

Comments on C. Walsh: The Challenges with Rule-Based Policy Implementation

José De Gregorio

Universidad de Chile
PIIE

October 2017

Agenda

- 1 Summary of the paper
- 2 Goal-based and Rule-based MP
- 3 The loss function and deviations from the rule
- 4 Practical policy issues

Summary

- In previous papers the author argues that a Rule Based Monetary Policy (RBMP) may perform better than a goal based monetary policy (GBMP) (e.g., Walsh, 2016), also called discretion in the sense of optimization period by period.
- Rules overcome the time inconsistency problem (as in Rogoff, 1985) and also provides a guide for evaluating performance.

To simplify, the loss function of society in a given period is

$$L = \pi^2 + \alpha x^2 \quad (1)$$

where π is the deviation of inflation from the target and x the output gap.

The time inconsistency problem, which a rule may avoid, comes from shocks to the loss function:

$$L = (\pi - \varphi)^2 + \alpha(x - u)^2 \quad (2)$$

A central bank with a rule based MP will minimize the following loss function:

$$L = (\pi - \varphi)^2 + \alpha(x - u)^2 + \delta(i - i^r)^2 \quad (3)$$

where i^r is the rule. $\delta = 0$ represent the case of discretion or GBMP. As $\delta \rightarrow \infty$ we will have a strict rule.

- Preference shock: RBMP is better, than the GBMP.
- Shock is to some fundamental: GBMP is better.
- Cost shock: there is a tradeoff, the RBMP has more inflation volatility but less output volatility.

Figures show relevant differences in the path of output and inflation under RBMP and GBMP, although the differences in monetary policy are quite small.

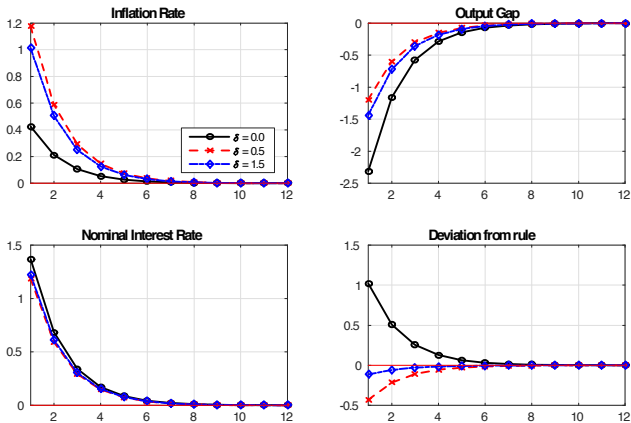


Figure 3: Response to a one unit shock cost shock in a simple NK model.

The paper follows discussing **challenges** in a number of areas, such as:

- Unobservables
- Credibility and changes in the rule
- Preferences to define the rule
- Measurement issues

Goal-based and Rule-based MP

All GBMP have a MPR, and viceversa, but no one to one mapping. Consider a simple case of the standard loss function (1), with the following simple Phillips curve and aggregate demand:

$$\pi_t = \lambda E_{t-1} \pi_t + (1 - \lambda) \pi_{t-1} + \theta x_t + \epsilon_t \quad (4)$$

$$x_t = A - \phi(i - E_{t-1} \pi_t) + \eta_t \quad (5)$$

In this case is possible to show that

$$\pi_t = \rho \pi_{t-1} + \varepsilon_t \quad (6)$$

ρ is an increasing function of the relative loss of output against inflation. It is easy to define an inflation target at $\pi = 0$ and an horizon T to return to the target after deviations (increasing in ρ). The more weight on output the longer the horizon since reducing inflation has output costs (Svenson, 1997; Smets, 2000; De Gregorio, 2007; Davig and Foerster, 2017).

In this case the interest rate rule is:

$$i = c_1 + c_2\pi_{t-1} + c_3\epsilon_t + c_4\eta_t \quad (7)$$

interest rate depends on all variables that help predict inflation.

- The rule does not depend on output despite it is in the loss function. *In contrast if output helps to predict inflation could be in the rule, even when it is not in the loss function.*
- How to define the MP regime? agreeing on the weights on inflation and output is difficult. It should be simpler to agree on a horizon for inflation convergence to the target.
- A RBMP may be preferable if there are distortions in the utility function. Are there serious problems of time inconsistency (Kocherlakota, 2016)? Can we define a robust rule in countries with serious distortions, Argentina or Venezuela?

The loss function and deviations from the rule

The general loss function for a flexible rule is:

$$L = (\pi - \varphi)^2 + \alpha(x - u)^2 + \delta(i - i^r)^2 \quad (8)$$

the optimal policy is:

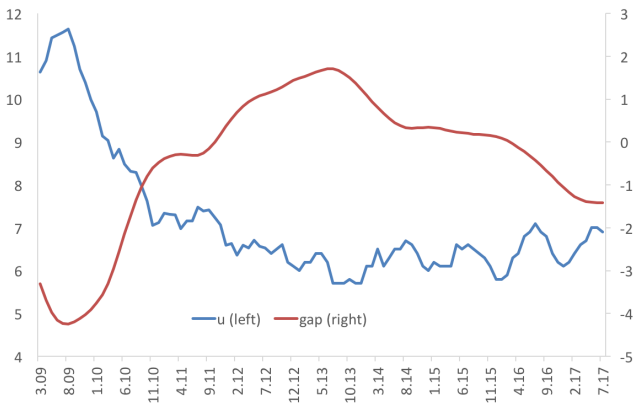
$$i = i^r + D/\delta \quad (9)$$

where D is the discretionary component. When $\delta \rightarrow \infty$ it is a strict the rule. When $\delta = 0$ there is (constrained) discretion (GBMP).

- Where δ comes from? Congress may suggest a reference rule to evaluate CB performance. What does it make the CB not to focus exclusively on $i^r - i$? if this were the case, quite likely in terms of accountability, the rule will become mechanical.
- How to include the effects of different shocks and changes in the model?: I think it is better to discuss it around an inflation target than around a rule.

Practical policy issues

- Policy evaluation and accountability: transparency. In particular in terms of models and assumptions. There are many possible improvements in transparency, which reduce the scope for arbitrary policies. Rules may be part of the tools to evaluate performance.
- Changes in fundamentals-unobservables: Changes in r^* would create volatility of inflationary expectations and loss of nominal anchor.
- Inflation: core or non core? Needed the same for consistency, not to forecast inflation in an IT regime.
- Output: do we really measure well output? and productivity? Is unemployment an alternative?



Unemployment and Output Gap, Chile

Finally,

- Central banks must be evaluated by the achievement of its goals. Instrument rules may help in the evaluation and justification of decisions.
- A problem for all regimes that requires flexibility in MP: what is the actual model? Has the Phillips curve become flatter? How can inflationary expectations be affected? It is very difficult to include these issues in a rule and requires judgment.
- Is there a need for a new MP regime after the Global Financial Crisis? what failed was financial regulation, and monetary policy should not be responsible for this. IT have worked quite well in the last decades in EMEs y SOEs, although improving transparency and accountability should help.