Inflation targeting and income velocity in developing economies: Some international evidence☆

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ABSTRACT

Developing economies tend to prefer or rely upon monetary policy rule with monetary aggregates due to institutional constraints on monetary policy conduct. One crucial condition for monetary aggregates to be a sound instrument is the stability of income velocity. Recently, inflation targeting has been adopted as an alternative monetary policy framework in various developing countries. This study attempts to examine how inflation targeting relates to the variability of income velocity and its components across 84 developing countries during the period from 1990 to 2013. The results suggest that inflation targeting would help stabilize income velocity in developing countries. In addition, a decomposition analysis of income velocity generally shows that inflation targeting would reduce the volatilities of inflation, real output growth, and money growth. Our results provide empirical support for the argument that stable income velocity associated with inflation targeting could improve the effectiveness of monetarism, such that monetary aggregates can serve as an appropriate instrument under inflation targeting regime in developing countries.

1. Introduction

Inflation targeting (IT) regimes have recently been prevailed in several countries, including developing countries. The main feature of an IT regime is an explicit quantitative inflation target and strong central bank legal commitments to the transparency, accountability, and credibility of price stability when implementing monetary policies (e.g. Mishkin (2000), Mishkin and Savastano (2001)). The main argument underlying this concept is that an official announcement of an inflation target improves a central bank’s credibility and helps to lower inflation and the volatilities of inflation and real output (see, e.g. Bernanke, Launach, Mishkin, and Posen (1999), Mishkin (1999), Svensson (1997)). Indeed, as of 2013, fifteen non-OECD countries have adopted the IT regime. Moreover, many developing countries are still pursuing monetary targeting because of institutional constraints, such as the underdevelopment of money and financial markets with strict financial regulations and fiscal dominance with the lack of central bank independence (Roger, 2009). It is widely acknowledged that one crucial condition for monetary targeting to be effective is the stable relationship between money aggregates and nominal output, as demonstrated by income velocity in money, i.e., the stability of income velocity (see, e.g. Estrella and Mishkin (1997), Mishkin (2006)).

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Taylor (2000) argues that an IT regime is not alternative to monetary policies that focus on monetary aggregates. He emphasizes that an IT regime must apply a policy rule to achieve the target and suggests that policies with monetary aggregates are preferable in developing countries because of substantial uncertainties related to measuring real interest rates or relatively large shocks in investments and net exports. More importantly, the stability of income velocity is of great importance for monetary aggregates to be a sound instrument in developing countries. Park (1970) notes that income velocity is more volatile in developing economies than in advanced economies because of their unstable economic, social, and political systems; volatile inflation patterns; and high degree of monetization (e.g., Chowdhury (1994), Driscoll and Lahiri (1983), Owoye (1997)). Moreover, several studies, including Lin and Ye (2007), indicate that volatile income velocity contributed to the breakdown of monetarism in the 1980s and has rendered monetary aggregate targeting an unreliable monetary framework. Because of unstable income velocity found in developing economies, Lin and Ye’s (2007) argument is more persuasive and convincing when applied to discussions of policy effectiveness in developing economies. Thus, the behaviors of income velocity have been of interest to monetary authorities in developing countries pursuing monetary aggregates as an effective form of monetary conduct.

With the importance of stable income velocity and the recent trend of IT regime adoption, a crucial question concerns whether the IT regime can help stabilize income velocity in developing economies. If so, monetary authorities could justify the control of monetary aggregates as an effective policy measure under an IT regime. This study attempts to address such a crucial issue by empirically investigating the relationship between an IT regime and the behaviors of income velocity in developing economies. To the best of our knowledge, few studies have examined the role of income velocity in relation to the effects of the IT regime. Exceptions may include the work of Lin and Ye (2007), who analyze this issue for 22 advanced countries (7 of which are IT countries) by applying the propensity score matching (PSM) method to account for self-selection problems of policy adoption. Their findings fail to show clear evidence of an IT effect on income velocity variability in advanced countries. Since macroeconomic conditions in developing economies differ from those of advanced economies and stabilizing income velocity is more critical for monetary policy decisions in developing economies, this study extends the work of Lin and Ye (2007) on advanced economies and discusses the IT effects on income velocity variability in developing economies.

