



Inflation targeting as a means of achieving disinflation

Christian Saborowski *

The World Bank, 1818 H Street, NW, Washington, DC 20433, USA

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ABSTRACT

In this paper, we take an analytical approach to examine possible adverse effects of the use of inflation targeting as a disinflation regime. The idea is that a strict interpretation of an inflation target may preserve inflationary distortions after price stability is attained. We show that such a policy not only creates a slump in output but may increase macroeconomic volatility substantially in a model in which wages are subject to a Taylor staggering structure. The policy implication is that the problems associated with an excessively rigid inflation targeting policy are even more severe during a disinflationary episode.

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1. Introduction

Inflation targeting has become increasingly popular as a monetary policy regime, often motivated by the desire to lower the inflation rate and to better anchor inflation expectations. Indeed, developing countries typically adopted the policy at inflation rates substantially higher than those of their developed country peers. An interesting empirical regularity is the finding that inflation targeters are more prone to high inflation volatility and more likely to miss their targets during disinflation episodes than under price stability (Roger, 2009).¹ One reason for this finding may be low policy credibility (Albagli and Schmitt-Hebbel, 2004; Cespedes and Soto, 2005), another is likely to be a deliberate decision by central bankers to set the policy rate less aggressively during times of disinflation. This study rationalizes the latter line of reasoning.

The argument we make is that a strict inflation targeting policy—a rule-based approach that exclusively focuses on keeping inflation at target while enhancing transparency and accountability—employed for the purpose of disinflation may preserve inflationary distortions to an especially large degree. In our model, these excess distortions not only cause slumps in real activity, but may additionally increase macroeconomic volatility. The paper shows that the challenge of disinflating an economy using inflation targeting is the need for compatibility of the new sequence of inflation targets with the prevailing state of the economy; this argument is consistent with the evidence of economies tormented by high inflation choosing to gradually lower their inflation targets over an extended period of time (Roger, 2009).

An extensive literature has analyzed inflation targeting with regard to its properties as a monetary policy regime under price stability. Its advantages have been documented by, among others, Bernanke and Mishkin (1997) and Svensson (1997). In an early contribution, Svensson (2000) differentiates between flexible and strict inflation targeting and shows

* Tel.: +1 202 473 9320.

E-mail address: csaborowski@worldbank.org

¹ Countries such as Ghana, Hungary, Poland and Serbia introduced inflation targeting at inflation rates above 10 percent and have gone through multi-year periods of disinflation.

that the former creates substantially less output variability than a strict interpretation of the policy, as it effectively targets inflation at a longer horizon. The present paper reinforces this result by showing that the sub-optimality of strict inflation targeting may be even more severe in the context of a disinflation episode. Yun (2005) applies a similar line of reasoning as we do in this paper. He shows that the zero inflation optimality result (Woodford, 2003; Gali, 2003) must be refined in the presence of initial price dispersion.² The reason is that the pre-existing price dispersion adversely affects real activity in the economy and disappears faster under alternative policies.³

The present study is motivated by the idea that inflation targeting differs from other disinflation policies in important respects.⁴ In particular, a strict interpretation of an inflation target allows the policymaker to tolerate only minor deviations from target. But adjusting the policy instrument such that the inflation rate is reduced to a new target and defending this target rigorously must preserve inflationary distortions such as wage and price differentials more strongly. We use a Dynamic General Equilibrium Model with wage staggering of the type suggested by Taylor (1979) to consider a rather extreme case of a disinflation exercise: an immediate and permanent reduction in the rate of CPI inflation to a newly set target. We interpret this policy as strict inflation targeting during a disinflation episode. The central bank sets the path of money supply such that the newly set inflation target is attained immediately and sustained throughout future periods. The particular nature of the policy requires us to solve the model in a rather unconventional way. We first impose the result of the disinflation policy, a reduction to a lower rate of CPI inflation, and then solve for the policy itself, i.e. the path that money supply has to follow in order to sustain the new inflation target throughout the future.

