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► **To cite this version:**

Maxime Menuet, Hugo Oriola, Patrick Villieu. Do Conservative Central Bankers Weaken the Chances of Conservative Politicians?. 2021. <hal-03479411>

HAL Id: hal-03479411

<https://hal.science/hal-03479411v1>

Preprint submitted on 14 Dec 2021

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Do Conservative Central Bankers Weaken the Chances of Conservative Politicians?

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Abstract

In this paper, we challenge the claim that an independent conservative central bank strengthens the likelihood of a conservative government. In contrast, if an election is based on the comparative advantages of the candidates, an inflation-averse central banker can deter the chances of a conservative candidate because once inflation is removed, its comparative advantage in the fight against inflation disappears. We develop a theory based on a policy-mix game with electoral competition, predicting that the chances of a conservative (i.e., inflation-averse) party is reduced in the presence of tighter monetary policy. To test this prediction, we examine monthly data of British political history between 1960 and 2015. We show that a 1 percentage point increase in the interest rate in the 10 months prior to a national election decreases the popularity of a Tory government by approximately 0.75 percentage points relative to its trend.

Keywords: monetary policy, elections, United Kingdom, comparative advantage

1. Introduction

Political business cycle (PBC) theories have long documented that politicians are incentivized to manipulate macroeconomic variables to their benefit. The opportunistic approach of PBC depicts strategic politicians who seek to be reelected and are facing short-sighted (or rational) voters. The incumbent is then tempted to stimulate economic activity before the election to fool electors (Nordhaus, 1975) or to pose as competent (Rogoff & Sibert, 1988). The partisan approach of PBC highlights the possibility that

governments may seek to satisfy voters through ideologically driven policy.¹

Against this background, efficient institutions can limit the discretion of politicians and attempt to mitigate the harmful impacts of their strategic behavior ([Alesina, 1989](#); [Shi & Svensson, 2006](#)). This argument has been particularly developed in the area of monetary policy. Appropriate monetary arrangements, such as ensuring the independence of the central bank ([Kydland & Prescott, 1977](#); [Barro & Gordon, 1983](#)), nominating a conservative central banker ([Rogoff, 1985](#); [Lohmann, 1992](#)), optimizing contracts and inflation targeting ([Walsh, 1995](#); [Svensson, 1997](#)), or fixing exchange rate regimes ([Clark & Hallerberg, 2000](#); [Shambaugh, 2004](#)), can weaken the incentives for the possibility of incumbents opportunistically controlling monetary variables before elections. By delegating some power to an independent, unelected institution, a weak government can take advantage, in the form of credibility gains, from having its hands tied ([Giavazzi & Pagano, 1988](#)). In the same way, society can benefit from tying the hands of future governments to avoid potentially harmful discretionary policies ([Goodman, 1991](#)).

However, independent monetary institutions are unlikely to eliminate all undesirable pre-election fluctuations because they may generate their own inefficiencies. Although no consensus has emerged in the literature about the existence of political monetary cycles (see [Alpanda & Honig, 2009](#); [Oriola, 2021](#)), recent works using a partisan approach show that central banks rate policy is not insulated from ideological preferences. For example, [Abrams & Iossifov \(2006\)](#) found evidence of an abnormally expansionary monetary policy when the incumbent US president and Federal Reserve (Fed) chair are affiliated with the same party, while [Dentler \(2019\)](#) showed that the Fed hikes rates before elections when the chair is from a different party.

¹This approach can be defended whether voters are considered myopic ([Hibbs, 1977](#)) or rational ([Alesina, 1988](#)).

The main message conveyed by these papers is that, although independent, central bankers are not politically indifferent, as argued by [Clark & Arel-Bundock \(2013\)](#). Following these authors, if independent central bankers are more conservative than the median voter (as suggested by [Rogoff, 1985](#)), their preferences for policy objectives can be translated into government preferences. Specifically, if the Fed chair is an inflation hawk, they would prefer to see a Republican president elected, provided that Republicans are further to the right on the Phillips curve than are Democrats. Analyzing data on over half a century of monetary policy in the US, [Clark & Arel-Bundock \(2013\)](#) asserted that the Fed acts in ways that promote the (re)election of Republican presidential candidates because interest rates decline as elections approach when Republicans control the White House but rise when Democrats do. They conclude that *since the Fed became operationally independent in 1951, the Republicans have exhibited a decided electoral advantage in presidential politics* (p. 24).

In this paper, we challenge the argument that an independent, conservative central bank strengthens the chances of a conservative (i.e., inflation-averse) president or government. In contrast, if the election is based on the comparative advantages of the different candidates (i.e., their skills or ideological preferences for solving a particular problem), an inflation-averse central banker can deter the chances of a conservative candidate because once inflation is removed, its comparative advantage in the fight against inflation disappears. This may explain why the interest rate declines before elections when the incumbent is a Republican but rises when it is a Democrat. The reason is not that the central bank has ideological preferences but simply that it does not want to deviate from its inflation target. We develop this argument by adopting an integrated strategy that

combines theoretical modeling and empirical evaluation.

Theoretically, our model is based on a simple aggregate demand-aggregate supply framework. Inflation and activity depend on fiscal and monetary policies, and agents make rational expectations. In this stylized economy, we consider a strategic game between two politicians (R and D) who seek to be elected, citizen voters, and a central bank who has own preferences over inflation and activity. The two politicians are distinguished by their location on the Phillips curve; the type- R politician is relatively more inflation-averse than the type- D politician. Before the election, the two candidates announce the fiscal policy program they will implement, if elected.² At the same time, the central bank computes the policy rate it will implement after the election.

The election is modeled through a probabilistic voting model, following [Lindbeck & Weibull \(1987\)](#) and [Persson & Tabellini \(2000\)](#). Voters are characterized by their personal preferences for economic activity and inflation. In such a setup, it is well known that the election probability of the two candidates depends on their respective ideological preferences, namely, their relative preferences for economic activity and inflation. However, due to the presence of another player—the central bank—the election probability also depends on the policy rate. More precisely, our model shows that any increase in the interest rate leads to a decrease in the election probability of a type- R candidate. Intuitively, by increasing the nominal interest rate, the central bank decreases inflation after the election irrespective of the elected politician. This policy benefits the more inflationist type- D candidate relatively more than the less inflationist type- R candidate, as the comparative advantage of the conservative candidate in the election is reduced by the more stringent monetary policy. Consequently, the more conservative the central bank is, the higher the

²For the sake of simplicity, we ignore time inconsistency issues and suppose that these announcements are binding.

chances of the inflationist politician.

Empirically, we test this prediction using popularity functions for UK governments and political parties based on monthly data from 1960 to 2015. This choice is motivated by several arguments. First, the UK is characterized by strong bi-partisanship, where the two main political forces are significantly different in terms of inflation and unemployment preferences. We claim that the theoretical model complies with the recent British political history if we equate the Labour Party with the type-*D* candidate and the Conservative Party with the type-*R* one. Second, both parties have ruled the country for similar amounts of time and won an equivalent number of elections. Third, there have been no major structural or institutional changes in the implementation of monetary policy since 1960, which eliminates some potential bias in our estimates.

Our main finding is that an increase in the interest rate negatively impacts the popularity of the incumbent in the pre-election period when it is a Tory.³ In contrast, no significant effect is found when the incumbent is Labour. Thus, monetary policy impacts the pre-election popularity of the Conservative Party only.

Our paper is related to a large strand of literature showing that an incumbent politician or government can implement policy measures at odds with its preferences (or those of its supporters) to maintain a comparative advantage in elections. [Milesi-Ferretti \(1995\)](#) highlights that an inflation-averse government may refrain from designating a conservative central banker to preserve its comparative advantage against less inflation-averse politicians.⁴ Recent papers (see [Fergusson et al., 2015, 2016](#); [Menuet & Villieu, 2021](#))

³Specifically, the more restrictive monetary policy is 10 months prior to a general election, the less popular the right-wing party will be. This result is robust to the econometric model and the measure of monetary policy orientation.

⁴The same argument is developed by [Persson & Svensson \(1989\)](#), [Aghion & Bolton \(1990\)](#), [Hodler \(2011\)](#), or [Menuet et al. \(2021\)](#) in an analysis of public debt.

underline the necessity to keep the enemy alive as a way to ensure future electoral success by taking the wind out of the sails of the incumbents challengers. In these papers, devoting too much effort to solving a task (such as reducing inflation) decreases the chances of an incumbent being reappointed.

The contribution of the present paper is to show that a noncooperative policy mix can lead to a similar situation. Effectively, in our model, the task (i.e., reducing inflation) can be addressed by two players: either the government through the use of fiscal policy or the central bank by the choice of its policy rate. Consequently, the paradoxical effect of a tighter monetary policy arises from the noncooperative policy-mix game that leads to elimination of the comparative advantage of the more conservative candidate. The central bank unintentionally favors the inflationary candidate through its policy choice because conservative candidates will appear less attractive in the electors eyes since the central bank is already doing its job. Thus, the message of our paper is that an overly conservative central bank will erode the comparative advantage of the Conservative Party and weaken its chances of winning future elections.⁵

The rest of the paper is organized as follows. Section 2 presents the theoretical setup, and Section 3 outlines the solution of the model. Section 4 details the empirical investigation and discusses the data. Section 5 highlights the main empirical results, and Section 6 presents robustness tests. Finally, Section 7 concludes.

