Balance Sheet Constraints and the Political Economy of Inflation Targeting

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Abstract

This is the first portion of a project we have been working on since the summer of 2010. As we will explain in the literature review, the direct investigation of inflation targeting in political science has been scarce. (Some might suggest this is for good reason, but we respectfully disagree.) Our initial goal was to explain both why governments choose to implement IT rules and how the decisions over type of target (point, range, etc.) are made. In our discussions and research, it has become apparent that there is more work to be done on the former, which we address at the cost of the latter. The goal here is to illustrate how one constraint: debt, creates a distributional consequence which makes defending an inflation target more costly, both politically and economically. In fact, in a short article, Gonclaves and Carvalho (2008) identify public indebtedness as a disincentive for implementing IT. However, their contribution is purely empirical, and leaves an important question on the table from a theoretical standpoint. As always, comments, criticisms, and suggestions of other directions in which to extend this argument are very welcome. This manuscript is only for distribution related to the Comparative Politics Workshop, University of Michigan, 2010. Any unauthorized distribution is prohibited. We would like to express our gratitude to the Roy Pierce Scholars Fund for providing support for the initial stages of this project.

1 Introduction

In 1931, the Swedish central bank (the Riksbank) and the parliament of Sweden (the Riksdag) agreed on a policy change which fundamentally altered the manner in which central banking would operate within Sweden. A single sentence shifted the target of monetary policy from maintenance of a gold standard to direct targeting of domestic prices within Sweden. The new policy introduced flexible exchange rates (which only lasted until July 1933), a discretionary form of price-level targeting, and an increase in functional central bank autonomy. (Berg and Jonung 1998) By 1937, the policy fell out of favor, and a similar, explicit declaration of price-level targeting did not return until the banking reforms in New Zealand in 1989. However, since 1989, the introduction of inflation targets has spread. In both mature market economies (Australia, Western Europe/ECB,
South Korea) and emerging economies (Israel, Turkey, Armenia, Ghana), central banks are moving to an inflation targeting framework (Schmidt-Hebbel 2010). At the root of these targets is an agreement on the nature of money in an economy.

Money is a store of value, a means of exchange, and a unit of measure. However, it is not like the kilogram, stored unchanged for reference in a vacuum jar. Money is, in addition to the prior three definitions, an agreement among market actors and the issuer of the currency. Because of this, changes in the value of money compared to other objects are indications of the stability of that agreement. In most modern economies, a government-backed central bank issues currency and controls the value of that currency through monetary policy. However, for money to be a useful tool of exchange, or value measurement or storage, there must be an assumption that the future value of that currency is relatively stable, or at the least changes in a predictable manner. For some central banks, expectations are codified in law or agreement as “inflation targets”.

The role of a central bank is divided into competing demands. Usually, it is expected that, depending on institutional constraints, central banks have some control over the aggregate price level, aggregate demand, responsibility for maintaining domestic financial stability and liquidity, or some combination of the three. Maintaining price stability is an important aspect of continued economic growth. Expectations of stable prices are essential to long-term investment and production decisions. It is important to note that inflation refers not to real price growth, which is a function of scarcity, but rather to nominal price growth, which is the result of monetary policy. This nominal price growth affects inter-temporal purchasing and investing decisions, such as inventory purchases, the sale of debt instruments, and wage bargaining. In this article, we seek to develop an explanation for why governments and central banks choose to implement inflation targeting (IT) rules and when those rules will be a credible signal of inflation-constraint resolve. In contrast to existing literature, we refrain from using a partisan framework (for reasons to be discussed later), and instead focus on the distributional consequences of IT and the market constraints which make imposing these rules more difficult. At the core of this discussion of a specific policy rule is a look to the broader issues of time-inconsistency and distributive consequences in monetary policy.

