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# Coordinating macroeconomic policy in a simple *AK* growth model ☆

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**Abstract**

Modern theories of government finance stress the importance of an economy's fiscal deficits in determining the course of monetary policy. Modern growth theory stresses the role of monetary factors in economic growth. This paper explores how these two are interrelated, using a simple *AK* growth model, one with money, reserve requirements, and government debt. We provide a comprehensive look at the coordination of macroeconomic policy and its effects on long-run growth under three alternative coordinating arrangements. We uncover some unconventional results regarding the relationship between growth and a number of policy variables; these rest squarely on the constraint of the coordination process.


*JEL classification:* E5; E6

*Keywords:* Monetary and fiscal policy; Reserve requirements; Open-market operations; *AK* growth model

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## 1. Introduction

It is widely recognized that a nation's fiscal deficits can play a critical role in determining the course of monetary policy. The government's consolidated budget constraint links the policies of its two fiduciaries (the monetary and fiscal authorities), preventing them from pursuing policies that are strictly independent of one another. Sargent (1999) refers to the reconciling of this budget constraint as *the coordination of monetary and fiscal policy*; how this is achieved and what are some of the consequences of the coordination arrangement for long-run growth, inflation, and monetary policy is a central theme of this paper.

Following the literature, we approach this problem assuming a dominant fiscal authority, one that sets an independent course for the nation's fiscal deficits. In the environment considered by Sargent and Wallace (1981) and others, the course of the money supply is then endogenous and the coordination of macro-policy attains solely through changes in the inflation rate. This description eloquently captures the essence of the coordination process. It is, however, limited on at least two accounts: (i) other macro-variables, such as long-run economic growth or real interest rates, do not adjust along with the inflation rate, and (ii) no other instruments of monetary policy, such open-market operations, the reserve requirement, or discount policy, are considered as alternative means of achieving coordination.

This paper addresses these two concerns within the context of a simple endogenous growth model with money, reserve requirements, and government debt. Besides the process described above, which we refer to specifically as *coordination-by-inflation*, or more simply, an *inflation-coordinating arrangement*, we consider two alternative instruments of monetary policy that the central bank can use to achieve coordination. These include adjustments in the profile of government liabilities (an *open-market coordinating arrangement*) and changes in the required reserve ratio (a *reserve requirement coordinating arrangement*).[1] In all three cases, the growth rate adjusts simultaneously, along with the coordinating instrument, to satisfy market clearing and the overall government budget constraint.

Why are these two issues important? Consider first the role of the growth rate in the coordination process. Of concern is the size of the growth rate relative to the real return on government debt. This determines whether in the long run, net debt issues provide positive real revenues for the government. Most, including Sargent and Wallace (1981), take both the growth rate and the real return as given, so either government debt provides sustainable revenues or it does not. It is in the latter case—which occurs when the growth rate is less than the return on debt—that the monetary and fiscal authorities cannot adopt long-run independent policies. Yet, the very conditions on growth and returns which determine whether long-run coordination is necessary seem to be ones that should originate from the model, not imposed from

[1] In our setting, a change in the required reserve ratio is equivalent to a change in the discount window when the monetary authority sets the nominal discount rate equal to zero.