⁵In another context, this idea is supported by recent Greek political history. As developed by [Stavrakakis & Katsambekis \(2014\)](#), the austerity required by the *Troika* (the EU, ECB, IMF) since 2008 played an active role in the electoral victory of the left-wing party *Syriza* in 2015 and the defeat of the most conservative parties. More generally, [Huebscher et al. \(2021\)](#) show that austerity measures reduce incumbents chances of future electoral success. Another example is the victory of the Five Star Movement and Lega in 2018 in Italy ([D'Alimonte, 2019](#)) or several Latin American countries studied by [Sachs \(1989\)](#) or [Dornbusch & Edwards \(1991\)](#) while developing their concept of populist cycles.

2. The theoretical model

We consider a game-theoretic approach based on a static model where the equilibrium of a typical closed economy is described by the following pair of equations:

$$y = Ag - Br, \tag{1}$$

$$\pi = Cg - Kr, \tag{2}$$

where A , B , C and K are positive parameters. Both the equilibrium output gap (y) and the inflation rate (π) depend positively on public spending (g) the policy instrument of the government and negatively on the nominal interest rate (r) the policy instrument of the central bank.

The reduced-form (1)-(2) can be the result of a standard aggregate supply-aggregate demand framework (i.e., a flexible-price IS-LM model), for example. In this setup, the aggregate demand depends positively on public spending (g) and negatively on the real interest rate (i.e., the nominal interest rate r less inflation π), and the aggregate supply positively depends on inflation (a Phillips curve), with all variables expressed as log-deviations from a long-run steady state.

Although we consider a static single-period model, we introduce a timing for the election. At the beginning of the period, two politicians, indexed by $j = R, D$, compete for being elected. Each politician j announces his electoral platform, namely, the amount of public spending (g^j) he will implement if elected. At the end of the period, the election takes place, and elected politician implements his announced policy platform.⁶

⁶According to [Persson & Tabellini \(2000\)](#), to avoid time-inconsistency issues that are not the purpose of the present paper, candidate announcements are assumed to be binding.

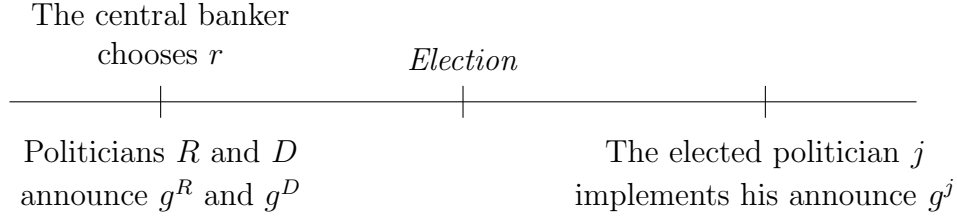


Figure 1: The Electoral Sequence

The timing of events (see Figure 1) is as follows:

1. At the beginning of the period, the two candidates, simultaneously and noncooperatively, announce their electoral platforms (g^R, g^D) , and the central bank fixes the nominal interest rate r knowing these platforms but without knowing the result of the election.
2. The election is held, in which voters choose between the two candidates.
3. The elected candidate implements his announced policy platform, and the game ends.

2.1. Citizens

In the economy, there are N districts indexed by i , each populated by a continuum of voters with measure normalized to unity. Voters are characterized by their personal preferences towards the output gap and inflation. Hence, in each district i , the representative citizen has the following linear-quadratic loss function:

$$L_i^j = \frac{1}{2}(\pi^j)^2 - \lambda_i y^j, \quad (3)$$

where y^j and π^j are the output gap and the inflation rate, respectively, implemented if politician j is elected (namely, if policy g^j is implemented), and $\lambda_i \geq 0$ represents preferences of citizen i (thereafter we identify district i to citizen i) for output relative to inflation. We denote by $\bar{\lambda} = \sum_{i=1}^N \lambda_i / N$ the society's average preference for output.

This loss function closely follows the seminal setup of [Barro & Gordon \(1983\)](#). The first term is the cost of inflation, where the use of a quadratic form implies that these costs rise at an increasing rate with the rate of inflation. In addition, positive and negative deviations from zero in the inflation rate are regarded as generating costs since deflationary and inflationary situations are costly. The optimal rate of inflation is set to zero without loss of generality. The second term is the benefit of output, which is assumed to be linear for convenience.

2.2. Politicians

Politicians are interested in inflation and the output gap and attempt to minimize a loss function analogous to Eq. (3). In addition, they have a preference for public spending; hence, we define the loss function of type- j politicians as

$$L^j = \frac{1}{2}[(\pi^j)^2 + \mu(g^j)^2] - \lambda^j y^j, \quad (4)$$

where $\mu > 0$ describes their preferences for public spending.

The term $(g^j)^2$ in the politicians loss function is subject to two interpretations. First, it can reflect a penalty incurred in case of deviations from a predetermined social objective (here, this target is zero). Second, it can mean that the elected politician incurs a private cost of changing public expenditure. Indeed, policy changes imply some economic and political costs, such as the administrative costs of reallocating resources for policy reform.

The parameter λ^j is a measure of the preferences of politician j towards the output gap. Without loss of generality, we assume $\lambda^R < \lambda^D$, and define these parameters in terms of their deviation from the societys average preference, namely, $\lambda^R = \bar{\lambda} - \varepsilon/2$ and $\lambda^D = \bar{\lambda} + \varepsilon/2$. The parameter $\varepsilon > 0$ measures the degree of polarization.

Thus, politicians D and R distinguish themselves only by their difference in the inflation-output trade-off. Graphically, we represent in Figure 2 that both candidates preferred ideological positions at similar points along the Phillips curve. Politician R (resp. D) is thus assimilated to a party that is more (less) concerned with stabilizing inflation than output.

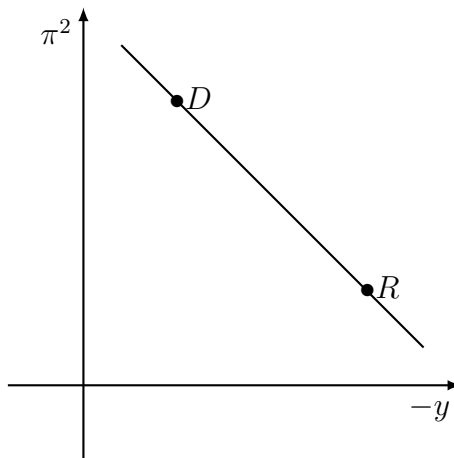


Figure 2: Candidates Preferences

2.3. The central bank

The central bank minimizes a loss function similar to Eq. (3) with two qualifications. First, the central bank may (or may not) have a relative preference for output distinct from the citizens average preference. Second, at the beginning of the period, the central bank does not know the result of the election; hence, it has to compute the expected value of inflation and the output gap to determine its optimal policy.

Let us define the expected output gap and inflation rate at the beginning of the period by $E(\pi) = p^R \pi^R + p^D \pi^D$ and $E(y) = p^R y^R + p^D y^D$, respectively, where p^j is the probability that politician j is elected. Hence, the central bank minimizes

$$L^B = \frac{1}{2}(E(\pi))^2 - \tilde{\lambda}E(y), \quad (5)$$

where $\tilde{\lambda}$ is the central banks relative preference for the output gap.

3. Non cooperative political equilibrium

We first consider the Nash equilibrium between the central bank and the politicians. This equilibrium prevails when the central bank takes, as given in the politicians announcements g^R and g^D . The three actors then determine their policies independently and simultaneously at the beginning of the period. Then, we analyze the configuration where the central bank plays as the leader of the game in subsection 3.5. First, let us describe the electoral side of the model.

3.1. Political competition

Voters have preferences for ideologies and the politicians characteristics. Thus, citizen i receives additional expected utility $(\theta_i + \xi)$ if politician R takes power. To avoid generating a deterministic election outcome, this term includes two random components: θ_i , which is idiosyncratic, and ξ , which is common to all voters. Following the probabilistic voting models of Lindbeck & Weibull (1987) and Persson & Tabellini (2000), θ_i are independent random variables that are constant over time and uniformly distributed on $[-1/2, 1/2]$, and ξ reflects the (relative) general popularity of politician R , which is uniformly distributed on $[-1/2h, 1/2h]$ with density $h > 0$.

