What Should Be the Central Bank's Objectives?

Discussion of "Commodity Price Fluctuations and Monetary Policy in Small Open Economies"

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December 2016

A Fundamental Question

What variables (e.g. inflation, output growth, interest rates, or others) *should* be assigned to a central bank as *objectives* or *targets*?

Central Banks Have Different Mandates

- Around the world, *Inflation Targeting* has become dominant

- But there are other choices…

The Federal Reserve…

The Congress established the statutory objectives for monetary policy--maximum employment, stable prices, and moderate long-term interest rates--in the Federal Reserve Act…

The FOMC noted in its [Jan. 2012] statement that the Committee judges that inflation at the rate of 2 percent (as measured by the annual change in the price index for personal consumption expenditures, or PCE) is most consistent over the longer run with the Federal Reserve's statutory mandate…

…the FOMC does not specify a fixed goal for maximum employment; rather, the FOMC's policy decisions must be informed by its members' assessments of the maximum level of employment…

From: *"What are the Federal Reserve's objectives in conducting monetary policy?", at www.federalreserve.gov*

…and others

Table 1. Primary Objectives of Monetary Policy

		Exchange rate anchor	Money aggregate targeting	Inflation targeting	Other
Single objective	**Price stability**	Burundi Morocco São Tomé and Príncipe	Congo Mozambique Sierra Leone Sri Lanka Sudan Ukraine Uzbekistan	Armenia Georgia Ghana Guatemala Kenya Moldova	Egypt
	XR	Cape Verde			
Dual objective	**Price and XR**	Liberia Tajikistan	Afghanistan Madagascar	Indonesia	Kyrgyz Republic
	Price and growth	Cambodia	Guinea	India Philippines	
	XR and other	Nicaragua			
	Price and other	Bolivia Guyana Honduras Timor Leste	Tanzania	Paraguay Romania Uganda	Vanuatu
3 or more objectives	**Price, growth, XR**	Ethiopia	Bangladesh		
	Price, growth, other	Vietnam	Malawi Myanmar		Mongolia Papua New Guinea
	Price, XR, other		Nigeria Yemen, Rep. of		
	Price, other	Solomon Islands			Pakistan Zambia
	Price, growth, XR, other		Gambia Rwanda		

Source: IMF desk survey.

Note: "Other" refers to one or more of the following objectives: stability of the financial sector, promoting macro-economic development, maintaining external reserves, and supporting government policies. XR refers to exchange rate stability. The regime classification is based on responses by IMF country desks.

From: *Evolving Monetary Frameworks in Low Income and Other Developing Countries,* Staff Report, IMF, October 2015

Commodity Price Fluctuations, Monetary Policy, Small Economies

- Increased volatility in the world prices of oil, food, and other commodities have challenged monetary policy in emerging countries

- Even in those committed to *inflation targeting*

- Should the target be the PPI? The CPI? Should there be an *exchange rate objective?*

Chang (2015)

1. Analyzes optimal monetary policy in a small open economy subject to volatile world commodity prices
2. Reexamines the question of what variables should be assigned as objectives to the central bank

➔ Here we focus on the second issue

Economic Theory and the Objectives of a Central Bank

- What guidance do current economic models give about the objectives to be assigned to a central bank?

- We study implications of the dynamic New Keynesian model (Woodford 2003, Gali 2016).

Optimal Monetary Policy in a Dynamic New Keynesian Model

- In the dynamic New Keynesian model, the central bank sets a policy interest rate to “control” the evolution of aggregate variables, such as output and employment

- Optimal policy sets interest rates to maximize the welfare of the typical household in the country under analysis

Usually, social welfare at each point in time is approximated by a function of consumption (c) and labor effort (n) such as

$$U = (c - \alpha c^2) - \zeta (n - \rho n^2)$$

➔ Optimal policy amounts to setting the policy interest rate over time to maximize the expected discounted sum of terms of this type

A Canonical Objective Function

Woodford (2003): it is *equivalent* to replace the household's objective by a loss function of *inflation* (π) and *output* (y) of the form

$$L = - [\ \pi^2 + \lambda\ (y - y^*)^2\ ]$$

where y^* is *natural output,* a function of exogenous shocks.

➔ The term $(y - y^*)$ is called the *output gap*

Remarks on Loss Function

$$L = - [\pi^2 + \lambda (y - y^*)^2]$$

- Penalizes deviations of inflation and output from *targets* (of zero and y^*)
- Connects to an older tradition
- Key Difference: here, λ and y^* are derived from the underlying economic model

Suggested Implications

1. The central bank's mandate should be *flexible inflation targeting,* with objectives for inflation (zero) and output (y^*)

2. *No role* for any additional independent objective!

3. The underlying model is crucial to define the appropriate mandate (e.g. to *define* y^* or λ)

Good Monetary Policy is flexible inflation targeting, which can be narrowly be specified as aiming at both stabilizing inflation around an inflation target and stabilizing the output gap around zero...Importantly, under inflation targeting, the exchange rate is not a target variable...

Svensson (2008), Comments on Frankel (2008)

How About Open Economies?

- In a closed economy, the NK model emphasizes distortions related to nominal rigidities

- That is why zero *PPI inflation* is optimal

- In an open economy, policy can also stabilize *international relative prices*

- This suggests *CPI targeting* may be optimal

Recent Results for Open Economies

- Gali and Monacelli (2005): small open economy, special parameterization: PPI stabilization optimal

- De Paoli (2009): Gali and Monacelli's result robust for other, realistic parameterizations

Should there be an Exchange Rate Objective?

- De Paoli (2009): in a small open economy, the central bank 's objective can be written as

$$- \quad [\, \pi^2 + \lambda_0 \,(y - y_0^{*}\,)^2 + \theta\,(e - e_0^{*}\,)^2 \,]$$

where e is the *real* exchange rate and y_0^*, e_0^* are "targets"

- Catao and Chang (2015), in a similar model, write the objective as Woodford (2003), i.e.

$$- \quad [\, \pi^2 + \lambda_c \,(y - y_c^{*})^2 \,]$$

- Are these results contradictory?

Expressing the Social Objective

- Chang (2015): welfare of the representative agent can be represented in *many equivalent* ways

- The Catao-Chang loss function, which depends only on inflation and an output gap, can be derived from the De Paoli function (which features an exchange rate target) by properly adjusting *targets* and *coefficients*.

- Chang (2015) provides formal arguments

Practical Implications

One often hears statements such as:

- The central bank should react to domestic (PPI) inflation rather than headline (CPI) inflation
- Monetary policy should respond to the real exchange rate in addition to inflation and the output gap
- The central bank should have financial stability as an additional objective

➔ These statements are *neither right nor wrong*. Each of *can* be correct in the context of a given model, *if* one defines targets and social weights appropriately. (In fact, all of them can be correct, or incorrect!)

Closing Observations

1. The arguments in Chang (2015) seem quite general

2. The analysis suggests that we may want to examine alternative reasons ("transparency", "credibility", "communication") to justify why some variables may be better than others as targets of monetary policy