As has been elucidated by previous scholars, the time-inconsistency problem is at the center of the discussion of monetary institutions. The ability of policymakers, be they independent central bankers or not, to demonstrate ex ante commitment to low inflation is dependent on the manner
in which the institutional design can prevent opportunism from incumbent politicians, who have an interest in the stimulatory effect of “loose” monetary policy. (Bernhard, Broz, Clark 2002) The search for credibility in monetary has led, in some cases, to politically-independent central banks, to fixed exchange rates, or sometimes to both. The importance of inflation targeting, therefore is as part of a credible commitment to low, stable inflation. In this sense, it can be considered to be an evolution of independent central banking. Alternatively, it can be classified as an institutional evolution, derived to meet new challenges to bank credibility.

Mukherjee and Singer (2008) have started a debate on the ways in which pressures may arise in favor of IT as a policy rule. This course of study is important, but it tends to ignore the politics that occur after the policy has been implemented. Ignoring the possibility that inflation targets are not real commitment devices, but rather attempts at falsely signaling commitment, distorts the logic of the implementation argument. If maintaining low inflation is a genuine goal, and possible, then inflation targets may serve as an important focal point for market actors’ decisions. However, if the commitment to low inflation is not genuine, implementation of inflation targets may be an attempt to mislead the market. Obviously, assumptions about rational versus adaptive expectations should alter the incentives in the latter case. We set aside this debate for a later time. Rather, we focus here on market constraints which should, ceterus paribus, discourage the implementation of such a rule, even if there is a genuine desire for low inflation among policymakers. Further, we use the same logic to identify when states which implement IT may fail to meet the promises made by the policy. This should suggest when IT policies are introduced as “cheap talk”, rather than a boost to monetary policy credibility. Because a significant portion of the extant literature treats IT as a “magic bullet” for the time-inconsistency problem, illustrating when rational market actors will view IT policies as an incredible promise to manage inflation will illuminate the logic behind the credibility problem itself.

2 Extant Literature

Although there has been little attention directed towards inflation targeting from political science, there is a significant body of literature in economics on IT policy, macroeconomic effects of IT, and how IT compares to other types of monetary policy frameworks. Political scientists have focused
on the constraints and credibility which various monetary institutions provide. Also, political economists have investigated the macroeconomic benefits of credibly low inflation, conditional on other domestic economic institutions. We will review each in turn, then address an issue we consider central to the implementation of any monetary rule: balance sheet constraints and the effects of debt.

2.1 Does IT work? Why is it implemented?

There are mixed findings on the success of inflation targeting in improving macroeconomic outcomes. In some cases, the data appears to suggest that the difference in outcomes between inflation targeters and non-targeters are not significantly different. This may be because “targeting and non-targeting countries pursue similar interest-rate policies”. (Ball and Sheridan 2003) Among emerging economies, the benefits of IT for suppressing inflation appear stronger than the finding among industrialized economies. (Levin Natalucci Piger 2004) There is increasing support, however, for the theory that explicit inflation targeting rules are a commitment device for central bankers. The key, it is argued, is that accountability, not independence, makes inflation targeting a solution to time-inconsistency problems, through the punishment of central bankers who fail to meet inflation targets. The role of independence in ensuring monetary business cycles do not occur is thus replaced by accountability and an explicit target. (Libich 2008)

In the most prominent political science article on IT, Bumba Mukherjee and David Singer argue that inflation targeting is a coordinated policy outcome between government and the central bank. In their model, preferences over inflation and employment outcomes determine the likelihood of IT implementation. They argue that inflation-averse government (ie. the right) and central bankers without mandates for full employment or financial system regulation (ie. banks with only “stable price” mandates) are the conditions which make IT adoption more likely. While this theory is internally sound, there are assumptions which must be addressed. Evidence that the right is consistently more inflation-averse than the left is mixed. While this is not problematic for the formal model, where this is the convention, the application of this assumption to empirical testing may ignore important strategic interactions between the bank and the government. More importantly, the article focuses only on adoption of inflation targeting as a policy, not on the effectiveness of that target. By ignoring the post-implementation logic, the theory, when compared
to policy outcomes, cannot explain why economies fail to stay within prescribed inflation ranges. If the target is implemented in conjunction with both government and bank preferences, it is deeply puzzling that the targets are not met. To truly investigate IT as a credible commitment, it must be the case that the policy suppresses incentives to inflate opportunistically.

