



# Inflation, government transfers, and optimal central bank independence

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## Abstract

The problem of monetary policy delegation is formulated as a two-stage non-cooperative game between the government and the central bank. The solution to this policy game determines the optimal combination of central bank conservatism and independence. The results show that the optimal institutional design always requires some degree of central bank independence and that there is substitutability between central bank independence and conservatism. The results also show that partial central bank independence can be optimal and that there are circumstances under which it is optimal for the government to appoint a liberal central banker.

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## 1. Introduction

The problem of inflationary bias, which was first identified by [Kydland and Prescott \(1977\)](#), has at its root a time inconsistency problem that arises because there is a potential for surprise inflation to generate output increases. Inflationary bias occurs when rational agents, recognizing that the government may be tempted to use surprise inflation to expand output, demand higher wages, thereby neutralizing the impact of the price increase on output.

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Rogoff (1985) showed that inflationary bias can be reduced by delegating monetary policy to an independent central bank that assigns a higher relative weight to inflation control than society does.<sup>1</sup> In his analysis, Rogoff implicitly assumed that the central bank was free to use its policy instrument as it wished (instrument independence) and also free of government influence over its policy objectives (goal independence). In practice, however, countries differ widely in the degree of independence they confer upon their central banks and even the most independent central banks, who typically do have complete instrument independence, are not entirely free of government oversight.

There now exists an extensive empirical literature that provides convincing evidence of a negative correlation between central bank independence and inflation in industrial countries. However, this inverse relationship appears not to be causal. This suggests that there are underlying country-specific factors which jointly determine inflation performance and the preferred degree of central bank independence. In the empirical literature, central bank independence generally refers to the central bank's ability to make decisions independently of the government. It is this type of independence that the various indices of central bank independence attempt to measure. Relatively few theoretical studies of monetary policy delegation have focused on the determinants of the optimal degree of central bank independence in this sense; in most cases, central bank independence has been identified with central bank conservatism.<sup>2</sup> This is somewhat unsatisfactory because the failure to distinguish between central bank conservatism and independence is formally equivalent to assuming that the central bank's ability to make independent decisions is complete, and exogenously determined.

The need to distinguish formally between the concepts of central bank independence and conservatism has also been recognized by Eijffinger and Hoeberichts (1998). Using a game-theoretic framework, Eijffinger and Hoeberichts show that there exists a continuum of combinations of central bank independence and conservatism which may be optimal. They are also able to demonstrate that the optimal combinations of conservatism and independence are functions of the behavioral and structural parameters in their model. However, although Eijffinger and Hoeberichts model the game between the monetary authority and private agents (wage-setters), they do not allow for strategic interaction between the monetary authority and the government. This has two consequences. First, although the upper and lower bounds of the optimal range for combinations of independence and conservatism can be derived, none of the intermediate optimal combinations can be identified. Second, the analysis cannot overcome McCallum's (1995) criticism that delegating monetary policy to the central bank merely relocates the time inconsistency problem rather than solving it.

The issue of monetary policy delegation has typically been studied using models that do not allow for strategic interaction between the central bank and the government. Alesina and Tabellini (1987), Lohmann (1992) and Debelle and Fischer (1994) are notable

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<sup>1</sup>An alternative solution, which focuses on designing binding contracts that alter the incentives of the central bank in such a way as to achieve society's preferred outcome, was introduced by Persson and Tabellini (1993) and Walsh (1995), and has been extended by Beetsma and Jensen (1998), Jonsson (1997), Lockwood (1997), Muscatelli (1998), Schaling et al. (1998), and Svensson (1997), among others. Walsh (1998) shows that a contract that imposes a quadratic penalty on the central bank for missing its inflation target is equivalent to appointing Rogoff's conservative central banker. Herrendorf and Lockwood (1997) show that both a linear inflation contract and a conservative central banker are needed to mitigate a stochastic inflationary bias.

<sup>2</sup>See, for example, Cukierman (1992), Eijffinger and Schaling (1993), and Debelle and Fischer (1994).

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