The Fed-induced political business cycle: Empirical evidence from a time–frequency view☆

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ABSTRACT

Given that Nordhaus' political business cycle theory is relevant at election cycle frequency and that its validity can change over time, we conduct a wavelet analysis that is especially suited to test the theory. For the postwar U.S. economy, we harness wavelet methods to examine whether there actually exists an opportunistic political business cycle in monetary policy. Our results indicate an inclination of the Federal Reserve to cut the funds rate prior to presidential elections except for the 1990s. Such political manipulation is shown to significantly affect output in not only the famous Burns–Nixon era but also the Volcker–Reagan era. Moreover, central bank independence is shown to have relatively strengthened in the last three decades. The outcomes are robust even when the effects of government spending are controlled for. Further, we argue that it is likely that such evidence can be explained by changes in preferences of voters.

1. Introduction

So far, a flourishing literature has examined various aspects of central bank independence, that is, the freedom of monetary policies from various political factors (e.g., Frey and Schneider, 1981; Alesina and Summers, 1993; Acemoglu et al., 2008; Jones and Snyder, 2014).[1] Most scholars would concur on the importance of elections as one of the most crucial factors affecting central bank independence.

In an influential article published in 1975, William Nordhaus presented the opportunistic political business cycle theory. In his framework, policymakers manipulate macroeconomic policies to get themselves re-elected, and consequently, macroeconomic fluctuations follow the election cycle. The most famous case relates to the historical political business cycle in the 1972 U.S. presidential elections of the Burns–Nixon era. Backed up by personal tape recordings, Abrams and Butkiewicz (2012) document that prior to the 1972 election, following Richard Nixon's insistence, Arthur Burns and the

Federal Reserve introduced an excessively expansionary monetary policy. Owing to the monetary easing that followed, the unemployment rate fell and inflation accelerated.

Since Nordhaus' (1975) seminal work, numerous authors have attempted to systematically test the existence of opportunistic political business cycles (e.g., Allen and McCrickard,1991; Alesina and Roubini, 1992; Faust and Irons,1999; Abrams and Iossifov, 2006; Grier, 2008). However, as stated in Alesina et al. (1992) and Abrams and Butkiewicz (2012), there seems to be no consensus on the validity of Nordhaus' hypothesis.

In addition, unless there exists proof such as the personal tape recordings mentioned above for other periods as well, we need to resort to some econometric methodologies to determine such events. To the author's knowledge, earlier studies on the topic, almost without exception, adopted regression models with election dummies as independent variables.[2] While our predecessors have tried various control variables from different perspectives, it appears that they are yet to build a consensus. The failure to control for important factors can lead to bias in regressions. For example, an omitted variable bias could be one reason for the mixed results in the empirical literature. Therefore, beyond the framework of regression analyses, we need to consider more effective ways of testing the political business cycles.

Towards this aim, we revisit the basic theory from a time–frequency view and employ wavelet analysis to examine the political business cycles in monetary policy for the postwar U.S. economy. In

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[1] For theoretical analyses related to central bank independence, see, for example, Rogoff (1985), Beetsma and Bovenberg (1997), McCallum (1997), and Weymark (2007). A more detailed survey on central bank independence can be found in Walsh (2003).

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[2] An exception is Faust and Irons (1999), who attempt to examine the political business cycles by using a vector autoregression (VAR) framework.

comparison with the various regression analysis methods inherent in the empirical literature, our method has two main advantages. First, it enables us to decompose the election cycle components by frequency by using the difference in frequency bands between election and business cycles.[3] This decomposition can avoid the possibility of some estimation bias accompanying the regression approach. Second, because wavelets permit economic variables to change locally over time at each periodic component, we can avoid the necessity of selecting the sample period. Consequently, the present approach provides a comprehensive evaluation of previous studies that target different periods and fail to reach a consensus.

Our wavelet procedure empirically supports Nordhaus' political business cycle model, particularly with respect to the U.S. presidential elections. Our contribution can be summarized as follows: (a) We show that except for the 1990s, the monetary policy is expansionary prior to the presidential elections, meaning that generally, monetary policy is not independent of politics; this result provides new insights into the empirical literature wherein heterogeneous outcomes on the existence of opportunistic monetary cycles create confusion. (b) We also show that such political manipulations significantly affect output in not only the famous Burns–Nixon era but also the Volcker–Reagan era, both of which are involved with elections of Republican presidents as suggested by Alesina and Sachs (1988) and others. In other words, we find that the political business cycle in these two periods is actually induced by the Fed. For the former period, the outcome is consistent with Abrams and Butkiewicz (2012). The results for (b) are robust even when the effects of government spending are controlled for. Within the context of the theoretical model, we also argue that it is likely that such evidence can be explained by changes in preferences of voters.