We consider both a closed and an open economy version of the model economy. As briefly mentioned above, we find that the disinflation policy we consider not only creates a slump in output on impact, but can additionally generate oscillatory behavior in both nominal and real variables along their post-disinflation adjustment path. The reason is that the immediate reduction in price inflation requires the real wage to fluctuate for some periods before it gradually converges to its new steady state. The oscillations can be permanent, such that the post-disinflation path of the economy is not saddlepath stable, when the economy is closed and the returns to labor in the production function are constant. This finding holds true even for a broader class of policies entailing elements of preannouncement as well as an emphasis on a more gradual approach to disinflation using intermediate targets. The optimal choice of an intermediate inflation target for the impact period of the policy can in principle prevent the macroeconomic oscillations. But even a small deviation from this target can lead to relative price distortions and an increase in volatility all over again.

The presence and the magnitude of oscillations along the economy's adjustment path depend on the degree to which wages need to fluctuate in order to keep the inflation rate at the newly set target. Strikingly, the size of the initial slowdown in real activity is strongly positively related to the presence of oscillations along the adjustment path. Factors determining the presence and the magnitude of these oscillations are the desired size of the reduction in the inflation rate as well as the returns to labor in the production function and the degree of openness of the economy. Greater returns to scale generate oscillations as they imply that wages are tied more closely to the behavior of prices. The degree of openness matters because the exchange rate acts as a stabilizer along the post-disinflation path of the economy by effectively relieving wages of part of the burden of reducing the inflation rate. The more open is the economy, the greater is the share of the burden it can successfully manage. In particular, we find that there are no oscillations at all along the post-disinflation path of the economy if the returns to labor are strongly decreasing and the economy is sufficiently open. At the other extreme, in the case of constant returns to scale and a closed economy, the oscillations are large and permanent. The latter is thus the only case in which the economy does not gradually converge to a new steady state. When we investigate the policy's effects in the framework of the full nonlinear model instead of in a loglinear version of it, another interesting feature of this special case emerges. It turns out that the policymaker faces a surprisingly strict feasibility constraint that does not allow for the policy to be carried out in virtually any case of empirical relevance.

The present study is consistent with the analysis of Yun (2005) in that it identifies the slow convergence of prices as the major source of inefficiency resulting from an unexpected, immediate and permanent reduction in the inflation rate. But the presence of oscillations along the adjustment path is a result that does not obtain in a model with a Calvo (1983) type staggering structure as in Yun (2005). We show that this is because Calvo price setters would always set prices equal to the prevailing price level. Moreover, the analysis shows that the negative consequences of strict inflation targeting, a rule-based policy exclusively focused on keeping inflation and inflation expectations at target and to maximize transparency and accountability (King, 1997), identified by Svensson (2000) may be exacerbated when the same policy is used as a disinflation regime. We interpret this as an explanation for the finding of Roger (2009) that target misses are particularly common for disinflating inflation targeters despite the fact that monetary authorities in these economies

² Rotemberg and Woodford (1997) show that in a general class of sticky price dynamic general equilibrium (DSGE) models, consumer welfare can be well approximated by a quadratic loss function in inflation and real activity. It can be shown that welfare losses are then proportional to a discounted sum of squared deviations of the current inflation rate from a moving average of recent past inflation rates, rather than deviations from zero (Sheedy, 2008). Giannoni and Woodford (2005) conclude that inflation should not be reduced too abruptly if it has been allowed to exceed its optimal long-run level.

³ The stabilization policy examined in Yun (2005) does not increase macroeconomic volatility. The reason is that the author uses Calvo (1983) price contracts. We elaborate on this in Section 2.2.4.

⁴ The disinflation literature has largely concentrated on explaining stylized facts regarding the differential real effects of money and exchange-rate-based disinflations in the short run (Ball, 1994; Ascari and Rankin, 2002; Calvo and Vegh, 1994). The long run impact of disinflation policies in the framework of the New Keynesian model is discussed in Blanchard and Gali (2007) and Ascari and Merkl (2009).

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