List of programs used for the MATLAB calculations of

“Using Survey Data of Inflation Expectations in the Estimation of Learning

and Rational Expectations Models” by Arturo Ormeño & Krisztina Molnar

The estimation of each model (i.e. rational expectations and different versions of learning) is done by running a set of MATLAB® programs. These sets are composed by the following types of programs:

* “main” programs: This type of program contains initial conditions for implementing the Bayesian estimation of the DSGE model of Smets & Wouters (2004) solved under rational expectations or learning. In particular, in this type of program, the total number of simulations and which of them are kept in order to build the posterior distributions are defined. The data used in the estimation is called in this type of program. Importantly, prior and posterior distributions are calculated by calling the program types “likeli” and “prior” programs
* “prior” programs: the prior distribution of each parameter of the model is contained in this type of file, and the prior probability of observing a given draw of parameter values is calculated.
* “likeli” program: the likelihood of given draw of the parameter values is calculated using this type of program. In order to do this, this type of program “solves” the DGSE model using the program type “modelgross”, and uses the solution to calculate the likelihood. For learning calculation, this program calls the program “BetaFromTR” in order to get the perceived law of motion obtained (beta) if solving the model under rational expectations (T and R are the names of the output matrices of using the Uhlig’s toolkit).
* “modelgross” program: using the Uhlig’s toolkit, this type of program solves the DSGE model by Smets and Wouters.
* “BetaFromTR” program: this type of program calculates the perceived law of motion using the solution of the model under rational expectations.

Important: all these programs were written using the 2006 MATLAB® version. Some functions would need to be updated to be used with most updated MATLAB versions.

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| **Model** | **Programs** |
| Rational expectations without using survey data | jmcb\_main\_nonexp\_ALL  jmcb\_likeli\_nonexp  jmcb\_prior\_nonexp  jmcb\_modelgross\_nonexp |
| Rational expectations using survey data | jmcb\_main\_exp\_ALL  jmcb\_likeli\_exp  jmcb\_prior\_exp  jmcb\_modelgross\_exp |
| Learning without using survey data | jmcb\_main22\_PIE\_nonexp\_ALL  jmcb\_likeli22\_PIE\_nonexp  jmcb\_prior22\_PIE\_nonexp  jmcb\_modelgross22\_PIE\_nonexp  jmcb\_BetaFromTR22\_PIE\_nonexp |
| Learning without survey data | jmcb\_main22\_PIE\_exp\_ALL  jmcb\_likeli22\_PIE\_exp  jmcb\_prior22\_PIE\_exp  jmcb\_modelgross22\_PIE\_exp  jmcb\_BetaFromTR22\_PIE\_exp |
| MSV learning without using survey data | jmcb\_main21\_nonexp\_ALL  jmcb\_prior21\_nonexp  jmcb\_likeli21\_nonexp  jmcb\_modelgross21\_nonexp  jmcb\_BetaFromTR21\_nonexp |
| MSV learning using survey data | jmcb\_main21\_exp\_ALL  jmcb\_prior21\_exp  jmcb\_likeli21\_exp  jmcb\_modelgross21\_exp  jmcb\_BetaFromTR21\_exp |
| DG learning without using survey data | jmcb\_main22\_PIE\_nonexp\_t\_ALL  jmcb\_prior22\_PIE\_nonexp\_t  jmcb\_likeli22\_PIE\_nonexp\_t  jmcb\_modelgross22\_PIE\_nonexp  jmcb\_BetaFromTR22\_PIE\_nonexp |
| DG learning using survey data | jmcb\_main22\_PIE\_exp\_t\_ALL  jmcb\_prior22\_PIE\_exp\_t  jmcb\_likeli22\_PIE\_exp\_t  jmcb\_modelgross22\_PIE\_exp  jmcb\_BetaFromTR22\_PIE\_exp |
| Robustness: inflation & hours work | jmcb\_main22\_PIEL\_exp\_ALL  jmcb\_prior22\_PIEL\_exp  jmcb\_likeli22\_PIEL\_exp  jmcb\_modelgross22\_PIEL\_exp  jmcb\_BetaFromTR22\_PIEL\_exp |
| Robustness: inflation, consumption & hours work | jmcb\_main22\_PIECL\_exp\_ALL  jmcb\_prior22\_PIECL\_exp  jmcb\_likeli22\_PIECL\_exp  jmcb\_modelgross22\_PIECL  jmcb\_BetaFromTR22\_PIECL |
| Robustness: inflation & consumption | jmcb\_main22\_PIEC\_exp\_ALL  jmcb\_prior22\_PIEC\_exp  jmcb\_likeli22\_PIEC\_exp  jmcb\_modelgross22\_PIEC  jmcb\_BetaFromTR22\_PIEC\_exp |
| Robustness: inflation & GDP | jmcb\_main22\_PIEY\_exp\_ALL  jmcb\_prior22\_PIEY\_exp  jmcb\_likeli22\_PIEY\_exp  jmcb\_modelgross22\_PIEY\_exp  jmcb\_BetaFromTR22\_PIEY\_exp |

In addition:

* The program used to generate the initial beliefs for the learning estimations is jmcb\_initial\_beliefs.m
* The forecasting model for inflation is determined by running the following programs and choose the best of them (by lower MSE): jmcb\_rls\_optim.m and jmcb\_rls\_function.m
* Data used in the calculation is contained in the file Data\_swusa\_4708\_GROWTH.xls
* The following programs are used to generate the figures:
  + Jmcb\_RE\_relatedplots.m
  + Jmcb\_Learning\_relatedplots.m
  + Jmcb\_MSV\_relatedplot.m
  + Jmcb\_DG\_relatedplot.m
  + jmcb\_inputFig7\_8\_learningWITHsurvey.m
  + jmcb\_inputFig7\_8\_learningWITHOUTsurvey.m
  + jmcb\_Fig7\_8.m