The remainder of the paper is structured as follows. The next section explains our empirical strategy for identifying opportunistic political business cycles in more detail after reinterpreting the basic theory of Nordhaus (1975) from an empirical standpoint. In Section 3, we present our wavelet results and discuss them. Section 4 concludes the paper.

2. The opportunistic political business cycle

2.1. The basic theory and empirical strategy

Before detailing our empirical strategy, we outline the empirical implications of Nordhaus' (1975) model from a time–frequency view. Besides various other models, his theory is fundamental to the present analysis.[4] The underlying assumptions can be summarized as follows.

First, the model economy is described by the following Phillips curve:

$$\xi(t) = f(u(t)) + \lambda \xi^e(t), \quad 0 < \lambda \leq 1, \tag{1}$$

where ξ stands for inflation, ξ^e the expected inflation, and u unemployment, and f satisfies the usual conditions so that $f\prime < 0$. Second, the expected inflation is adaptive:

$$\dot{\xi}^e(t) = \gamma\{\xi(t) - \xi^e(t)\}, \quad \gamma > 0. \tag{2}$$

Third, incumbent policymakers are opportunistic, and they choose the level of inflation or unemployment for the purpose of holding office. That is, they maximize the vote function:

$$V = \int_0^\theta g(u(t), \xi(t)) e^{\mu t} dt, \tag{3}$$

where $\theta(> 0)$ is the length of the term of office, μ is the rate of decay of voters' memories such that it takes positive values ($\mu > 0$), and g is the vote function in the static case satisfying the usual conditions (i.e., $V_u < 0$ and $V_\xi < 0$). In summary, the incumbent's optimization problem is to maximize Eq. (3) subject to Eqs. (1) and (2).

To solve this problem explicitly, we specify the functional forms. For example, Nordhaus assumes the following specification:

$$f(u(t)) = \alpha_0 - \alpha_1 u(t),$$

so that the Phillips curve is

$$\xi(t) = \alpha_0 - \alpha_1 u(t) + \lambda \xi^e(t).$$

Furthermore, he assumes that

$$g(u(t), \xi(t)) = -u(t)^2 - \beta\xi(t), \quad \xi \geq 0, \quad \beta > 0,$$

and hence, the dynamic optimization problem is shown to maximize

$$V = \int_0^\theta \left\{ -u(t)^2 - \beta\xi(t) \right\} e^{\mu t} dt,$$

subject to

$$\dot{\xi}^e(t) = \gamma \left\{ \alpha_0 - \alpha_1 u(t) - (1 - \lambda)\xi^e(t) \right\}.$$

Solving the optimization problem yields the following optimal policy:

$$u^*(t) = \left(\frac{\beta\alpha_1}{2} + \frac{B}{A} \right) \exp\{A(t - \theta)\} - \frac{B}{A}, \tag{4}$$

where $A = \gamma(1 - \lambda) - \mu$ and $B = -\alpha_1\beta(\gamma - \mu)/2$. From Eq. (4), we see that this model generates political business cycles under certain parameter settings.[5]

Importantly, the resultant business cycle path depends on the parameter values and the shape is not necessarily saw-toothed as depicted by Nordhaus (1975, Fig. 8). It is highly probable that the path changes over time in reality. In an extreme case, for example, if $\alpha_1 = 0$, then u^* is independent of time. In this case, no political business cycle occurs even if policymakers manipulate their macroeconomic policies to maximize the above vote function.[6]

In addition to these time-varying possibilities, we need to note that the timing of elections is exogenously fixed and that political business cycles occur at particular frequencies. In other words, the spectrum of output growth series resembles that in Fig. 1. In the seasonally adjusted output series, there are three primary components: trend components, business cycle components, and irregular components, in order of increasing frequency. According to the National Bureau of Economic Research's business cycle dates, the approximate duration of the business cycle is between 1.5 and 10.7 years

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[3] Except for Funashima (2013), who uses a band-pass filter to identify the Fed's behavior towards presidential elections, no attempts have been made to examine such frequency-domain perspectives introduced in the context of the U.S. political business cycle.

[4] Nordhaus' initial model has been refined by some authors (see, e.g., Rogoff, 1990). For a brief review of the development in the literature, see, for example, Alesina and Roubini (1992). More recently, Milani (2010) studies several political cycle models in a New Keynesian framework.

[5] After presenting our empirical evidence, in Section 3.3, we advance concrete discussions on how to relate the parameter values to the political business cycle paths.

[6] Tempelman (2007) points out that the Fed is more independent of presidential elections in the Volcker–Greenspan era than in the earlier period.