Then, from Eq. (3), if politician j is elected, citizen i s expected utility is

$$U_i^j = \begin{cases} -L_i^R + \theta_i + \xi & = \lambda_i y^R - \frac{1}{2}(\pi^R)^2 + \theta_i + \xi & \text{if } j = R, \\ -L_i^D & = \lambda_i y^D - \frac{1}{2}(\pi^D)^2 & \text{if } j = D. \end{cases} \quad (6)$$

As is common in probabilistic voting models, citizen i supports candidate R if $U_i^R >$

U_i^D , namely, if $\theta_i > \bar{\theta}_i$, where

$$\bar{\theta}_i := -\xi - \frac{1}{2} \left[(\pi^D)^2 - (\pi^R)^2 \right] - \lambda_i(y^R - y^D). \quad (7)$$

All citizens with $\theta_i > \bar{\theta}_i$ prefer candidate R . Given our assumptions about the distribution of ideological preferences, candidate R 's vote share in district i , denoted by δ_i^R , is the probability that citizen i votes for candidate R is

$$\delta_i^R = \mathbb{P} \{ \theta_i > \bar{\theta}_i \} = \int_{\bar{\theta}_i}^{1/2} dz = \frac{1}{2} - \bar{\theta}_i.$$

Hence, by (7),

$$\delta_i^R = \frac{1}{2} + \xi + \frac{1}{2} \left[(\pi^D)^2 - (\pi^R)^2 \right] + \lambda_i(y^R - y^D).$$

From both candidates point of view, δ_i^R is a random variable since it is a transformation of the random shock ξ . The electoral outcome is thus a random event related to the realization of the popularity shock ξ . Let us consider a majoritarian rule in which the candidate having obtained less than 50% of all votes wins the election. Under this rule, the election probability of candidate R is

$$p^R = \mathbb{P} \left\{ \sum_{i=1}^N \delta_i^R \geq \frac{N}{2} \right\} = \mathbb{P} \left\{ \xi \geq -\frac{1}{2} \left[(\pi^D)^2 - (\pi^R)^2 \right] - \bar{\lambda}(y^R - y^D) \right\}.$$

Of course, candidate D wins with probability $p^D = 1 - p^R$. Hence, following our distributional assumption about the popularity shock

$$p^R = \frac{1}{2} + \frac{h}{2} \left[(\pi^D)^2 - (\pi^R)^2 \right] - h\bar{\lambda}(y^D - y^R). \quad (8)$$

3.2. Politicians behavior

Each politician j chooses their electoral platform (g^j) by minimizing their loss function. From equilibrium equations (1)-(2), politician j 's loss function (4) becomes

$$L^j = \frac{1}{2}[(Cg^j - Kr)^2 + \mu(g^j)^2] - \lambda^j(Ag^j - Br).$$

The first-order condition is⁷

$$\frac{\partial L^j}{\partial g^j} = 0 \Leftrightarrow \lambda^j A - C(Cg^j - Kr) - \mu g^j = 0.$$

The value of public spending is then

$$g^j = \frac{\lambda^j A + KCr}{\mu + C^2}. \quad (9)$$

Eq. (9) is the fiscal reaction function to the interest rate implemented by the central bank. Any increase in the interest rate (r) leads to an increase in public spending (g^j), regardless of the characteristics of the government. This positive retroaction is common in neo-Keynesian frameworks. Moreover, as $\lambda^R < \lambda^D$, a type- D government will implement a higher amount of public spending than a type- R government due to their greater concern over the output gap.

From (9), the values of inflation and the output gap are, with $W = B\mu + C(BC - AK)$

$$y^j = \frac{A^2\lambda^j - Wr}{\mu + C^2}, \quad (10)$$

⁷The second-order condition is satisfied since $\partial^2 L^j / \partial (g^j)^2 = \mu + C^2 > 0$.

$$\pi^j = \frac{AC\lambda^j - \mu Kr}{\mu + C^2}. \quad (11)$$

As $\lambda^R < \lambda^D$, the inflation rate and the output gap will both be higher, *ceteris paribus*, when politician D is elected. This feature holds irrespective of the central banks behavior, since the interest rate does not depend on the politician who holds power. Indeed, the central bank does not know the outcome of the election at the time it decides its policy (i.e., the interest rate only depends on expected inflation).

However, the behavior of the central bank will affect the expected inflation rate, as its policy will influence the candidates election probability. This issue is addressed in the next subsection.

3.3. Computation of election probability

Introducing Eqs. (10)-(11) in (8), we obtain

$$p^R = \frac{1}{2} - \frac{Ah\mu\varepsilon}{(\mu + C^2)^2}(CKr + \bar{\lambda}A) =: p(r). \quad (12)$$

This relation is the fundamental result of the paper. If there was no difference in preferences about inflation and output between the two candidates ($\lambda^D = \lambda^R \Leftrightarrow \varepsilon = 0$), the election probability would be simply 1/2. However, as long as $\varepsilon > 0 \Leftrightarrow \lambda^D > \lambda^R$, any increase in the interest rate reduces the election probability of a type- R candidate, namely, $p(r) < 0$. Indeed, by increasing the nominal interest rate before the election, the central bank decreases expected inflation irrespective of the elected politician. This policy benefits the more inflationist type- D candidate relatively more than the less inflationist type- R candidate. Thus, the comparative advantage of the type- R candidate is reduced via tighter monetary policy. A high interest rate will thereby weaken the type- R candidate

as the central bank does its job by controlling the inflation rate.

The final step in the model is the derivation of the interest rate from the central banks behavior.

3.4. The central banks behavior

In the Nash equilibrium, the central bank minimizes its loss function L^B by taking p^R and p^D as given. Using Eqs. (1), (2) and (5), the first-order condition is⁸

$$-\frac{\partial L^B}{\partial r} = 0 \Leftrightarrow -E(\pi) \frac{\partial E(\pi)}{\partial r} + \tilde{\lambda} \frac{\partial E(y)}{\partial r} = 0 \Leftrightarrow KE(\pi) - \tilde{\lambda}B = 0,$$

hence,

$$E(\pi) = \frac{B}{K} \tilde{\lambda}. \quad (13)$$

The expected level of inflation thus positively and linearly depends on the central banks preference for output. Intuitively, the more conservative the central bank (i.e., the lower $\tilde{\lambda}$), the lower the expected inflation.

At equilibrium, as $E(\pi) = \pi^R + (1 - p(r))(\pi^D - \pi^R)$, the policy rate implemented by the central bank is, using (11) and (12)

$$r = \frac{\lambda}{X} \left\{ AC + \frac{\mu h A^3 C \varepsilon^2}{(\mu + C^2)^2} - \frac{B(\mu + C^2) \tilde{\lambda}}{K \tilde{\lambda}} \right\}, \quad (14)$$

with

$$X := \mu K \left[1 - \frac{h A^2 C^2 \varepsilon^2}{(\mu + C^2)^2} \right]. \quad (15)$$

For a small degree of polarization (i.e., $\varepsilon^2 < \frac{1}{h} \left(\frac{\mu + C^2}{AC} \right)^2$), we have $X > 0$ and $\partial r / \partial \tilde{\lambda} < 0$, such that the interest rate is positively related to the degree of central bank conservatism.

⁸Effectively, $\partial E(\pi) / \partial r = -p^R K - p^D K = -K(p^R + p^D) = -K$, and $\partial E(y) / \partial r = -p^R B - p^D B = -B(p^R + p^D) = -B$.

Hence, owing to (12), the higher the degree of central bank conservatism, the higher the electoral chances of the inflationist type- D politician.

It intuitively follows that a conservative central bank weakens the comparative advantage of conservative politicians in elections. In accordance with a need for enemies effect (see, e.g., Fergusson et al., 2016; Menuet & Villieu, 2021), the advantage of appointing a conservative politician is that he/she will be more likely to tackle the inflation problem if elected. However, if the central bank reduces this problem through its interest rate policy, this advantage is eroded.

We can therefore compute the neutral interest rate r^n such that the chances of both candidates in the election are $1/2$. This rate corresponds to $r^n = -\bar{\lambda}A/CK$ in Eq. (12). If society could choose the degree of conservatism of the central banker (measured by the term $\tilde{\lambda}/\bar{\lambda}$), this neutral interest rate would be implemented for $\tilde{\lambda}/\bar{\lambda} = AK/BC$. A high degree of central bank conservatism (namely, $\tilde{\lambda}/\bar{\lambda} < AK/BC$) will favor the inflationist candidate (i.e., $p(r) < 1/2$), while a low degree of conservatism ($\tilde{\lambda}/\bar{\lambda} > AK/BC$) will favor the type- R candidate (i.e., $p(r) > 1/2$). Hence, through the institutional design of the monetary framework, a society can voluntarily or involuntarily increase or decrease the chances of a certain type of candidate in elections.⁹

3.5. A Stakelberg game with a leading Central Bank

In this subsection, we relax the assumption that the central bank and politicians act simultaneously by considering the central bank as the leader in the policy-mix game. In this case, the central bank takes the politicians reaction function to the interest rate (9) into account when minimizing its loss function. As usual, the game is solved by backwards

⁹For instance, a type- R incumbent has an interest in designating a central banker that is not too conservative so as to preserve their chances of reelection. This illustrates of the analysis of Milesi-Ferretti (1995).

induction. We first establish politician j 's strategy at the end of the period, when elected; we then compute the interest rate implemented by the central bank at the beginning of the period.

Politician j 's behavior (9) is unchanged. However, as it is now a leader in the game, the central bank needs to internalize the impact of its action on the politicians election probability $p(r)$. Hence, the program of the central bank is now

$$\text{Min}_r \left\{ \begin{aligned} & -\tilde{\lambda} \left[p(r)[Ag^R(r) - Br] + (1 - p(r))[Ag^D(r) - Br] \right] \\ & + \frac{1}{2} \left[p(r)[Cg^R(r) - Kr] + (1 - p(r))[Cg^D(r) - Kr] \right]^2 \end{aligned} \right\}, \quad (16)$$

with $p(r)$ and $g^j(r)$ defined in (12) and (9), respectively, for any $j = R, D$.

Using (9), we have $\partial g^j / \partial r = KC / (\mu + C^2) =: g(r)$, and the first-order condition of program (16) gives rise to the following expected value of inflation:

$$E(\pi) = \frac{\tilde{B}}{\tilde{K}} \tilde{\lambda}, \quad (17)$$

where $\tilde{B} := B + p(r)(y^D - y^R) - Ag(r)$, and $\tilde{K} := K + p(r)(\pi^D - \pi^R) - Cg(r)$.

