFORT) 13.1.1 20130313.

The code uses algorithms from IMSL Numerical Libraries by RogueWave. For details see: https://www.roguewave.com/products-services/imsl-numerical-libraries. The code will not run without that package. An alternative to using that package is creating alternative solution algorithms (e.g., for DZBREN). Those algorithms solve for the solution of a nonlinear zero of a system of equations. This is an arduous task and in general is not advisable. A third option is to use alternative algorithms but be advised that the algorithms that are used balance well between speed and accuracy as the code is quantitative demanding.

The Fortran code includes forty nine files. Those are included in the package in the folder titled 'fortran code'. The main file is titled as such (MAIN.F90). The rest of the files are Resource files that are called by main or by other resource files.

The code is set to replicate the data for Figure 9 in the paper. This figure presents the savings, precision and the standard deviation of consumption relative to no monitoring for the most elaborated case in the paper (continuous effort and endogenous precision). The rest of the results in the paper are special cases of that result and can be achieved when setting the parameters of the code (in the fortran code PARAM.F90) according to the parameters that are described in the paper.

In addition to those files a compressed folder titled 'exp_001' is included. This folder includes 86 files that can be used as an initial guess for the code. Although the code can run without that guess it is useful to use that guess to shorten the run time and provide stability. This folder should be extracted and its path should replace the currently existing path throughout the code that is currently set as:
"F:\Users\ofers1\Documents\Visual Studio 2008\Projects\QE_monitoring\QE_monitoring\IO".

Ofer Setty
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