Consistent with the language used above, it may be excused to think of IT as a monetary policy rule. However, the functional role of the target as a “rule” in the traditional sense is not imminently clear. In most cases, inflation targeting involves targeting instruments for inflation (intermediate targets) using forward-looking model. Additionally, the transparency that comes from interim reports is argued to decrease variation in wage earners expectations of inflation. (Svennson 1999)

### 2.2 Exchange-rate Preferences and Balance Sheet Constraints

Much of the discussion of inflation targeting is tied to a discussion of moves away from exchange rate targeting. For most central banks where a policy rule is in place, that policy exchange rate targeting. As a method of investigating exchange rate preferences, Stefanie Walters (2008) investigates the balance-sheet risks of monetary policy related to exchange rate levels. There are distributional consequences of exchange-rate level, which comes from either devaluation risk or monetary tightening risk versus purchasing power losses. When actors have large, unmatched foreign liabilities, they can be expected to favor exchange-rate stability, in general. In contrast, actors with large liabilities denominated in the domestic currency are exposed to interest rate movements for monetary tightening. Using a set of case studies, Walters examines the dynamics of the response to the Asian financial crisis in four countries.

### 3 Balance Sheet Constraints, Prices, and IT

Drawing from these literatures, we investigate inflation targeting in the face of the constraints created by private and public debt obligations. The logic of this theory is similar in ways to the exchange-rate preferences argument from Walters. However, inflation targeting policy is enacted primarily through interest rate manipulations, in open market operations and discount window policies. Raising or lower interest rates slows or accelerates the growth of prices, sometimes with a short-term also has an effect on exchange rates, which also affects prices. This complex inter-
dependence of interest rates, exchange rates, and prices is determined by the constraints of the Mundell-Flemming model. In open economies, where capital is mobile, adjustments in interest rates, either for macroeconomic stabilization or opportunistic stimulation, pass through to the exchange rate through arbitrage. Therefore, we argue that IT produces both interest rate (IR) and exchange rate (ER) movements which, if the target is defended, may pose a threat to the financial stability of domestic borrowers.

The key difference between exposure to IR risk and ER risk is the currency denomination of debt. Debt denominated in domestic currency faces only interest rate risk, as the fluctuation of exchange rates is exogenous to the terms of the note, and only has a pass-through effect via interest rates. However, not all debt is issued in the domestic currency. In some cases, it is less costly (lower interest rates) to borrow overseas or it is impossible to borrow in the domestic currency. Debt issued in a foreign currency also faces risk from exchange rate devaluation, which increases the cost of servicing existing debt which is denominated in foreign currencies.

The variety of inflation targeting rules and specific “escape clauses” makes a detailed definition of inflation targeting needlessly complex. (For a detailed listing of varieties of inflating targeting rules, we recommend readers review Carare and Stone 2006.) For our purposes, we assume a generalized version of IT, with the most common characteristics, so that the discussion of the time-inconsistency issue can be the focus. Targeting of an inflation rate requires definition of a price level. In general, this is done by defining a fixed basket of goods, both domestically- and foreign-produced. The weighted price average of these goods defines a consumer price index (CPI). In some cases, the target may be a dynamic basket or multiple indexes, but this simplified characterization can be used without significant loss of generality. Under this assumption, the inflation target is a year-over-year growth in the CPI between a low and high range endpoint, centered on the target itself. When inflation falls outside that range, a “dedicated” policymaker would increase interest rates (to cause disinflation) or decrease interest rates (to cause inflation) to drive price growth back towards the target. This change in interest rates passes through to exchange rates. When interest rates fall, investors sell currency to move their capital abroad in search of better returns, which leads to a devaluation of the currency. When interest rates rise, investors purchase currency to invest at a higher rate, which causes currency appreciation. Because of this, a move to an inflation targeting standard, if credible, trades interest rate and exchange rate stability for domestic price
Complicating this relationship is the interaction between exchange rates and domestic prices. In economies where imports compose a significant portion of domestic consumption, fluctuations in exchange rates pass through to the price index. If currency depreciation causes the price of goods in the basket to rise, the response, both to stabilize exchange rates and suppress domestic price increases, is increased interest rates. If a currency appreciation causes the price of goods in the basket to fall, lower interest rates are the necessary response. This constraint, however, is not uniform across all economies. Both the portion of consumption that comes from imports and the pass-through of price increases from exchange rate movements vary, and vary in an interactive manner. In short, when imports as a share of domestic consumption increases, the importance of exchange rate risk in the inflation index calculation increases.