For the second-order condition to be verified, it must be the case that $\tilde{K} > 0$, which is true for a small degree of differentiation between the politicians. In addition, $\tilde{B} > 0$ under the (unnecessary) sufficient condition $AK < BC$ that we assume hereafter. Under such conditions, it follows that $\tilde{B}/\tilde{K} > B/K$.¹⁰ Hence, compared to Eq. (13), when the central bank acts as the leader in the game, the expected inflation rate will be higher than that in the Nash equilibrium. The corresponding interest rate implemented by the

¹⁰Indeed, $\tilde{B}/\tilde{K} > B/K \Leftrightarrow CK(BC - AK) > p(r)A\varepsilon(BC - AK) \Leftrightarrow CK > p(r)A\varepsilon$, which is true because $p(r) < 0$.

central bank will be lower and defined by

$$r = \frac{\bar{\lambda}}{X} \left\{ AC + \frac{\mu h A^3 C \varepsilon^2}{(\mu + C^2)^2} - \frac{\tilde{B}(\mu + C^2)\tilde{\lambda}}{\tilde{K}\bar{\lambda}} \right\}. \quad (18)$$

The intuition is the following. In the Stakelberg equilibrium, the central bank internalizes that its policy rate will affect election probabilities. As the central bank aims to reduce inflation, to avoid the more inflationist type-*D* candidate being favored in the election, it adopts a less stringent interest rate, since a higher interest rate would lower the chances of the less inflationist type-*R* candidate. This supports our idea that the central bank influences, even unintentionally, the outcome of the election and that a high interest rate policy decreases the chances of the Conservative Party being elected.

Thanks to a basic policy-mix game of electoral competition, our theory provides two implications: (i) central bank policies affect electoral outcomes, and (ii) a tight monetary policy in pre-electoral periods reduces the electoral chances of the Conservative Party. The rest of the paper aims to test these implications in the context of British politics.

4. Empirical investigation

To test such predictions, we estimate the popularity functions of the British government and its political parties on a monthly basis using a 56-year sample (1960-2015). Popularity functions are based on both macroeconomic indicators (e.g., inflation and unemployment) and political variables (e.g., dummies) used to measure major political events that impact British politics. We introduce the monetary policy orientation (i.e., the interest rate) to study its impact on popularity ratings.

4.1. Econometric Specification

Following Sanders (2000), we specify our popularity function as follows¹¹

$$\begin{aligned} \text{Government_Approval}_t = & \beta_0 + \beta_1 \left(\text{Government_Approval}_{t-1} \right) + \beta_2 \left(d\text{Base_Rate}_t \right) \\ & + \beta_3 \left(\text{PreElection10}_t \right) + \beta_4 \left(\text{PreElection10XdBase_Rate}_t \right) \\ & + \beta_5 \left(d\text{Inflation}_t \right) + \beta_6 \left(d\text{Inflation}_{t-1} \right) \\ & + \beta_7 \left(d\text{Unemployment}_t \right) + \beta_8 \left(d\text{Unemployment}_{t-1} \right) \\ & + \beta_9 X_t + \varepsilon_t, \end{aligned}$$

with $\text{Government_Approval}_t$ being the detrended popularity of the incumbent in month t , $d\text{Base_Rate}_t$ the main targeted interest rate, PreElection10_t a dummy variable taking the value of 1 in the 10 months prior to a general election, $\text{PreElection10XdBase_Rate}_t$ the interaction term between $d\text{Base_Rate}_t$ and PreElection10_t , $d\text{Inflation}_t$ the inflation rate, $d\text{Unemployment}_t$ the unemployment rate, X_t a vector of dummy variables measuring different political events, and ε_t an error term. The coefficient d represents that the variable is introduced as its first difference.

4.2. Data

Our dataset consists of monthly data for the UK from January 1960 to December 2015 (672 observations). This period is selected for the availability of the data and the motivation to exclude the *Brexit* episode.¹²

¹¹The main difference between our specification and that of Sanders (2000) is the number of lags. We introduce only one lag of $d\text{Inflation}$ and $d\text{Unemployment}$ after the computation of several Hannan-Quinn (HQIC) and Schwarz (SBIC) information criteria, thus underlining that a single lag is optimal in our setup (see Lütkepohl, 2005).

¹²This excludes the post-2016 period in which the emergence of the UK Independence Party (UKIP) can challenge our hypothesis of there being two main political forces in the country.

Popularity shares & government approval. Our popularity data come from the *Opinion Polls Database from 1943 to the present (PollBase)* developed by [Pack \(2011\)](#) in his subsequent versions. We only consider the popularity of the Conservative and Labour parties, as no other party won a general election during the period under review.¹³ According to several stationarity tests, the two-party shares are not stationary. Thus, by applying a [Hamilton \(2018\)](#) filter, we use the cyclical components, labeled *hamConservative* and *hamLabour*, as our popularity ratings. In addition, the variable *GovernmentApproval* corresponds to the former when the incumbent is from the Conservative Party and to the latter when the incumbent is from the Labour Party.¹⁴ These three variables will be our main independent variables throughout this analysis.

Measure of the pre-electoral period. When studying election-related phenomena, the method used to measure electoral periods is a key issue. Following the seminal measure implemented by [Alesina et al. \(1997\)](#), we define a dummy taking the value of 1 for a certain number of months before a national ballot without considering the electoral month. To account for the monetary policy transmission lag, we assume that the pre-electoral period starts 10 months before the general election. This is consistent with [Havranek & Rusnak \(2013\)](#). More precisely, we introduce the dummy *PreElection10*, which takes the value of 1 for the 10 months before an election, so that the interaction variable *PreElection10XdBaseRate* characterizes the pre-electoral effect of monetary policy. We will provide estimations with different pre-electoral periods as robustness tests

¹³Placks data concern Great Britain, while our other variables are on the UK. As Northern Ireland represents a small part of the overall population of the UK, we consider Great Britain's popularity scores to be a reasonable proxy for those of the UK. To provide further support for this hypothesis, we compute the difference in general election results between the two regions from 1960 to 2015 without finding any significant differences (see Table A1 in the Appendix).

¹⁴As we suspect that this variable *GovernmentApproval* will be characterized by a long memory process, we will estimate our model with a heterogeneous autoregressive model ([Corsi, 2009](#)) in subsection 6.3.

in Section 6.2.

Measure of monetary policy. The impact of the Bank of England on political parties popularity is measured using its monetary policy orientation. To attempt to capture the discretionary component of its monetary policy, we use the main interest rate targeted by the Bank of England (measured by the variable *Base_Rate*), obtained through the *Official Bank Rate History Data from 1694*.¹⁵ This dataset consists of the exact dates on which the main targeted rate has been changed from 1694 to the present.¹⁶ Moreover, as the variable *Base_Rate* is not stationary, we use its first difference (*dBase_Rate*) to study pre-electoral changes in the monetary policy orientation.

Inflation & Unemployment. As in our theoretical model, we introduce inflation and unemployment as control variables. We use seasonally adjusted OECD data in first differences (*dInflation* and *dUnemployment*).

Major political & economic events. Many political and economic events may impact government approval. We can mention, e.g., the well-known *Rally-Round-the-Flag* effect consisting of an increase in incumbent popularity following international crises, such as a declaration of war (Mueller, 1970), or the various political scandals that can erode politicians public credibility (Smyth & Taylor, 2003).

Regarding the selection of such events, there is a consensus on the positive impact

¹⁵ Available at <https://www.bankofengland.co.uk/monetary-policy/the-interest-rate-bank-rate>

¹⁶ The targeted rate has changed five times during our study period: the target was the bank rate (1694-October 1972), the minimum lending rate (November 1972-July 1981), the minimum band 1 lending rate (August 1981-April 1997), the repo rate (May 1997-July 2006) and the official bank rate (until August 2006). To ensure that these changes do not affect the variation of the base rate itself, we conduct Zivot & Andrews (1992) tests to identify potential endogenous break points. We do not find an endogenous break date corresponding to a change in the targeted rate.

of the Falklands war declaration on Thatchers popularity (Norpoth, 1987; Clarke et al., 1990), but few other events in British political history have been sufficiently studied to achieve a consensus. Hence, following Sanders (2004), we include many political events and keep only those that are significant as dummies taking the value 1 when the event occurs in a given period and 0 otherwise (see Table A2 in the Appendix).

4.3. Summary Statistics

In our sample period, Conservatives were in office approximately 57% and Labour approximately 43% of the time (see Table A3 in the Appendix for more details). Both Conservatives and Labour won 7 general elections during the period.¹⁷ In addition, 6 of the 11 Prime Ministers during the period were conservatives and 5 were from the Labour Party. British governments are characterized by a fairly long tenure (i.e., an average of 5.5 years). This is particularly true of the Thatcher and Blair mandates (with each lasting over 10 years).