This study applies the PSM method to analyze the behaviors of income velocity in relation to the adoption of the IT regime in 84 developing countries from 1990 to 2013 following the work of Balima, Combes, and Minea (2017), De Mendonça and De Guimarães e Souza (2012), Lin (2010), Lin and Ye (2007, 2009), Lucotte (2012), Samarina, Terpstra, and De Haan (2014), and Vega and Winkelried (2005). Policy debates have been conducted to determine the countries that have actually adopted the IT regime in an effective manner (Caballero & Krishnamurthy, 2005; Mishkin, 2004; Sims, 2005; Svensson, 1997). Among the various definitions of an adoption year, this study uses the ‘loose’ and ‘strict’ type of adoption years following Rose (2007), Lin (2010), and Samarina et al. (2014), with a loose adoption year representing the earliest adoption year in which inflation targets are announced without strong commitments and a strict adoption year representing the latest year in which credible commitments are made to achieve inflation targets with a single inflation target via monetary policies.

In addition, given that income velocity can be decomposed into price levels, real outputs, and money holdings (real output and real money holdings) as in the conventional Fisher equation, we also investigate how the behaviors of each component of income velocity change during pre- and post-IT periods. This decomposition allows us to discuss issues of monetary channels that emerge once an IT regime is adopted by identifying the sources of the behavioral evolution of income velocity. Furthermore, this study attempts to examine heterogeneous features of the performance of an IT regime. Empirical studies, such as the work of Carare and Stone (2006), Mishkin (2004), and Fraga, Goldfajn, and Minella (2003), indicate that heterogeneity in economic and institutional development should play an important role in determining the performance of an IT regime because emerging economies face differing levels of economic and institutional development compared with those found in advanced economies. Lin and Ye (2009) explore the heterogeneous features of IT effects and show that the performance of an IT regime in terms of inflation and its volatility is more effective in developing countries with favorable preconditions of IT adoption and fiscal positioning but less effective in countries presenting substantial limitations in terms of exchange rate fluctuations. Our study follows the work of Lin and Ye (2009) in evaluating the heterogeneous effects of an IT regime on the volatility of income velocity and related variables of interest.

To check the validity of the results derived from the PSM method, this study further applies the difference-in-difference (DID) approach as an alternative method. The DID approach is also widely used in the IT-related literature (e.g., Ball and Sheridan (2005), Batini and Laxton (2007), Gonçalves and Salles (2008), Samarina et al. (2014), Thornton (2016)), although the approach suffers from several critical methodological problems (e.g., the identification of IT adoption years for countries that have never adopted an IT regime). The empirical analysis shows clear evidence supporting the role of an IT regime in stabilizing income velocity in developing countries; however, our results are inconsistent with the findings of Lin and Ye (2007), who do not observe IT effects on income velocity variability in advanced countries. Monetary frameworks in developing countries tend to rely on the control of money aggregates because of the presence of immature money and financial markets along with highly regulated financial operations and stringent credit and interest rate controls. Taylor (2000) stresses that because of the presence of several institutional constraints on monetary policy conduct, monetary authorities in developing economies might prefer or rely on monetary policy rule with monetary aggregates to achieve an inflation target, particularly under conditions of stable income velocity. Our results on the effects of IT on income velocity provide empirical support for Taylor’s (2000) suggestion that monetary aggregates would be appropriate instruments under an IT regime in developing countries.

In addition, our decomposition analysis of income velocity shows that IT would reduce the volatilities of inflation, real output

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¹ There is no inconsistency between inflation targeting and monetary aggregates as the instrument in the policy rule, although some discussions indicate that inflation targeting serves as an alternative to monetary aggregate targeting. In fact, monetary aggregates might be applied as a plausible instrument to meet inflation targets due to the presence of real interest rate uncertainty in emerging economies (see, e.g., Taylor (2000)).
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