Macroeconomic Effects of Inflation Targeting in Emerging Market Economies

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Abstract

This paper examines the macroeconomic effects of inflation targeting in 44 emerging market economies (EMEs) during 1970-2017. We estimate a dynamic panel data model, which takes into account the endogeneity of inflation targeting regime and controls for a variety of factors affecting macroeconomic performance in EMEs. The main findings from our empirical investigation are as follows: inflation targeting is associated with lower average inflation, though its favourable effects, as compared to the alternative monetary strategies, are negligible; we provide firm evidence against the proposition that inflation targeting lowers inflation volatility; there is no evidence whatsoever that inflation targeting has favorable effects on output growth; we find that inflation targeting does not affect output growth volatility.

Motivation

- Since the late 1990s, inflation targeting has been increasingly adopted by emerging market economies (EMEs).
- It is presumed that inflation targeting reduced inflation rates and output volatility in EMEs.
- Distinctive institutional and macroeconomic features of EMEs hindering the design and implementation of effective monetary policy.
- EMEs provide much more valid evidence on the true effects of inflation targeting due to their varying historical experiences in controlling inflation (Walsh 2009).
- The selection bias can be minimized by focusing on EMEs (Gonçalves and Salles 2008).
- There is no consensus in the empirical literature on the macroeconomic effects of inflation targeting in EMEs.

Contribution of the paper

- Working with panel data enables us to avoid the arbitrariness with respect to determining the initial period for non-targeters.
- By adding dynamics, our empirical model incorporates the entire history of the variables.
- Our estimation procedure is capable of dealing with the endogeneity of inflation targeting.
- we investigate the effects of inflation targeting by controlling for several factors, such as: trade openness, foreign shocks, fiscal variables, exchange rate regimes, political factors.

Data and Model Specification

- Annual data for a panel of 44 EMEs during 1970-2017.
- 17 inflation targeters and 27 EMEs with different monetary regimes, serving as a control group.
- The baseline specification of our empirical model:

$$y_{it} = \theta + \alpha y_{i,t-1} + \beta IT_{it} + \delta_k \sum_{k=1}^{K} X_{k,it} + \mu_i + \varepsilon_{it}$$

- y_{it} denotes the dependent variable for each separate specification: average inflation, inflation volatility, output growth, and output growth volatility, respectively.
- IT_{it}, is a dummy variable which equals 1 if country *n* is an inflation targeter in period *t*, and 0 otherwise.
- Control variables: output gap, trade openness, foreign shocks, public debt, budget surplus, exchange rate regimes, and political factors.
- We employ the system GMM estimator. In order to reduce the number of instruments, we have restricted the number of lags used as instruments for endogenous and predetermined variables along with collapsing the instrument set.
- We apply the Windmeijer (2005) finite sample correction of the two-step variance-covariance matrix.

Results

	sGMM (1)	sGMM (2)	sGMM (3)	sGMM (4)	sGMM (5)	sGMM (6)
Lagged inflation volatility	0.406***	0.437***	0.405***	0.418***	0.453***	0.410***
	(0.131)	(0.139)	(0.113)	(0.143)	(0.141)	(0.127)
IT dummy	0.005***	0.005***	0.005***	0.004**	0.004***	0.005***
	(0.001)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)
Foreign inflation volatility	0.250**	0.326***	0.333***	0.340*	0.313*	0.289*
	(0.123)	(0.121)	(0.114)	(0.197)	(0.158)	(0.167)
Output gap volatility (Hamilton filter)	0.398**			0.298		
	(0.184)			(0.205)		
Output gap volatility (H-P filter)		0.560***			0.485**	
		(0.171)			(0.230)	
Output growth volatility			0.348***			0.347**
			(0.084)			(0.183)
Budget surplus	0.006	0.009	0.013			
	(0.015)	(0.013)	(0.015)			
Budget surplus volatility				0.067	-0.020	-0.014
				(0.210)	(0.230)	(0.159)
Fixed exchange rates dummy	0.007**	0.005**	0.005**	0.006**	0.005	0.006**
	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Terms of trade volatility	0.027*	0.031**	0.025*	0.028**	0.027**	0.027**
	(0.014)	(0.013)	(0.013)	(0.013)	(0.012)	(0.011)
Constant	0.001	0.0008	0.001	0.001	0.001	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Cross-sections	43	43	43	43	43	43
Number of instruments	41	41	41	41	41	41
AR(1) Test	0.102	0.091	0.119	0.118	0.094	0.116
AR(2) Test	0.573	0.518	0.636	0.569	0.514	0.627
Hansen *J* Test	0.542	0.442	0.486	0.226	0.194	0.433