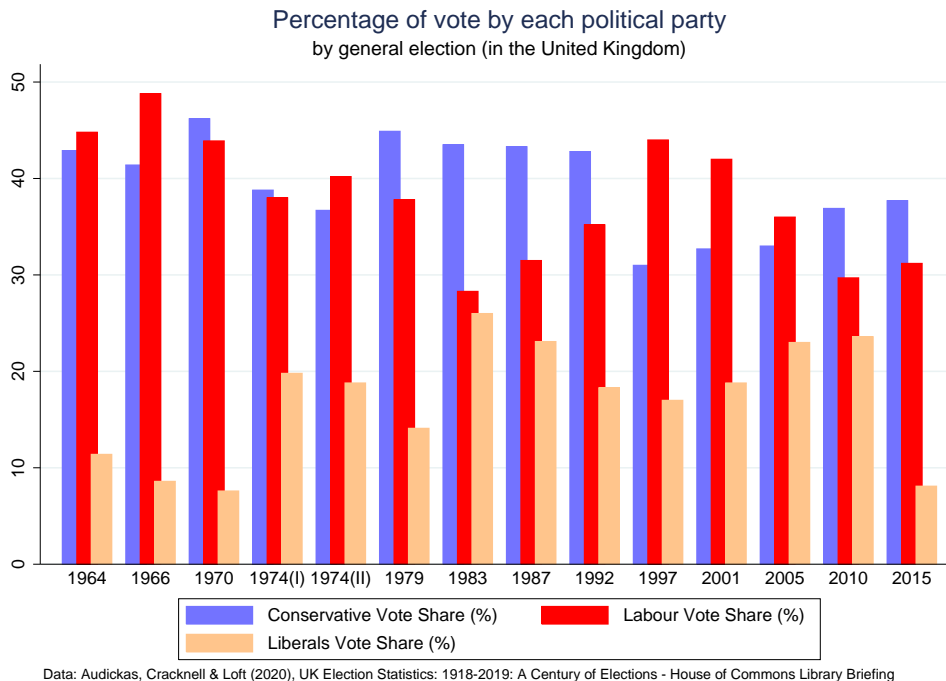
Figure 3 depicts the score of the three main political parties in the 14 general elections that took place between 1960 and 2015. This graph provides some insights into the UK electoral pattern.

Before 1974, Conservatives and Labour were competitive, and the difference in vote share was fairly small. The mean of the absolute difference between the vote shares of the two main parties in the first five elections was equal to 2.86 percentage points. After 1974 (9 elections), in contrast, this absolute difference is approximately 8.74 percentage points, which has led to fewer election disputes. Two main explanations can be underlined: the rise of the Liberals from 1983 to 2010 and the long terms of Thatcher and Blair, which

¹⁷We consider the Cameron-Clegg coalition a Conservative type of government. Despite the Conservatives winning the February 1974 ballot, the Labour Party ended up ruling the country (see Table A3 in the Appendix); hence, as Sanders (2000), we consider the left-wing party as the winner of this election throughout the paper.

truly advanced their own party's popularity.

Figure 3: Vote shares of the three main British political parties in general elections (1960-2015)



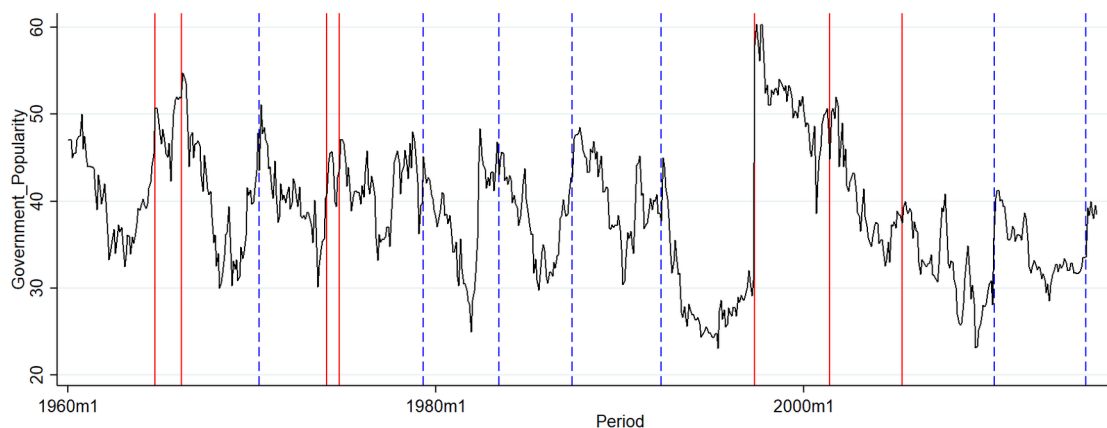
An additional issue arises for the 1983 general election, which cannot be considered representative of that depicted in our model for two reasons. First, this election was characterized by a landslide victory of the Conservative Party in the aftermath of the Falklands War.¹⁸ Second, in 1983, the Liberals were only 2% behind the Labour Party in terms of vote share. As our theoretical setup focuses on two-party competition, we decided to remove this election from our main analysis. Nevertheless, to guarantee the robustness of our results, we will present estimations with this election included (see Table A6 in the Appendix).

Figure 4 highlights electorally driven cycles in government popularity with a well-

¹⁸Indeed, [Brown & Payne \(1984\)](#) explains that the BBC was able to predict the result of the future election with surprising accuracy. It was obvious to every observer that the conservatives were going to win, as said by [Miller \(1984\)](#): There was no alternative (p. 364). There was no credible competition between the two main political forces, and neither the central bank nor the incumbent may benefit from a manipulation of the voters ([Carlsen, 1997](#)).

known U-shaped pattern. To take into account this pattern in the incumbents approval, we compute two variables. (i) The variable *Honeymoon* takes the value 6 in the first month of the term and decreases to 0 within 7 months, as developed by [Veiga & Veiga \(2004\)](#). (ii) This variable is augmented by the introduction of our measure of the pre-election period *PreElection10*. Hence, beyond avoiding a potential omitted variable bias due to the presence of the interaction term *PreElection10XdBase_Rate*, the variable *PreElection10* also measures the increase in the incumbents popularity just before an election.

Figure 4: Government popularity, cyclical component (1960-2015)



Finally, we present a table of summary statistics in which we divide our dataset into four subsamples: one for each incumbent political party, one in which the observations are not in a pre-election period, and one representing only observations over pre-election periods (see Table A4 in the Appendix).

5. Results

In this section, we report different estimations using a simple ordinary least squares (OLS) estimator.¹⁹ Our results are organized in three subsections. Subsection 5.1 presents regressions of government approval on our overall sample and on subdatasets in which the Conservative (Labour) party is in office. Subsection 5.2 presents the same model with the overall popularity of parties as the explained variable (i.e., regardless of who holds the office). Finally, robustness checks are outlined in subsection 5.3.

5.1. Governments approval

Our main results are reported in Table 1. As mentioned above, a number of political events significantly impact government popularity. We observe the *Rally-Round-the-Flag* effect (Mueller, 1970) in the positive impact of the variable *Falklands War*. Moreover, *Thatcher Dismissal* positively affects the Conservative Partys popularity (as in Sanders, 2000). Political scandals involving one party increase the opponents popularity and *vice versa* (*Profumo Scandal*, *Thorpe Affair*, *Westland Affair*, *Cash for Honors* and *PM Expenses Scandal*). The events of 9/11/2001 and the early warning signs of the global financial crisis in July 2007 also significantly impacted the popularity of the Labour Party. Finally, we confirm the existence of the U-shaped pattern in government popularity (see Figure 4) through the significance and positive signs of our variables *Honeymoon* and *PreElection10*.

¹⁹The estimation of popularity functions can lead to some biases (Paldam, 1994; Lewis-Beck & Stegmaier, 2013), such that heteroscedasticity and autocorrelation (see, e.g., Sanders, 2000). We control these potential biases by correcting standard errors thanks to the Newey & West (1987) procedure. Additionally, we implement this procedure with 4 to 5 lags in the autocorrelation structure depending on the subsample used. This number is obtained following Greene (2012), which advises selecting a number of maximum lags equal to the integer part of $T^{\frac{1}{4}}$ (p. 960). We adapt these criteria to the number of observations in each regression, leading some specifications to use 5 lags (those on the overall sample) and others to use 4 (when the sample is split by political party).

Economic variables also affect the incumbents approval rating in the expected direction. Right-wing politicians are penalized by an increase in the unemployment rate, while their left-wing peers are penalized by an increase in the inflation rate. Hence, the popularity of incumbents is mainly influenced by the economic variable that they do not primarily defend in their proposed policy program. (this point was especially highlighted by [Wright, 2012](#)). Nevertheless, regressions (5) and (6) show that Labour Party approval is also negatively affected by the variations in the main interest rate and past unemployment, thus validating [Carlsens \(2000\)](#) mixed findings on the left-wing party.

Interestingly, when introduced, our main interest variable *PreElection10XdBase_Rate* is significant and negative on our overall sample (regression 2) and when the incumbent is a Tory (regression 4). An increase in the main interest rate in the 10 months prior to a national election has a significant and negative impact on government popularity, especially when the Conservative Party is in power.²⁰ Specifically, a 1 percentage point increase in the interest rate in the 10 months prior to a national election decreases the popularity of a Tory government by approximately 0.75 percentage points relative to its trend. This result is consistent with the implications of our theory.

5.2. *Parties popularity*

This subsection implements the same model using the popularity of parties regardless of whether they are incumbent. This allows studying the popularity of the opponent.

