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On some of the consequences of being possible to call early elections

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**Abstract:**

This note presents some of the consequences due to the possibility of having early elections. First of all, elections, whether exogenously or endogenously determined, are relevant to challenge the well known neutrality principle of economic policies under rational expectations. Furthermore, in the particular case of being possible to admit early elections, the electoral advantages of right-wing parties in relation to left-wing parties suffer a diminishment.

**Palavras-chave/Keywords:** Early Elections, Median Voter, Partisan Policies

**Classificação JEL/JEL Classification:** D72, E52, E61
1 Introduction

Despite the enormous development of the electoral business cycles literature, the fact is that the determination of optimally timed elections, or even the study of the consequences of being possible to call early elections, have been largely ignored. Some exceptions are, on the empirical side, Cargill and Hutchison (1991) and Ito (1989,1990), and, on the theoretical side, Balke (1990,1991), Chappell and Keech (1986), Chappell and Peel (1979), Ito and Park (1988) and Keech and Simon (1985). Most of these studies consider continuous time ‘first-generation’ models, particularly Nordhaus’s (1975) type of model. The model that will be considered in this note is representative of the ‘second-generation’ models; specifically, a rational expectations discrete time model.

The problem of deriving the optimal frequency of elections can be approached in two ways according to whom, government or society, the optimality concerns. Generally speaking, the first studies on the issue adopted the society viewpoint, since the problem was solved through the detection of the electoral period length that led to outcomes closest to the ones obtained by a benevolent social planner.\(^1\) The more recent studies, in general, do not follow this approach, as the electoral period length is determined endogenously as part of the incumbent’s optimal programme.

Before proceeding with a formal model, one should start by noting that an early election being possible to exist implies, by itself, important consequences. As it will be clearer later on, the possibility of calling an early election introduces additional uncertainty, at every period of the mandate with which the incumbent has to deal. To put it more specifically, the uncertainty of election results creates a temporary inflation surprise which may not be attributed to a deliberate choice of the government. In this sense, while within the exogenous timing of elections framework, the incumbent may ignore the uncertainty regarding the election results, the endogenous timing of elections introduces an(other) source of uncertainty, at every moment of time, which the government cannot ignore. This argument can be formalised as follows.

As it is well known, the presence of forward-looking rational agents induces optimal solution paths characterised by ‘perturbations’ or ‘shocks’ around the moment of elections. In this sense, assuming a partisan approach, the intrinsic uncertainty about the election results, which, therefore, can be considered macroeconomic news, leads to a sudden jump in the relevant economic variables, such as inflation or exchange rates on the election day.\(^2\)

\(^1\)Following this perspective, Keech and Simon (1985) show that the optimal electoral period length for a Nordhaus (1975)’s type of model depends crucially on the parameterisation of the model.

\(^2\)For the exchange rates case see, inter alia, Gärtner (1986). The same kind of exchange rate path
Let us formalise the argument by considering a structural model as follows:

\[
\begin{bmatrix}
    y_{t+1} \\
    z_{t+1}^e
\end{bmatrix} =
\begin{bmatrix}
    a_{11} & a_{12} \\
    a_{21} & a_{22}
\end{bmatrix}
\begin{bmatrix}
    y_t \\
    z_t
\end{bmatrix} +
\begin{bmatrix}
    b_{11} \\
    b_{12}
\end{bmatrix} x_t,
\]

(1)

where

- \( y_{t+1} \) is a state variable pre-determined at \( t \);\(^3\)
- \( z_t \) is an expectational variable free to take on any value at time \( t \) with expected value, held in \( t \), for next period \( z_{t+1}^e \); and
- \( x_t \) is an instrument under control of the government.

For the rational expectations case, that is when \( z_{t+1}^e = E[z_{t+1}|\mathcal{I}_t] \), Blanchard and Kahn (1980) show that the unique solution – for the saddle-path stable model – is given by

\[
y_t = y_0 \quad \text{for} \quad t = 0
\]
\[
y_t = \lambda_1 y_{t-1} + b_{11} x_{t-1} + ((\lambda_1 - a_{11}) \lambda_1 - a_{12} \lambda_2) \sum_{i=0}^{\infty} \lambda_2^{-i-1} E[x_{t+i-1}|\mathcal{I}_{t-1}], \quad \text{for} \quad t > 0;
\]

(2)

\[
z_t = a_{12}^{-1} \left( (\lambda_1 - a_{11}) y_t + ((\lambda_1 - a_{11}) \lambda_1 - a_{12} \lambda_2) \sum_{i=0}^{\infty} \lambda_2^{-i-1} E[x_{t+i}|\mathcal{I}_t] \right), \quad \text{for} \quad t \geq 0,
\]

(3)

where \( \lambda_1 \) and \( \lambda_2 \) denote, respectively, the stable and unstable eigenvalues of the matrix \( A \) in (1), that is \( |\lambda_1| < 1 \) and \( |\lambda_2| > 1 \).

