Finding the minimum adjustments under exogenous macroeconomic forecasts

Runthis collects initial values and results of the simulations with the varying rates of adjustment.

Loopf_EFS solves the macroeconomic and fiscal variables for programs that lasts tau periods.

Structural budget adjustment (x) that lasts tau years.

Note: **Mainsimulator_EFS** has already selected the feasible interval of x.

At least 0.5 pps per year until the MTO is reached, unless exceptional circumstances.

Discard program

Debttest tests compliance with the 60 %/GDP debt rule.
Deftest tests whether there is more than 3 years from achieving the 3 % nominal deficit to GDP ratio.

Debt ratio below 60 % and the program has lasted no longer than 3 years from achieving the 3 % nominal deficit, or from the beginning of the program.

Debt ratio above 60 % and the program has lasted no longer than 3 years from achieving the 3 % nominal deficit.

Discard program

DR_test tests the debt convergence rule (**Loopf_EFS** -> **Mainsimulator_EFS**)

Accept program

Debt reduction benchmark is fulfilled.

Discard program

FIRSTRUN_benchmark collects the results from the simulation. It adjusts the length of the program, and eventually picks the minimum program.

Accept program

Check if the flexibility guidance applies (in the no policy change benchmark)

Flexibility program

Yes: adjust x accordingly in the preventive arm (the 3 % nominal deficit achieved)

No: do not adjust x

Code package:

1. **Simulator with exogenous paths.zip** contains all the programs that are required in the measurement of the minimum adjustment.

2. **Start by unzipping the program package that contains the model codes.**

The rules are defined at two places within the code:

a. xbenchmark in the FIRSTRUN_benchmark.m defines the minimum adjustment that is sufficient to reach 1. at least the MTO at the end of the program 2. the minimum adjustment speed in terms of changes in the structural balance.

b. Loopf2 defines additional rules in the form of tests. They are later used to discard infeasible adjustment programs in FIRSTRUN_benchmark.m.

The initial values can be found in two files (initvals_expostnew.xlsx and initvals_exantenew.xlsx). Calibrate here the exogenously assigned, annual paths of macroeconomic variables using different data vintages (ex ante, ex post). Remember to calibrate sufficient amount of periods for each exogenous variables (>= the forecast horizon in the model).

3. **Run the program in MATLAB, the results are saved to the (Collected_expostnew.xlsx and Collected_exantenew.xlsx).**