In Table 2, we present estimations explaining each partys popularity on three subsamples labeled as I, II and III. The first corresponds to the overall dataset, the second

²⁰In contrast, increases in the main interest rate do not increase the popularity of the Labour Party, except when there is a Conservative incumbent (see regression 11 in Table 2).

corresponds to a situation in which the Conservative Party is in power and the last corresponds to a Labour incumbent. Moreover, in the first section of the table (regressions 7, 8 and 9), our explained variable is the detrended popularity of the Conservative Party (*hamConservative*), while in the second section of the table (regressions 10, 11 and 12), it is the detrended popularity of the Labour Party (*hamLabour*). Once again, the variable *PreElection10XdBase_Rate* is only significant when the Conservative Party controls the government (regression II). Moreover, even left-wing popularity is significantly impacted by conservative monetary policy when the incumbent is a Tory. This supports our main result that a pre-electoral restrictive monetary policy also increases Labours popularity. More precisely, a 1 percentage point rise in the main interest rate 10 months before a national ballot will increase the Labour Partys popularity by 0.81 percentage points relative to its trend.

Table 1: Main Results : Government Approval

	Government Approval		Conservative incumbent		Labour incumbent	
	(1)	(2)	(3)	(4)	(5)	(6)
Gov._Appro.(t-1)	0.895*** (0.016)	0.895*** (0.016)	0.898*** (0.022)	0.898*** (0.022)	0.890*** (0.025)	0.890*** (0.025)
Honeymoon	0.333*** (0.083)	0.330*** (0.084)	0.420*** (0.109)	0.419*** (0.110)	0.254** (0.118)	0.251** (0.120)
PreElection10	0.954*** (0.235)	0.959*** (0.232)	0.991*** (0.301)	1.028*** (0.284)	0.951*** (0.344)	0.942*** (0.356)
PreElection10 X dBase_Rate		-0.562* (0.295)		-0.754** (0.322)		-0.295 (0.768)
dBase_Rate	-0.236 (0.151)	-0.129 (0.167)	-0.058 (0.201)	0.086 (0.215)	-0.652** (0.258)	-0.597** (0.281)
dInflation	-0.221 (0.192)	-0.226 (0.191)	0.042 (0.264)	0.028 (0.263)	-0.682** (0.291)	-0.683** (0.292)
dInflation(t-1)	-0.206 (0.173)	-0.207 (0.173)	-0.236 (0.216)	-0.246 (0.217)	-0.052 (0.264)	-0.047 (0.264)
dUnemployment	-1.962* (1.013)	-1.954* (1.007)	-3.062*** (0.947)	-3.072*** (0.938)	1.228 (2.275)	1.254 (2.274)
dUnemployment(t-1)	0.071 (1.093)	0.124 (1.093)	1.679 (1.056)	1.780* (1.053)	-4.154* (2.278)	-4.158* (2.288)
Profumo Scandal	2.379*** (0.165)	2.380*** (0.165)	2.210*** (0.196)	2.217*** (0.196)		
Thorpe Affair	2.456*** (0.264)	2.335*** (0.270)			2.326*** (0.543)	2.264*** (0.551)
Winter of Discontent	-1.639** (0.757)	-1.585** (0.707)			-1.587* (0.884)	-1.553* (0.903)
Falklands War	5.635*** (0.421)	5.647*** (0.421)	5.815*** (0.428)	5.827*** (0.428)		
Westland Affair	-3.255*** (0.207)	-3.370*** (0.220)	-3.484*** (0.250)	-3.641*** (0.258)		
Thatcher Dismissal	7.347*** (0.189)	7.336*** (0.188)	7.474*** (0.206)	7.461*** (0.205)		
Sept. 2001	-1.126*** (0.292)	-1.091*** (0.297)			-1.184*** (0.418)	-1.165*** (0.425)
Cash for Honors	-3.113*** (0.156)	-3.120*** (0.157)			-2.632*** (0.274)	-2.633*** (0.274)
Jul. 2007	3.328*** (0.192)	3.301*** (0.193)			2.705*** (0.343)	2.688*** (0.361)
PM Expenses Scandal	-2.898*** (0.681)	-2.911*** (0.682)			-2.858*** (0.684)	-2.855*** (0.688)
Constant	-0.550*** (0.116)	-0.548*** (0.116)	-0.597*** (0.154)	-0.597*** (0.153)	-0.499*** (0.182)	-0.497*** (0.184)
Nbr. observations	670	670	384	384	286	286
R2 adjusted	0.870	0.870	0.887	0.887	0.851	0.850

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Newey & West (1987) standard errors are provided in parenthesis

The election held in June 1983 is not considered

Table 2: Main Results : Political Parties Popularity

	hamConservative_cycle			hamLabour_cycle		
	I	II	III	I	II	III
	(7)	(8)	(9)	(10)	(11)	(12)
hamConservative(t-1)	0.932*** (0.013)	0.906*** (0.018)	0.884*** (0.025)			
hamLabour(t-1)				0.939*** (0.013)	0.942*** (0.019)	0.885*** (0.024)
Honeymoon	0.086 (0.096)	0.403*** (0.096)	-0.247** (0.122)	0.180** (0.087)	0.087 (0.145)	0.357*** (0.098)
PreElection10	0.168 (0.198)	1.016*** (0.270)	-0.585* (0.307)	0.164 (0.223)	-0.726*** (0.244)	1.119*** (0.385)
PreElection10 X dBase_Rate	-0.262 (0.479)	-0.756** (0.325)	0.281 (0.525)	0.332 (0.437)	0.808** (0.321)	-0.224 (0.749)
dBase_Rate	0.217 (0.196)	0.094 (0.215)	0.550* (0.319)	-0.289 (0.183)	-0.131 (0.222)	-0.613** (0.279)
dInflation	0.221 (0.203)	0.003 (0.260)	0.539* (0.305)	-0.312* (0.177)	-0.074 (0.201)	-0.771*** (0.283)
dInflation(t-1)	-0.211 (0.168)	-0.212 (0.203)	-0.273 (0.246)	0.117 (0.167)	0.112 (0.222)	0.051 (0.263)
dUnemployment	-2.152** (0.866)	-2.920*** (0.894)	0.565 (2.073)	0.414 (0.916)	0.210 (0.983)	1.158 (2.278)
dUnemployment(t-1)	2.253** (1.012)	1.877* (1.044)	4.205* (2.171)	-1.765** (0.875)	-1.273 (0.959)	-3.439* (2.083)
Profumo Scandal	1.922*** (0.161)	2.239*** (0.195)		1.984*** (0.165)	1.596*** (0.165)	
Thorpe Affair	1.068*** (0.309)		-0.032 (0.504)	1.827*** (0.268)		2.261*** (0.549)
Winter of Discontent	2.378*** (0.434)		2.641*** (0.420)	-1.648* (0.846)		-1.638* (0.889)
Falklands War	5.452*** (0.347)	5.798*** (0.421)		-3.512*** (0.347)	-3.600*** (0.412)	
Westland Affair	-4.048*** (0.243)	-3.656*** (0.257)		1.825*** (0.249)	1.436*** (0.314)	
Thatcher Dismissal	7.076*** (0.198)	7.462*** (0.202)		-1.594*** (0.202)	-1.858*** (0.226)	
Sept. 2001	0.545 (0.416)		1.232** (0.561)	-1.341*** (0.333)		-1.581*** (0.383)
Cash for Honors	-1.420*** (0.158)		-2.284*** (0.272)	-3.192*** (0.153)		-2.610*** (0.267)
Jul. 2007	-1.243*** (0.176)		-1.459*** (0.291)	2.839*** (0.174)		2.769*** (0.330)
PM Expenses Scandal	-0.287 (0.902)		-0.765 (1.100)			-2.953*** (0.676)
Constant	-0.155 (0.100)	-0.562*** (0.133)	0.376** (0.160)	-0.100 (0.098)	0.134 (0.132)	-0.565*** (0.176)
Nbr. observations	670	384	286	670	384	286
R2 adjusted	0.878	0.894	0.845	0.887	0.907	0.852

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$

Newey & West (1987) standard errors are provided in parenthesis

The election held in June 1983 is not considered

I: full sample

II: Conservative Party is in power

III: Labour Party is in power

6. Robustness

As a robustness check, we estimate our model using alternative measures of our explanatory variables in the following subsection and of the pre-electoral period in subsection 6.2. Finally, we control for the potential long memory process of the variable *GovernmentApproval* in subsection 6.3.

6.1. Alternative measures of our explanatory variables

Table 3 implements two robustness tests. First, to take into account the potential endogeneity of the variable *Unemployment*, we use the output gap as a proxy. The latter is computed by applying a [Hamilton \(2018\)](#) filter on monthly industrial production data from the OECD. Then, we build the variable *Output_Gap* as the difference between the cyclical component and the trend of industrial production. As this variable is nonstationary, we consider its first difference (*dOutput_gap*). Regressions (13) and (16) show that our results are unchanged. Second, as the main interest rate may be correlated with inflation and/or unemployment, we use a more exogenous measure. To this end, we regress the main interest rate on *dInflation* and *dUnemployment* in t and $t - 1$, and the residuals of this estimation are denoted by *RESID*. Then, we use the variable *RESID* to compute an exogenous measure of monetary policy. Once again, our main results are not modified (see regressions 14 and 17), although the magnitude of the pre-election effect is smaller.

6.2. Alternative measures of the pre-electoral period

We perform our estimations with alternative measures of the pre-electoral period (with length measured in terms of months). Figure 5 depicts coefficients and 90% confidence intervals of the interaction terms between the first difference of the main interest rate and

24 different pre-electoral measures. More precisely, each point of each subfigure represents the coefficient of the interaction term between *dBase_Rate* and a dummy taking the value of 1 in the N months preceding the election (i.e., the *PreElectionNXdBase_Rate* with $N = 1, 2, \dots, 24$). The subfigures represent estimations considering the full sample and two subsamples, depending on the party in office.