Hence, as we know from (2) and (3), the dependence of the state and expectational variables on expected values for the instruments makes clear how the existence of elections implies changes in the solution trajectories.

Let us suppose that the current government is committed to a fixed policy \( x^G \) and that an election will take place in \( t = T \), which, in the case of the opposition party’s victory will correspond to a change in policy to \( x^O \). This means that, until the election takes place, \textit{i.e.} for \( t \leq T \), the expectational variable will take some can be obtained, in a political approach, if the government (optimally) uses the exchange rate as a policy instrument in order to explore the well-known J-curve structure of a small open economy; see Ploeg (1989).

\(^3\)A pre-determined variable is a function only of variables known at time \( t \), that is of variables in the information set \( \mathcal{I}_t \), so that \( y_{t+1} = y_{t+1}^e \) whatever the realisation of the variables in \( \mathcal{I}_{t+1} \).
value depending on \(x^G\) and on \(\bar{x} \equiv \mathbb{E}[x]\), while, after \(T\), the expectational variable will be based on \(x^O\) or \(x^G\), as the following figure illustrates:

\[
\begin{array}{c}
\text{x}^O \\
\text{E} [x] \\
\text{x}^G
\end{array}
\]

\(T\)

\(t\)

**Figure 1**: The uncertainty induced by elections

Because \(z_t\), for \(t \leq T\), will depend on known and expected policy values, then in algebraic terms

\[
z_t = a_{12}^{-1} \left( (\lambda_1 - a_{11}) y_t + (\lambda_1 - a_{11}) \lambda_1 - a_{12} \lambda_2 \left( \sum_{i=0}^{T-t} \lambda_2^{-i-1} x^G_{t+i} + \sum_{i=T-t+1}^{\infty} \lambda_2^{-i-1} \mathbb{E}[x_{t+i}] \right) \right).
\]

But, as soon as the election takes place, and thus, the same policy \(x^G\) is applied – in the case of re-election of the current government – or a different one \(x^O\) is implemented – in the case of an electoral defeat – then \(\mathbb{E}[x_{t+i}]\) can be replaced by \(x^G\) or \(x^O\), which will correspond to a ‘jump’ in the expectational variable and, via (2), also a ‘jump’ in the state variables. In fact, as the saddle-path depends on the expected values of the control variables, the occurrence of elections changes the position of this equilibrium path. Thus, in order to ‘put’ the system on the ‘new’ saddle-path the expectational variables have to ‘jump’.

What was said before has a clear analogy with the analysis of announced or unannounced – but not in the sense of a deliberate surprise/cheating – policy changes. If the winning political party literally changes the economic policy at the same moment that electoral results are known, this can be associated with the case of an unannounced, unanticipated policy change. On the contrary, if there is a relevant lag before the victorious party really assumes power and starts making new economic policy, this can be associated with the case of an anticipated policy change. In this last case, the news is known on the election day, but concerns a policy change some time in the future.

Generally speaking, the fact that election results can be considered news is of decisive importance to the partisan vision of electoral cycles. Let us then proceed with the study of some of the consequences of the possibility of calling early elections, from a rational partisan viewpoint.
2 On some of the consequences of being possible to call early elections

In order to better evaluate the consequences of may having a call for early elections, let us first consider the exogenous timing of elections case as a benchmark situation.

For the incumbent, let us assume that popularity in each period of the mandate, which goes from $t = 1$ to $t = T$, depends upon output levels, $y_t$, and inflation, $\pi_t$, as follows:

$$V = \sum_{t=1}^{T} \beta^t \left( -\frac{1}{2} \pi_t^2 + \theta y_t \right),$$

where, in accordance to an aggregate supply curve à la Lucas (1973):

$$y_t = \alpha (\pi_t - \pi_t^e),$$

$\pi_t^e$ are the inflation expectations, for period $t$, at time $t - 1$, given by

$$\pi_t^e = E [\pi_t | I_{t-1}],$$

and $I_{t-1}$ is the information set available at the end of period $(t - 1)$.

