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# Seasonal cycles, business cycles, and monetary policy<sup>☆</sup>

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## Abstract

This paper presents a dynamic general equilibrium model that is consistent with both seasonal and business cycle facts in the U.S. economy. The model features consumption durability and a transaction technology, both crucial in accounting for seasonal patterns of nominal variables. A calibrated version of the model is used to quantitatively evaluate welfare consequences of three alternative monetary policy rules: (1) the Fed's historical policy that smooths nominal interest rates at the seasonal frequency, but not at the business cycle frequency; (2) a constant-money-growth rule; and (3) a constant-interest-rate rule. We find that the historical policy is associated with higher welfare than both alternatives. © 2000 Elsevier Science B.V. All rights reserved.

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*Keywords:* Seasonality; Business cycles; Monetary policy; Consumption durability

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## 1. Introduction

The post-war U.S. economy has been characterized by both the traditional business cycle fluctuations and recurrent seasonal swings. Recent empirical work reveals that there is a seasonal cycle that bears many similarities to the business cycle in terms of co-movements and relative variabilities among aggregate variables (e.g., Barsky and Miron, 1989; Miron, 1996). Despite these empirical similarities, the Federal Reserve System (Fed) has followed different monetary policy rules in response to aggregate fluctuations across these two types of cycles. Since its inception in 1913, the Fed has tried to accommodate seasonal swings in money demand so that short-term nominal interest rates are smoothed. This is a well-documented aspect of the monetary policy practice in the United States (see Fig. 1). In contrast, the policy has been much less accommodative over the business cycle, resulting in strongly procyclical behaviors of nominal interest rates.<sup>1</sup> An important issue of concern is whether such asymmetric policy reactions over the two types of cycles are socially desirable.

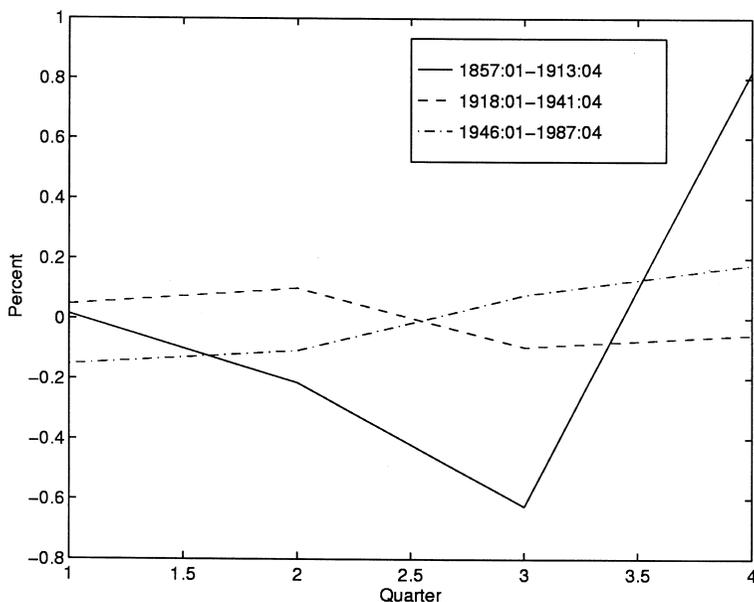


Fig. 1. Nominal interest rate seasonal patterns (four- to six-month commercial paper rates, taken from Barro (1989)).

<sup>1</sup> Cooley and Hansen (1995) find that the correlation coefficient between real GNP and one month T-bill rates is about 0.4. Cagan (1971) shows that short-term nominal interest rates have become more procyclical after the founding of the Fed.

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