These estimations confirm that, from 7 to 12 months before a general election, an increase in the interest rate significantly and negatively impacts the popularity of a Conservative incumbent.²¹

In addition, we perform the estimations in Table 1 using these different pre-electoral measures in periods ranging from 7 to 12 months (see Table A5 in the Appendix). Regardless of the length of the pre-election period, the interest rate has a significant negative impact on the right-wing incumbents popularity. Moreover, in this 7-12 month period, the closer the manipulation is to the election, the greater the effect.²²

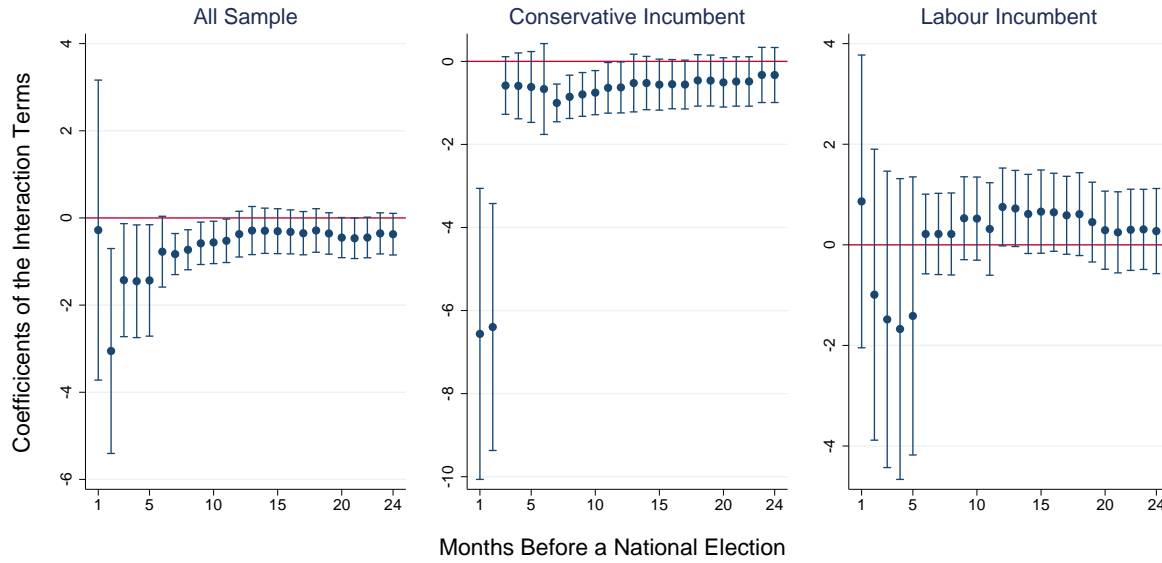
6.3. Long memory process within the governments popularity

Looking at Figure 4, we can posit that our variable *Government_Approval* is characterized by a long memory process. To control for the potential impact of this long memory process, we compute a heterogeneous autoregressive model by closely following Corsi (2009). More precisely, we introduce two variables: *MAGovernment_Approval_quarter* and *MAGovernment_Approval_year*, which represent the moving averages of the past values of *Government_Approval* for the last quarter and the last year, respectively. As

²¹We will not interpret the significance of the coefficients before this 7-month threshold due to their wide confidence intervals even though they move in the right direction.

²²As stated in subsection 4.3, we have removed the 1983 general election from our sample. To ensure that this omission does not affect our results, we use the same procedure with a sample containing this election (see Table A6 in the Appendix). Unsurprisingly, the introduction of the 1983 election decreased the global significance of our results. We still observe a negative impact of an increase in the main interest rate on the conservative incumbents popularity, but only for periods ranging from 7 to 9 months prior to an election.

Figure 5: Effect of an increase in the main interest rate before a national election (90% confidence intervals)



described by Corsi (2009), these variables measure the past behavior of our popularity rating on the medium run (*MAGovernmentApproval_quarter*) and on the long run (*MAGovernmentApproval_year*). Regressions 15 and 18 in Table 3 show that these variables do not significantly affect our results. Hence, the suspected long memory process does not drive the significance of the variable *PreElection10XdBase_Rate*.

Table 3: Robustness: Alternative Explanatory Variables

	Conservative incumbent			Labour incumbent		
	(13)	(14)	(15)	(16)	(17)	(18)
Gov._Appro(t-1)	0.891*** (0.026)	0.898*** (0.022)	0.803*** (0.104)	0.892*** (0.025)	0.890*** (0.025)	0.831*** (0.077)
MAGov._Appro._quarter			0.088 (0.112)			0.007 (0.098)
MAGov._Appro._year			0.016 (0.043)			0.075 (0.060)
Honeymoon	0.440*** (0.118)	0.419*** (0.110)	0.436*** (0.115)	0.243** (0.120)	0.251** (0.120)	0.302** (0.135)
PreElection10	1.154*** (0.302)	0.998*** (0.292)	1.113*** (0.318)	0.970*** (0.347)	0.939*** (0.357)	1.120*** (0.400)
PreElection10 X dBase_Rate	-0.752** (0.360)		-0.684** (0.325)	-0.480 (0.840)		-0.213 (0.786)
PreElection10 X RESID		-0.587* (0.352)			-0.343 (0.754)	
dBase_Rate	0.169 (0.234)		0.068 (0.226)	-0.563* (0.290)		-0.585** (0.293)
RESID		0.057 (0.212)			-0.588** (0.281)	
dInflation	0.155 (0.302)	0.036 (0.264)	-0.012 (0.257)	-0.644** (0.312)	-0.682** (0.292)	-0.721** (0.299)
dInflation(t-1)	-0.462* (0.250)	-0.242 (0.216)	-0.258 (0.215)	-0.043 (0.262)	-0.070 (0.265)	-0.112 (0.261)
dUnemployment		-3.036*** (0.947)	-2.974*** (0.916)		1.694 (2.264)	1.304 (2.147)
dUnemployment(t-1)		1.784* (1.064)	1.607 (1.042)		-3.885* (2.280)	-4.057* (2.365)
dOutput_gap	-0.091* (0.055)			0.028 (0.066)		
dOutput_gap(t-1)	0.029 (0.057)			0.120 (0.083)		
Profumo Scandal	2.590*** (0.195)	2.221*** (0.196)	2.281*** (0.215)			
Falklands War	5.577*** (0.478)	5.817*** (0.427)	6.290*** (0.641)			
Westland Affair	-3.480*** (0.340)	-3.612*** (0.256)	-3.527*** (0.313)			
Thatcher Dismissal	7.195*** (0.162)	7.447*** (0.206)	7.396*** (0.238)			
Thorpe Affair				2.342*** (0.454)	2.250*** (0.554)	2.173*** (0.564)
Winter of Discontent				-1.519 (0.955)	-1.550* (0.895)	-1.756* (0.919)
Sept. 2001				-1.160*** (0.439)	-1.162*** (0.426)	-1.100** (0.451)
Cash for Honors				-3.217*** (0.240)	-2.633*** (0.274)	-2.662*** (0.277)
Jul. 2007				3.074*** (0.244)	2.687*** (0.359)	2.980*** (0.488)
PM Expenses Scandal				-3.141*** (0.788)	-2.847*** (0.692)	-2.973*** (0.668)
Constant	-0.660*** (0.187)	-0.596*** (0.153)	-0.603*** (0.156)	-0.530*** (0.175)	-0.494*** (0.183)	-0.527*** (0.189)
Nbr. observations	349	384	384	286	286	286
R2 adjusted	0.884	0.887	0.888	0.849	0.850	0.851

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$
Newey & West (1987) standard errors are provided in parenthesis
The election held in June 1983 is not considered

7. Concluding Remarks

In this paper, we developed the idea that a conservative central bank may, whether voluntarily or involuntarily, negatively affect the popularity of an inflation-averse party. Through an original policy-mix game, our theory predicts that an increase in the interest rate reduces the chances of a conservative politician being elected. We tested this prediction using data from British political history and showed that a 1 percentage point increase in the main interest rate in the 10 months prior to a national election decreases the popularity of a Tory government by approximately 0.75 percentage points relative to its trend.

On the theoretical side, our result calls into question the principle of independence and political neutrality of central banks (e.g., [Dietsch, 2020](#)), which has been at the heart of the institutional recommendations for monetary policy for several decades. Indeed, a key reason for delegating monetary instruments to an independent institution is that monetary policy requires a very long time horizon, whereas politicians are short-sighted. *“So, if politicians made monetary policy on a day-to-day basis, the temptation to reach for short-term gains at the expense of the future (that is, to inflate too much) would be hard to resist. Knowing this, many governments wisely try to depoliticize monetary policy by, for example, putting it in the hands of unelected technocrats with long terms of office and insulation from the hurly-burly of politics”* ([Blinder, 1998](#), pp. 56-57). In our paper, even if the independent central bank does not have a partisan objective and conducts a depoliticized monetary policy (following Blinders words), its interest rate policy is not politically neutral and may affect the outcome of the election. Thus, monetary policy, even when implemented by unelected institutions, is not insulated from the political area.

On the empirical side, our work provides a new contribution to the study of popularity

functions. While focusing on the British case, it would be interesting to replicate this study on different countries or on a panel of countries representing a variety of political systems throughout history.

