CrossMark

Evaluating inflation targeting based on the distribution of inflation and inflation volatility

Mzwandile Ginindza *, Esfandiar Maasoumi [1]

Department of Economics, Emory University, Atlanta, GA 30322, USA

ARTICLE INFO

ABSTRACT

In this paper the Financial Development Index (FDI) is used to rank 57 of the world's leading financial systems. Its calculation is based on the following 7 economic pillars: (1) Institutional environment, (2) Business environment, (3) Financial stability, (4) Banking financial services, (5) Non-banking financial services, (6) Financial markets, and (7) Financial access. Pillar (4) is constructed from bond markets, stock markets, foreign exchange markets, and derivative markets. Pillar (5) includes a country's IPO activity, namely the IPO market share, IPO proceeds amount, and IPOs share of world IPOs. The stock market index provides a short-term account of financial activities, whereas the FDI provides a long-term broader account of the financial structure and health of an economy. As the performance and success of a given monetary policy would less likely be judged on short-term dynamics, it seems sensible to use the annual FDI as one of several economic and country attributes in a policy evaluation of Inflation Targeting. The paper offers a potential outcomes analysis of the impact of inflation targeting on inflation and inflation volatility, and focuses on advanced economies that adopt "inflation targeting" as a formal monetary policy. In order to deal with the counterfactual question, namely what would be the inflation rate for an adopting country had it not adopted this policy, the paper offers a new matching technique that subsumes the traditional propensity scores methods as a special case. The paper has different proposals for assessing "matching" based on the whole distribution of any "scores". Additionally, the paper goes beyond the Average Treatment Effect (ATE) and examines the entire distribution of inflation and its "variability". It is found that the adoption of

---

* Corresponding author.
   E-mail addresses: mginind@emory.edu (M. Ginindza), esfandiar.maasoumi@emory.edu (E. Maasoumi).

inflation targeting has helped lower inflation (not just the mean) for the targeting countries. However, it is shown that exact numerical quantification of this policy effect is as highly subjective as choosing ideal social welfare functions. The paper also finds no evidence of a larger gain for "late adopters" of inflation targeting. As for inflation variability, there is some robust evidence of small and often statistically insignificant reduction in variability due to targeting.

1. Introduction

The potential effect of inflation targeting as a policy tool has been examined in a number of studies with the "average" impact on inflation being the main focus. In this paper, we examine the impact of targeting as a potential outcome, compared with the counterfactual outcome: what would be the inflation rate for the adopting country had it not adopted inflation targeting. We follow the general technique of "matching". This requires identification of one or more countries that are non-adopters, but with substantially identical or similar characteristics. The latter are well known multiple indicators that form a conditioning variable set in the literature for treatment effects, and propensity scores (PS) approach popularized by Rosenbaum and Rubin (1983).

This is a classical multiple indicator problem, an indexing puzzle, that does not seem to have been fully developed as such. To put it succinctly, how does one "represent" an economy with a single index based on multiple indicators of characteristics? Propensity scores method is shown here to be a special "statistical" solution that obtains a [0; 1] score for each country and "interprets" these scores as treatment "probabilities". We show that this interpretation is somewhat arbitrary, and the same set of multiple indicators are capable of producing very different "scores", statistically or otherwise.

One of the main indicators in this paper is the Financial Development Index (FDI). Attempts to measure financial development in an economy can be seen in works as early as in Von Furstenberg and Fratianni (1996), who proposed the use of spreads between returns on investments and savings. Currently, the World Bank and others combine various economic attributes to rank 57 of the world's leading financial systems. Its calculation is based on the following 7 economic pillars: (1) Institutional environment, (2) Business environment, (3) Financial stability, (4) Banking financial services, (5) Non-banking financial services, (6) Financial markets, and (7) Financial access. Pillar (4) is constructed from bond markets, stock markets, foreign exchange markets, and derivative markets. Pillar (5) includes a country's IPO activity, namely the IPO market share, IPO proceeds amount, and IPO share of world IPOs. It would seem that the stock market index provides a short-term account of financial activities, whereas the FDI provides a long-term broader account of the financial structure and health of an economy. As the performance and success of a given monetary policy would less likely be judged on short term dynamics, it seems sensible to use the annual FDI as one of several economic and country attributes in a policy evaluation of Inflation Targeting based on "matching" techniques.

The first formal adoptions of inflation targeting as a significant monetary policy date back to about two decades. Advocated benefits of this policy include increased transparency, credibility, and accountability by the monetary authority. Brimmer (2002), and Schmidt-Hebbel and Tapia (2002b) discuss the experiences of the pioneers of inflation targeting, New Zealand and Chile, regarding these benefits. Additionally, this policy is widely credited as a major contributor to lower inflation experiences of the same time period. But formal empirical studies evaluating its absolute and relative performance have produced mixed results. Bernanke et al. (1999) refer to this consequential conundrum as the Inflation Targeting Debate, and the issue remains unresolved. Although there has been a general consensus that countries with a formal inflation targeting policy framework (henceforth Targeters) have experienced a downward trend in their inflation levels, a similar trend has also been observed amongst individual countries without a formal inflation targeting policy (henceforth Non-Targeters).

The challenge of identifying and isolating this policy effect is thus well suited to the potential-outcome paradigm, based on matching/propensity scores, selection bias and treatment effect regressions, differences-in-differences, as well as the traditional "structural models" approaches. An