

# Review of Inflation Bias, Output Stabilization, and Central Bank Independence by Thomas Jordan

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This short book contains four connected essays on the consequences of non linearity in the Phillips curve (PC), asymmetry in the attitude of policymakers to positive and to negative output gaps, and imperfect control of inflation for the inflation bias, the sacrifice ratio and the variabilities of inflation and of output. Solid understanding of those issues backed by empirical evidence is highly relevant for the conduct of contemporary monetary policy. Although it does not provide empirical evidence the book contains a number of interesting results that shed new light on some of those issues.

Following the presentation of each framework the book considers, in each case, the desirability of delegating the authority to conduct monetary policy to a (Rogoff (1985) type) central bank (CB) that is more conservative than society as represented by government. Chapters 2 and 3 feature a PC that is convex to the origin implying that, at lower inflation rates, monetary policy has a relatively stronger impact on output than on inflation. Chapters 4 and 5 return to the conventional linear PC but deviate from the conventional monetary policy game setup by postulating that policymakers are more averse to negative than to positive output gaps.

The first essay (chapter 2) considers the consequences of non linearity in the PC for the inflation bias and for the extent of stabilization policy under alternative levels of CB conser-

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vativeness. The main novel result is that, contrary to conventional wisdom, and in line with empirical results, output fluctuations are not necessarily higher under a more conservative CB. This is a direct consequence of the convex PC. By maintaining a lower average level of inflation a more conservative CB moves the economy into a range of values of the output gap and inflation in which the cost of stabilizing output in terms of deviations of inflation from its target is relatively low. This makes it more advantageous for all CB types to put more emphasis on the stabilization of output. Thus, it is possible that a more conservative CB induces both lower average inflation and more stabilization of output. An interesting corollary is that there exists a critical level of CB conservativeness below which all levels are Pareto dominated by at least one level of conservativeness in the set above the critical level of conservativeness.

Using estimates of sacrifice ratios from Ball (1994), Debelle and Fischer (1994) and others have produced evidence suggesting that the sacrifice ratio is higher, the higher CB independence or (effective) conservativeness.<sup>1</sup> The second essay (chapter 3) analyzes the consequences of a non linear PC for the relationship between CB conservativeness, on one hand, and the sacrifice ratio and social welfare on the other. Again, the convexity of the PC implies that the cost, in terms of lost output, of reducing inflation by more conservative CB's is larger since such banks operate in a flatter range of the PC. For a similar reason less conservative CB's disinflate more quickly. Since they operate in a relatively steep range of the PC such banks do not loose much in terms of output by stabilizing inflation quickly. The analysis thus provides theoretical underpinnings for the empirical finding of Ball (1994) and others. But the chapter correctly points out that the sacrifice ratio cannot be used to evaluate the social desirability of a relatively conservative CB. The reason given is that this ratio focusses only on the disinflation cum recession phase of the cycle whereas a full evaluation requires taking into consideration the impact of CB conservativeness over the entire cycle.

The analysis in the chapter is interesting but, as the author recognizes, somewhat limited in that it is based on the assumption that the public is fully informed about the policymaker's type. An important real life element of actual stabilizations is that the public is uncertain about the commitment of policymakers to the stabilization program forcing them to demonstrate their

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<sup>1</sup>The usual presumption is that the CB is more conservative than government so that CB independence and effective conservativeness are positively related.

effective conservativeness by appropriate results. Such a signalling element is excluded from the analysis of chapter 3. Cukierman (2002b) explores the issues of chapter 3 under such imperfect credibility and a piece wise linear PC and reaches conclusions that are broadly in agreement with those reached in the chapter. The fact that, in spite of those rather different frameworks, the main results are similar strengthens the robustness of the results in the chapter.

Chapter 4 postulates that governments dislike negative output gaps but are indifferent to positive output gaps. Using this specification of the loss function and assuming that policymakers possess full, but private, information about shocks to output the chapter shows that there exists an inflation bias even if policymakers target the natural level of output on average. Given expectations, the asymmetry induces policymakers to inflate at a positive rate during recessions and to maintain price stability during expansions. Not knowing the realization of shocks the public's inflationary expectations is equal to the expected value of inflation over those two regimes. Since inflation is positive in the first case and negative in the second - - inflationary expectations are positive inducing governments to inflate at a positive rate on average. This bias too can be beneficially alleviated by delegating the conduct of monetary policy to a conservative CB. The chapter also shows that, given the conventional degree of conservativeness, delegation of authority to a CB whose preferences are more symmetric than those of government also reduces the inflation bias. By deflating to some extent during expansions a CB with more symmetric preferences reduces inflationary expectations - - which induces the bank, in turn, to inflate less. In the limit, when the CB preferences are fully symmetric the bias vanishes.

There is a burgeoning recent literature that derives a similar result in a number of alternative setups suggesting that the bias illustrated in the chapter by means of a rather specific model arises in a wider set of circumstances. This literature also provides empirical testing of the "new bias". In particular Cukierman (2000) derives a similar result in a framework in which the CB does not have private information about the shock and Cukierman (2002a) demonstrates its existence when the transmission mechanism is of the New - Keynesian type. Using a natural rate model Ruge-Murcia (2001) tests it empirically for several countries over time and finds evidence supporting asymmetry in output objectives for the USA and France. Using a New Keynesian framework Cukierman and Muscatelli (2002) also find support for this asymmetry in the post 1985 era for the US.

Chapter 5 explores the consequences of both additive and multiplicative instrument uncertainty for the inflation bias in the presence of some asymmetry in CB objectives and an output target that may be above, or at, the natural level of output. The chapter contains a taxonomy of results. In particular it is shown again that, in the presence of additive uncertainty, there is an inflation bias even if the CB targets the natural level. The source of this bias is similar to the one that arises in the previous chapter except that now there is no private information and uncertainty is due to imperfect control over the money supply rather than to shocks to the economy. Contrary to the previous chapter in which monetary policy alters the probabilities of recessions and of expansions it does not here. The reason is that now policymakers do not have private information. The chapter also replicates Swank's (1994) result that multiplicative instrument uncertainty reduces the bias. But it also (correctly in my view) warns against the conclusion that raising multiplicative uncertainty is a good device for reducing the bias. This view is based on the presumption that it is rather difficult, in practice, to raise multiplicative uncertainty without also raising additive instrument uncertainty.

On the whole this short book tries to deal with various potentially realistic extensions of the literature on monetary policy games. This is done by means of relatively simple functional forms within one shot game frameworks. Although this approach is limited and does not feature meaningful dynamics its virtue is that it illustrates in a simple manner some novel strategic consequences of non linear PC's, asymmetries in policymaker's objectives and two types of instrument uncertainty. There is some unnecessary repetition of the basic framework in later chapters but after a while the reader develops the habit of quickly skipping to the meat of each chapter. Each chapter also contains simulations designed to provide a feel for the likely quantitative dimensions of the analytical results.

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