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Online Appendix

Table A1: Vote Share in General Elections : Difference between United Kingdom & Great Britain

Election Date	United Kingdom			Great Britain		
	Conserv.	Labour	Liberals	Conserv.	Labour	Liberals
October 15th, 1964	43.4	44.1	11.2	42.9	44.8	11.4
March 31st, 1966	41.9	48	8.5	41.4	48.8	8.6
June 18th, 1970	46.4	43.1	7.5	46.2	43.9	7.6
February 28th, 1974	37.9	37.2	19.3	38.8	38	19.8
October 10th, 1974	35.8	39.3	18.3	36.7	40.2	18.8
May 3rd, 1979	43.9	36.9	13.8	44.9	37.8	14.1
June 9th, 1983	42.4	27.6	25.4	43.5	28.3	26
June 11th, 1987	42.3	30.8	22.6	43.3	31.5	23.1
April 9th, 1992	41.9	34.4	17.8	42.8	35.2	18.3
May 1st, 1997	30.7	43.2	16.8	31.5	44.3	17.2
June 7th, 2001	31.6	40.7	18.30	32.6	42	18.8
May 5th, 2005	32.4	35.2	22	33.2	36.1	22.6
May 6th, 2010	36.1	29	23	36.9	29.7	23.6
May 7th, 2015	36.8	30.4	7.9	37.7	31.2	8.1

Source : [Audickas et al. \(2020\)](#) (pp. 12 & 14)

Table A2: Political events and the month in which they occurred

Political Events	Month in which we coded it as 1	Description
Profumo Scandal	October 1963	John Profumo, Secretary of State for War under Macmillan (Conservative) government was caught having an affair with a 19 years old model. This led to his resignation in October 1963 harshly impacting 1964 general election.
Thrope Affair	October 1975	Jeremy Thorpe, leader of the Liberal Party was accused by a journalist to have an affair. The attempted murder of this journalist leads to Thorpe resignation and strongly impacted the Liberal Party growing popularity.
Falklands War	April, May & June 1982	Undeclared war between Argentina & the United Kingdom after the Argentinian occupation of Falklands Islands and the invasion of South Georgia. The war lasted 10 weeks and ended with a British victory, increasing Thatchers (Conservative) Popularity.
Westland Affair	January 1986	Margaret Thatcher and her Secretary of State for Defence Michael Heseltine were conflicting on the future of Westland Helicopters, an aerospace British company. This conflict led to the resignation of Heseltine and eroded the Conservative Partys popularity.
Thatcher Dismissal	November 1990	In November 1990, the Conservative Party leadership election was disputed, leading to Thatchers dismissal as she failed to receive the unanimous support of the Tories due to different debates and scandals.
Sept. 2001	September 2001	Major terrorist attacks in the United States
Cash for Honors	April 2006	In April 2006, a list of British personalities suspected to have obtained titles within the peerage system against some donations to the Labour Party.
Jul. 2007	July 2007	First signs of the international financial crisis.
PM Expenses Scandal	May, June & July 2009	Politicians from both the House of Commons and the House of Lords were pointed out for their illegal expenses claims. It had a huge impact on the British political life as it has lead to several prison terms.

Table A3: Incumbent Government Characteristics

Prime Minister	Political Party	First Day of Mandate	Last Day of Mandate	Tenure ^a	Elections won
Harold Macmillan	Conservative	January 10th 1957	October 19th 1963	6.9 years	2 (1957, 59)
Alec Douglas-Home	Conservative	October 19th 1963	October 16th 1964	1 year	0*
Harold Wilson (1st)	Labour	October 16th 1964	June 19th 1970	5.7 years	2 (1964, 66)
Edward Heath	Conservative	June 19th 1970	March 4th 1974	3.8 years	1 (1970)
Harold Wilson (2nd)	Labour	March 4th 1974	April 5th 1976	2.1 years	2 (1974(I)** , (II))
James Callaghan	Labour	April 5th 1976	May 4th 1979	3.1 years	0***
Margaret Thatcher	Conservative	May 4th 1979	November 28th 1990	11.6 years	3 (1979, 83, 87)
John Major	Conservative	November 28th 1990	May 2nd 1997	7.6 years	1*** (1992)
Tony Blair	Labour	May 2nd 1997	June 27th 2007	10.2 years	3 (1997, 2001, 05)
Gordon Brown	Labour	June 27th 2007	May 11th 2010	2.9 years	0***
David Cameron	Coalition ****	May 11th 2010	July 13th 2016	6.2 years	1 (2010, 15)

* Douglas-Home was nominated by the Queen following Macmillan health problems

** Technically, Labour has lost this election, but as conservatives failed to implement a coalition, this resulted in a hung parliament where Labour became the ruler party

*** Candidate was elected by the member of his/her own party after his/her predecessors resignation

**** From May 11th 2010 to May 8th 2015, Cameron and the Conservative were in a coalition with Clegg and the Liberals.

We consider this government to be conservative

^aButler & Butler (2000) p. 72 and own computation since Tony Blairs mandate

Table A4: Summary Statistics

Variable	Mean	Std. Dev.	Min.	Max.	N
hamConservative	-0.482	6.136	-15.882	17.959	672
hamLabour	0.03	6.449	-17.433	16.012	672
Government_Approval	-1.869	6.043	-17.433	13.046	672
dBase_Rate	-0.007	0.544	-2.5	4.375	671
dInflation	0.001	0.545	-4.057	4.29	671
dUnemployment	0.001	0.105	-0.700	0.5	671
Incumbent from Conservative Party					
hamLabour	1.317	6.436	-16.948	16.012	386
Government_Approval	-1.99	6.038	-15.882	13.046	386
dBase_Rate	-0.001	0.579	-2	4.375	385
dInflation	0.004	0.539	-4.057	4.29	385
dUnemployment	-0.004	0.121	-0.700	0.4	385
Incumbent from Labour Party					
hamConservative	1.553	5.67	-9.934	17.959	286
Government_Approval	-1.707	6.056	-17.433	13.028	286
dBase_Rate	-0.014	0.492	-2.5	2.5	286
dInflation	-0.003	0.554	-3.51	3.322	286
dUnemployment	0.007	0.077	-0.2	0.5	286
PreElection10 = 0					
hamConservative_cycle	-0.676	6.509	-15.882	17.959	544
hamLabour_cycle	0.285	6.602	-17.433	16.012	544
Government_Approval	-2.071	6.285	-17.433	13.046	544
dBase_Rate	-0.012	0.546	-2.5	4.375	543
dInflationCPI	-0.024	0.573	-4.057	4.29	543
dUnemployment	0.007	0.106	-0.700	0.5	543
PreElection10 = 1					
hamConservative_cycle	0.341	4.112	-10.315	11.14	128
hamLabour_cycle	-1.053	5.648	-13.723	10.668	128
Government_Approval	-1.011	4.811	-13.723	10.668	128
dBase_Rate	0.014	0.535	-1	4	128
dInflationCPI	0.109	0.389	-0.789	1.68	128
dUnemployment	-0.026	0.095	-0.4	0.2	128

Table A5: Robustness: Coefficients and Standard Errors of Several Interaction Variables without the 1983 election

Variable	Model Estimated		
	(2)	(4)	(6)
<i>PreElection7X</i>	-0.829***	-1.001***	-0.598
<i>dBase_Rate</i>	(0.286)	(0.275)	(0.747)
<i>PreElection8X</i>	-0.731**	-0.854***	-0.598
<i>dBase_Rate</i>	(0.279)	(0.316)	(0.277)
<i>PreElection9X</i>	-0.582*	-0.797**	-0.290
<i>dBase_Rate</i>	(0.295)	(0.319)	(0.763)
<i>PreElection10X</i>	-0.562	-0.754**	-0.295
<i>dBase_Rate</i>	(0.295)	(0.322)	(0.768)
<i>PreElection11X</i>	-0.525*	-0.638*	-0.387
<i>dBase_Rate</i>	(0.303)	(0.370)	(0.734)
<i>PreElection12X</i>	-0.371	-0.628*	0.082
<i>dBase_Rate</i>	(0.319)	(0.372)	(0.692)

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$
Newey & West (1987) standard errors are provided in parenthesis
The election held in June 1983 is not considered

Table A6: Robustness: Coefficients and Standard Errors of Several Interaction Variables with the 1983 election

Variable	Model Estimated		
	(2)	(4)	(6)
<i>PreElection7X</i>	-0.744**	-0.901***	-0.598
<i>dBase_Rate</i>	(0.275)	(0.282)	(0.747)
<i>PreElection8X</i>	-0.608**	-0.697*	-0.598
<i>dBase_Rate</i>	(0.293)	(0.371)	(0.750)
<i>PreElection9X</i>	-0.473	-0.652*	-0.290
<i>dBase_Rate</i>	(0.309)	(0.368)	(0.763)
<i>PreElection10X</i>	-0.416	-0.566	-0.295
<i>dBase_Rate</i>	(0.316)	(0.386)	(0.768)
<i>PreElection11X</i>	-0.325	-0.383	-0.387
<i>dBase_Rate</i>	(0.336)	(0.457)	(0.734)
<i>PreElection12X</i>	-0.175	-0.354	0.082
<i>dBase_Rate</i>	(0.350)	(0.468)	(0.692)

Significance levels are: * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$
Newey & West (1987) standard errors are provided in parenthesis