

## How to Employ a User-specified Monetary Policy Rule

With this menu the user can conduct comparison analysis with his or her own policy rule. To this aim, a general form of a monetary policy rule is offered in terms of common variables in the MMB and users can specify the desired values for the coefficients in front of the variables in the rule.

$$i_t^z = \sum_{j=0}^{j=4} \rho_i i_{t-j}^z + \sum_{j=-4}^{j=4} \rho_{\pi,j} p_{t+j}^z + \sum_{j=-4}^{j=4} \rho_{q,j} q_{t+j}^z + \sum_{j=-4}^{j=4} \rho_{y,j} y_{t+j}^z + \eta_t^i$$

Here,  $i_t^z$  denotes the annualized quarterly money market rate;  $p_t^z$  denotes the annualized quarter-to-quarter rate of inflation;  $y_t^z$  is the quarterly real GDP;  $q_t^z$  is the quarterly output gap which is defined as the deviation of actual output from the level of output that would be realized if the price were flexible.

For example, suppose that you implement the Taylor (1993) rule using the option for user-specified monetary policy rule. Then set the coefficients as following:  $\rho_{\pi,0} = \rho_{\pi,-1} = \rho_{\pi,-2} = \rho_{\pi,-3} = 0.375$ ,  $\rho_{q,0} = 0.5$  and the rest of coefficients are zero. The figure 1 below illustrates how to use the option for a user-specified rule with the example of Taylor (1993) rule.

$$i_t^z = \sum_{j=0}^3 0.375 p_{t-j}^z + 0.50 q_t^z + \eta_t^i$$

Figure 1: TAYLOR (1993) RULE USING THE OPTION OF USER-SPECIFIC RULE

**User-specified Monetary Policy Rule**

|     | interest | inflationq | outputgap | output |
|-----|----------|------------|-----------|--------|
| t   | NaN      | 0.3750     | 0.5       | 0      |
| t-1 | 0        | 0.3750     | 0         | 0      |
| t-2 | 0        | 0.3750     | 0         | 0      |
| t-3 | 0        | 0.3750     | 0         | 0      |
| t-4 | 0        | 0          | 0         | 0      |
| t+1 | NaN      | 0          | 0         | 0      |
| t+2 | NaN      | 0          | 0         | 0      |
| t+3 | NaN      | 0          | 0         | 0      |
| t+4 | NaN      | 0          | 0         | 0      |

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**Description:**  
The user should assign a desired value in the cells with zeros only. Each cell corresponds to the value of the parameter in front of the desired variable in the monetary policy rule.  
- interest is the annualized quarterly interest rate  
- inflationq is the annualized quarterly inflation rate  
- outputgap is the quarterly output gap  
- output is the quarterly output  
If you would like to use your rule, we suggest you to read before the instructions in the "Read me" file as below.

Note that with some parameterizations of the rules, some or all of the selected models cannot be solved as the system of equations may violate the Blanchard-Kahn condition so that they do not

yield a unique stationary rational expectations equilibrium. There is no clear guideline for conditions for determinacy, but Levin et al. (2003) suggest several crucial characteristics of rules that deliver a unique equilibrium: a relatively short inflation forecast horizon, a moderate degree of responsiveness to the inflation forecast, an explicit response to the current output gap, and a substantial degree of policy inertia.

## **References**

- Levin, A., Wieland, V., Williams, J. C., 2003. The performance of forecast-based monetary policy rules under model uncertainty. *The American Economic Review* 93(3), 622–645.
- Taylor, J. B., 1993. Discretion versus policy rules in practice. *Carnegie-Rochester Conference Series on Public Policy* 39, 195–214.