As it will become clearer later below, the consequences of a call for early elections are richer if there are ideological differences in accordance to the type of party in power. Let us then consider two possible kinds of governments, $i = L, R$, which differ in their relative concern about output in that their objective functions are given by

$$V = \sum_{t=1}^{T} \beta^t \left( -\frac{1}{2} \pi_t^2 + \theta^i y_t \right),$$

where $\theta^L > \theta^R$. In words, right-wing governments ($i = R$) favour less inflationary results than left-wing governments ($i = L$). See (5).

Taking expected inflation, $\pi_t^e$, as given in the optimisation of (4) subject to (5) and (6), the incumbent determines time-consistent inflation rates $\pi_t^i$ as follows:

$$\pi_t^i = \alpha \theta^i \quad i = L, R.$$  

For $2 \leq t \leq T$, the rationality of expectations imply that $\pi_t^i = \pi_t$, which means

$$y_t = 0 \iff Y_t = \bar{Y}. $$

---

4 As it is usual, output, $Y_i$, is measured from the natural level, $\bar{Y}$, such that $y_t = Y_t - \bar{Y}$.

5 Ever since Nordhaus (1975), this is, indeed, one of the most common types of objective functions in the area of political macroeconomics.
Voters who are rational and forward-looking know the two governments’ objective functions and hence can compute their two optimal inflation rates (8). Although these policies are known, since it is assumed that the distribution of voters’ preferences is unknown, the electoral results are unknown; see Alesina et al. (1997), pg. 55. Hence, for the period immediately after the elections, \( t = 1 \), expected inflation \( \pi^e_1 \) is an average of \( \alpha \theta^L \) and \( \alpha \theta^R \) weighted by the probabilities that each type of government will be in office.\(^6\) That said, for \( t = 1 \), the expected inflation will not, in general, coincide with the effective inflation rate as

\[
\pi^e_1 = p \pi^L_1 + (1 - p) \pi^R_1 = p \alpha \theta^L + (1 - p) \alpha \theta^R,
\]

where \( p \) is defined to be the probability of a left-wing electoral victory.

Given that \( \theta^L > \theta^R \), a term of office beginning in period \( t = 1 \) will be characterised by

\[
\begin{align*}
\pi^L_1 < \pi^e_1 & \Rightarrow y_1 = (1 - p) \alpha^2 (\theta^L - \theta^R) > 0 \Leftrightarrow Y_1 > \bar{Y}, \quad \text{if } L \text{ is in office,} \\
\pi^R_1 > \pi^e_1 & \Rightarrow y_1 = p \alpha^2 (\theta^R - \theta^L) < 0 \Leftrightarrow Y_1 < \bar{Y}, \quad \text{if } R \text{ is in office,}
\end{align*}
\]

and, for \( 2 \leq t \leq T \),

\[
\begin{align*}
\pi^e_t & = \pi^L_t \Rightarrow y_t = 0 \Leftrightarrow Y_t = \bar{Y}, \quad \text{if } L \text{ is in office,} \\
\pi^e_t & = \pi^R_t \Rightarrow y_t = 0 \Leftrightarrow Y_t = \bar{Y}, \quad \text{if } R \text{ is in office.}
\end{align*}
\]

In words, output is above (resp. below) its natural level in the first period of a left (resp. right)-wing government.\(^7\) Every other period until the next election, as expectations perfectly adjust, output will be at its natural level, independently of the kind of incumbent. Inflation, in turn, will always be higher during left-wing governments. Hence, in this case, decreasing (resp. increasing) the electoral period length will, on average and in the case of power rotation, create a higher (resp. lower) volatility (costly fluctuations) of output and inflation rates.\(^8\)

\(^6\)As in most of the literature, we will assume exogenous probabilities. Ellis (1991) is, to the best of my knowledge, the only study to consider endogenous probabilities. See also Ellis and Thoma (1991).

\(^7\)This is also known as the partisan effect.