The effect that each of these has on the risk faced by domestic borrowers comes from the type of borrowing which occurs. If the borrowing is primarily in domestically-denominated debt, then the risks of inflation targeting to borrowers come from interest rate movements. Increases in the domestic interest rate increase debt service costs on existing liabilities. If the borrowing is in foreign-denominated debt, then the exchange rate risk from domestic price stabilization, specifically from devaluation, is more important. Devaluation of the currency makes repayment of liabilities more “costly” as the domestic currency falls in value.

Because of this shift between price risk and interest rate and exchange rate risk, there is a distributional trade-off between consumers, who may prefer low inflation for stable purchasing power (thanks to inflexible wages) and borrowers, who prefer interest rate and exchange rates as described above. It is this distributional issue which puts defense of the inflation target at risk. When the benefits to consumers outweigh the costs to debtors, IT is more likely to be adopted. Alternatively, when risk to debtors is high and debtors have leverage over economic policy, IT is unlikely to be adopted. However, there may be cases in which IT is adopted, despite high costs to borrowers. In these instances, we expect that the target is not defended or, if defended, remains on the high end of the range. It is this hypothesis which we aim to test. There is a relationship between domestically-denominated debt, foreign-denominated debt and import price risk, and selection and maintenance of inflation targets. We expect that states with higher levels of domestically-denominated debt will adopt IT with a lower probability. Also, we expect that higher
levels of foreign-denominated debt will lower the probability of IT adoption. This negative effect is intensified by exchange rate risk from higher levels of imports in consumption.

This discussion of interest rate manipulation for inflation targeting is only one half of the story. Interest rates regulate the supply of money as increased borrowing puts more currency in the market to purchase the same quantity of goods. Since prices reflect the trade-off of currency for goods, this is demand-pull inflation. The other half of inflation pressures, cost-push inflation (which is caused by uncertainty over inflation during wage bargaining) relates to this argument through the time-inconsistency problem.

The link between this balance sheet, distributional story and the existing theories of monetary policy and credible commitments is through time-inconsistency. As the extant literature has suggested, even if the central bank has no implicit intention to allow expansionary monetary policy, it is the expectation of this movement which may drive up inflation. In an effort to maintain real economic welfare, market actors demand higher wages to prevent erosion of the “exchange rate” of labor for goods which is intermediated by money. This up-bidding leads to cost-push inflation, which passes through to the CPI in relation to the portion of the basket which is domestically-produced.

The more significant damage that balance sheet risk does to the credibility of commitment to inflation rate defense occurs through expectations of the outcomes from exogenous shocks. When the economic risk from correcting for term-of-trade shocks or balance-of-payments shocks is high enough that the central bank is likely to defend debtors, instead of defend the target, this expectation should induce over-bidding of wages. Because the preferences of the government/central bank over inflation versus IR and ER risk are expected to change when an exogenous shock endangers the liabilities market, there is a time-inconsistency problem.
4 Research Design, and Issues

In testing these hypotheses, we aim to draw from some of the strengths of both the balance-sheet argument and the extant literature on inflation targeting. In testing the hypotheses on selection of IT and the credibility/effectiveness of the announced target on maintaining stable inflation, we need to gather information both on the targets themselves (range, level) and on the central banks who issue them (CBI, transparency, accountability). In addition to this institutional information, we also need information on levels of public- and privately-held debt and the currency composition of that debt. Finally, we are investigating the credibility of the target in terms of macroeconomic effect and the implication for wage bargainers, so collecting information on the rates of inflation, exchange, and interest rates is essential.