	sGMM (1)	sGMM (2)	sGMM (3)	sGMM (4)
Lagged output growth volatility	0.125***	0.139***	0.114***	0.122***
	(0.042)	(0.042)	(0.042)	(0.042)
IT dummy	-0.001***	-0.0009*	-0.001**	-0.0008**
	(0.0004)	(0.0005)	(0.0004)	(0.0003)
Inflation volatility	0.014	-0.0008	0.022	0.012
	(0.029)	(0.038)	(0.051)	(0.044)
Foreign inflation volatility		0.162***		0.135*
		(0.049)		(0.068)
Change of exports volatility	0.083***	0.072***	0.070**	0.063***
	(0.017)	(0.018)	(0.029)	(0.019)
Budget surplus			-0.003	-0.006
			(0.019)	(0.014)
Budget surplus volatility	0.127	0.161		
	(0.104)	(0.105)		
Fixed exchange rates dummy	0.0006	0.0007	0.0008	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Constant	0.002***	0.001***	0.002***	0.002
	(0.0005)	(0.0005)	(0.0004)	(0.000)
Cross-sections	42	42	42	42
Number of instruments	40	41	40	41
AR(1) Test	0.000	0.000	0.000	0.000
AR(2) Test	0.203	0.182	0.240	0.234
Hansen *J* Test	0.740	0.735	0.602	0.706

Results

	OLS (1)	FE (2)	sGMM (3)
Lagged inflation	0.767***	0.640***	0.653***
	(0.029)	(0.064)	(0.072)
IT dummy	-0.008***	-0.024***	-0.014**
	(0.002)	(0.008)	(0.006)
Foreign inflation	0.432***	0.560***	0.645***
	(0.-056)	(0.060)	(0.126)
Output gap	-0.275***	-0.305***	-0.667***
	(0.073)	(0.078)	(0.235)
Public debt	0.007	0.034***	0.051*
	(0.006)	(0.012)	(0.030)
Fixed exchange rates dummy	-0.009***	-0.010*	-0.018**
	(0.003)	(0.005)	(0.008)
Trade openness	-0.011**	0.012	-0.015*
	(0.003)	(0.010)	(0.008)
Constant	0.012**	-0.005	-0.0006
	(0.005)	(0.010)	(0.015)
AR(1) Test			0.006
AR(2) Test			0.601
Hansen *J* Test			0.317

	OLS (1)	FE (2)	sGMM (3)
Lagged output growth	0.266***	0.186***	0.194***
	(0.036)	(0.060)	(0.076)
IT dummy	-0.0077***	-0.0056	-0.010
	(0.0023)	(0.0044)	(0.0073)
Inflation	-0.060***	-0.061***	-0.0011
	(0.0159)	(0.019)	(0.045)
Fixed exchange rates dummy	0.0012	0.0044	0.0178
	(0.0030)	(0.0057)	(0.0122)
Change of exports	0.103***	0.100***	0.107***
	(0.0122)	(0.018)	(0.021)
Short-term foreign debt	-0.0013	0.0024	-0.062
	(0.0096)	(0.016)	(0.045)
Public debt	-0.0093**	-0.0177**	-0.030*
	(0.0044)	(0.0062)	(0.015)
Constant	0.038***	0.044***	0.053***
	(0.0037)	(0.0062)	(0.0124)
AR(1)			0.003
AR(2)			0.500
Hansen *J* test			0.326

Conclusion

✓ Our empirical study suggests that the advantages of inflation targeting in EMEs seem to be limited by the weak institutional and macroeconomic environment (low central bank credibility, lack of fiscal discipline, fragile financial sector, exposure to sudden capital flows and to adverse shocks, etc.) as well as the need to compromise inflation targets with other short-run goals (smoothing exchange rate fluctuations).

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