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# Assessing McCallum and Taylor rules in a cross-section of emerging market economies

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### ABSTRACT

The paper estimates McCallum and Taylor monetary policy reaction functions, hybrids mixing instruments and targets from the two frameworks, and nominal feedback mechanisms for 20 emerging market economies. The choice of framework employed in analysing each country is informed by the corresponding institutional setting. McCallum–Taylor specifications with an interest rate instrument and a nominal income gap target perform better than benchmark Taylor reaction functions in describing monetary policy in inflation targeting economies. Estimating reaction functions for economies operating monetary and exchange rate targeting regimes produces mixed results, while the nominal feedback rules reveal a lean-with-the-wind behaviour in two out of three economies.

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## 1. Introduction

The policy strategy central banks in emerging economies follow can at times be difficult to follow (e.g., Calvo and Mishkin, 2003). In emerging economies fragile institutions, lack of central bank independence, and a scarcity of monetary instruments can render monetary control difficult. But following the crises in the 1990s many emerging market economies have been making considerable efforts to improve policy making institutions and empirical evidence could help in determining how central banks react to fundamental economic developments. Empirically estimated reaction functions can provide valuable information for discussing monetary policy and therefore may ultimately help in safeguarding macroeconomic stability (e.g., Billi, 2009).

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The paper contributes by investigating monetary policy behaviour in 20 emerging market economies. The investigation seeks to answer the following questions: Are Taylor-type, interest rate, monetary policy reaction functions useful for understanding monetary policy performance in inflation targeting economies? Can McCallum-type, monetary base, reaction functions help in characterizing central bank policy in economies operating monetary targeting and exchange rate targeting policy strategies? For economies with a dearth of statistical information on the real economy and relatively low levels of institutional development, can a nominal monetary policy feedback rule embodying an inflation targeting mechanism approximate historical monetary policy conduct?

Understanding monetary policy behaviour in relation to the prescriptions of key analytical frameworks is relevant (e.g., Taylor and Williams, 2010). John B. Taylor argues that the 2008 financial crisis is at least partly to be blamed on a loose United States Federal Reserve monetary policy stance in comparison to the prescriptions of the Taylor rule (*Wall Street Journal*, 9 February 2009, page A19). Bernanke (2010) discusses the validity of that view.

The paper seeks to produce evidence about past monetary policy behaviour by estimating a family of reaction functions deriving from McCallum's (e.g., 1988, 1999) and Taylor's (e.g., 1993, 1999) contributions. The relevant empirical literature on emerging economies often adopts a framework without exercising judgment about which reaction function is adequate on the basis of the declared monetary policy regime and institutional idiosyncrasies. The investigation tackles that shortcoming by assembling a record of monetary policy institutions in 20 emerging markets which informs the subsequent empirical modelling.

The literature investigating monetary policy reaction functions uses much sophistication (e.g., Dolado et al., 2005; Mavroeidis, 2010), but Kozicki (1999) argues that to be useful an empirical rule should be robust to minor variations. The strategy of the paper involves estimating benchmark, comparable, specifications using conventional econometric estimators to gain a better understanding of monetary policy in emerging market economies. In the spirit of McCallum (2000), the analysis runs a range of policy feedback rules in determining if the estimated central bank reactions are different depending on the type of instruments and targets considered for each economy.

The rest of the paper proceeds as follows. Section 2 gives an account of developments in monetary policy institutions in emerging market economies. Section 3 explains the monetary policy frameworks used in the empirical modelling. Section 4 describes the time series data and the family of monetary policy reaction functions. Section 5 runs the battery of reaction functions deriving from McCallum's and Taylor's contributions, and discusses the results. Section 6 concludes.

## 2. Monetary policy in emerging market economies

Monetary policy in emerging markets, as in advanced economies (Bernanke et al., 1999), has evolved from monetary targeting and exchange rate pegging to inflation targeting (e.g., Mishkin, 2000; Frankel, 2010). But emerging countries face many obstacles in consolidating monetary policy. Fry et al. (1996) examine 44 developing countries and show that central banks in the sample are moving away from traditional monetary instruments towards a market-based monetary policy implementation. In that process monetary authorities face serious obstacles, like underdeveloped and inefficient financial systems, and fiscal dominance. Despite the positive developments, Fry et al. argue that central banks in developing countries have been ineffective in fulfilling the key mandate of delivering price stability. Much has been made about the transition to a market-based monetary policy strategy, but comparable empirical estimates throwing light on the actual policy behaviour in the reforming countries are in short supply.

This paper documents monetary policy institutions in 20 emerging markets and Table 1 displays key information. The sample includes countries from Africa, Asia, Emerging Europe, and Latin America; Table A1 lists all the economies.<sup>1</sup> The sample is also diverse in terms of ranking in World Bank income tables. The group includes countries that are classified as low income like Ghana; lower middle income like the Philippines; upper middle income like Chile; and high income like the Czech Republic. Most

<sup>1</sup> Mehrotra and Sánchez-Fung (2010) focus on estimating monetary policy reaction functions for China.

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