Because this is a cross-national study, we also define a sample of inflation targeting and non-targeting countries. Because data availability for some variables of interest (debt composition, for instance) is incomplete at best, we have roughly defined a sample and worked to collect as much data as possible to fill in the gaps. Unfortunately, data collection has been only partially successful so far. Data on domestic, private debt composition is more difficult to acquire, and is currently holding up some of the analysis. For this stage of the project, we focus on the OECD, then move on to a broader sample, replicating the sample from Mukherjee and Singer (2008). Our data come from collections from the World Bank, IMF, ILO, previous research on CBI, and our own research in the archives and data of the central banks themselves. Results will be presented, if possible, on Friday.

Testing this initial set of hypotheses requires analysis of two specific, and analytically-separate issues. First, the decision to implement this policy, credible or not, has some non-trivial cost. Therefore, we analyze the probability that any government will adopt IT, given the conditions above. (No government in the sample has abandoned inflation targeting, save the EU member states who joined the ECB.) Since it makes sense to implement a time-series cross-section analysis in this case, violation of the independence assumption of logit or probit is an issue. To address this, we apply binary time-series cross-section (BTSCS) corrections, as recommended by Beck, Katz, and Tucker 1998. Second, we investigate the “credibility” of the inflation target in two ways. When a range is defined by the central bank as the inflation target, the rate of inflation should, if the
target is credible, remain within or reasonably close to the target. Observing consistent deviation from the announced target suggests the bank is unwilling or unable to control inflation to the level initially promised, a classic case of time-inconsistency. Therefore, we compare deviations from range, year-over-year, to the variables of interest. (To clarify, when the real inflation rate is within the range, the dependent variable is zero, otherwise, it is the difference in rate between the closest target boundary and the actual rate of inflation.) As a check, we also test the same variables using a simple pass/fail test, where failure to meet the target range is the criterion. Also, we use data on hourly wages of non-agricultural workers, where available, as a test of wage-up-bidding, a different indicator of the credibility of the inflation target. The test of our theory is whether increases in wages, adjusted for productivity gains slowed after implementation of an inflation target. With these three tests, we hope to interrogate, in some small way, the effects of IT on time-inconsistency.

5 Data and Results

Forthcoming, sorry!

6 Discussion and Potential Revisions

Some scholars would characterize the link between inflation targeting and low, stable inflation as a partially-deterministic relationship. This kind of argument concerns us, if only because it applies too much power to a “rule” which is better described as a directed form of discretion. To test this claim, we investigate the effects of conditions which may disincentivize following a stated target. Admittedly, this form of analysis can best be described as a weak form of denying the consequent. By investigating where inflation targeting stands in contrast to a distributional consequence of levels of debt, we aim to show that IT is a not universally-credible signal of commitment to low inflation. Because the policy is, at its core, rule-guided discretion, under IT there remain opportunities for pressure from the government on the bank to “let inflation ride”. The goal in this discussion identification of one possible cause of violation as a means of better understanding the constraining effects of IT.

The more interesting conclusions, however, will come from the lens that IT provides for looking at commitments between monetary authorities (and government in general) and the public. Here
is an instance of a specific, explicit target for a macroeconomic variable with real economic implications. It is easily understood by most people, the commitment can be explained with great clarity, and it represents an agreement between the policy-maker (or the government, generally) and voters/consumers/economic actors.

If the goal of inflation targeting is truly to limit the inflationary bias caused by time-inconsistency, then the policy should be most effective when there is a credible commitment, from the government, central bank, or both, to placing price stability above macroeconomic stimulus and the political benefits thereof. Also, that same commitment is strongest when there is low expectation that the monetary policymaker will create distributional benefits through manipulation of monetary policy. This discussion centers on creating credible commitments, but it is difficult to look into the future with certainty, despite our best efforts. Much effort has been spent debating the value of transparency, independence, and reputational credibility in central banking. Adding inflation targeting to this debate, either as a form of transparency or an enhancement of independence, would only serve to complicate matters. Germaine research may be on a different route. To develop better theories about when inflation targeting, or other commitments to low, stable inflation without government manipulations in monetary policy, are credible, it is useful to begin looking for ways in which groups of actors which might oppose that stability may have influence. In the same manner that monetary shocks are intended to help leaders retain office by generating temporary output boosts and winning votes, sectoral interests may make pursuing or defending an inflation target politically costly.