\(^8\)This means that there may be intermediate values of inflation rates, \( \pi^R < \pi^* < \pi^L \) such that both types of governments would be better off if both implement \( \pi^* \) rather than their preferred
That being said, it is possible to determine the utility registered by society during the mandate of each kind of government. Assuming that social instantaneous utility is given by:

\[ U_t = -\frac{1}{2} \pi_t^2 + \theta y_t, \]  

(10)

and that society evaluates the levels of (10) in accordance with a social rate of discount, \( \rho \), social welfare in case of a left-wing government is given by:

\[
U^L = \rho \left( -\frac{1}{2} (\alpha \theta^L)^2 + \theta \left( \alpha (1 - p) (\alpha \theta^L - \alpha \theta^R) \right) \right) + \sum_{t=2}^{T} \rho^t \left( -\frac{1}{2} (\alpha \theta^L)^2 + \theta (0) \right) 
\]

\[ = \rho \left( -\frac{1}{2} (\alpha \theta^L)^2 + \theta \left( \alpha^2 (1 - p) (\theta^L - \theta^R) \right) \right) - \frac{1}{2} \alpha^2 (\theta^L)^2 \frac{\rho^2 - \rho^{T+1}}{1 - \rho}, \]

(11)

whereas, in case of a right-wing government is given by:

\[
U^R = \rho \left( -\frac{1}{2} (\alpha \theta^R)^2 + \theta \left( \alpha^2 p (\theta^R - \theta^L) \right) \right) + \sum_{t=2}^{T} \rho^t \left( -\frac{1}{2} (\alpha \theta^R)^2 + \theta (0) \right) 
\]

\[ = \rho \left( -\frac{1}{2} (\alpha \theta^R)^2 + \theta \left( \alpha^2 p (\theta^R - \theta^L) \right) \right) - \frac{1}{2} \alpha^2 (\theta^R)^2 \frac{\rho^2 - \rho^{T+1}}{1 - \rho}. \]

(12)

Plainly, for society’s welfare, in general, the kind of party in power is a relevant fact, as

\[ U^L - U^R = \frac{1}{2} (\theta^L - \theta^R) \alpha^2 \rho \frac{2\theta (1 - \rho) + (\rho^T - 1) (\theta^L + \theta^R)}{1 - \rho}, \]

(13)

can assume positive or negative values. Obviously, social welfare would be the same, no matter the kind of government, when (13) assumes a zero values, which occurs for:

\[ \theta^* = \frac{1 - \rho^T \theta^L + \theta^R}{2}, \]

(14)

which means:

\[ \theta^* > \frac{\theta^L + \theta^R}{2}. \]

(15)

policies \( \pi^L \) and \( \pi^R \) because the sub-optimality introduced by fluctuations in inflation and output is eliminated. As we have just noted, one way of reducing these fluctuations on average (but which does not necessarily mean a loss reduction) is to increase the electoral period length. Alesina (1987) shows that \( \pi^* \) is decreasing (resp. increasing) with the probability of a right (resp. left)-wing electoral victory because the increase in the bargaining power of each type of government will make \( \pi^* \) closer to their own preferred policies, \( \pi^L \) or \( \pi^R \). For this mechanism to be effective, i.e. considered credible, one naturally has to assume a sufficiently long time horizon for both types of governments and a sufficiently low discount of future. Almost the same argument is used in the strategic use of budget deficits literature; see Milesi-Ferretti and Spolaore (1994).
In order to be indifferent between the two possible governments, society has to possess a parameter $\theta^*$ closer to $\theta^L$ than to $\theta^R$. This reflects the electoral advantage that right-wing parties possess, in the sense that the median voter is more likely to prefer the right-wing party. See figure 2.

![Figure 2: The political spectrum for $\theta$ (case 1)](image)

So far we have implicitly assumed an exogenous timing of elections, therefore excluding the possibility of an early call of elections. In order to admit that possibility, let us consider that there is a fixed maximum electoral period length ($t = \bar{T}$) and that $\tau$ denote the probability of an election being called at any time $t$, which is won by the left-wing and right-wing candidates with probability $p$ and $(1-p)$, respectively.

At this point, it is relevant to note that the timing of events is as follows. In moment $t = 0$, the expected rate of inflation for next period is determined, $\pi^e_1$. In moment $t = 1$, there is an election, which is followed by the determination of the inflation rate, $\pi_1$, by the incumbent that resulted from that election. The mandate has an a priori duration, meaning that, if no early election is called (from $t = 2$) until $t = \bar{T}$, there is an election for sure at $t = \bar{T} + 1$. For every moment, the expected rate of inflation is determined before the occurrence of a possible early election and therefore also before any inflation rate. All in all, the following figure gives a picture of the timing of events as of from the beginning of a new mandate.

![Figure 3: The timing of events](image)

If so, it is straightforward to verify that,

$$\pi^e_{t} = p\pi^{L}_1 + (1-p)\pi^{R}_1$$

and that, for any period $2 \leq t \leq \bar{T}$,

$$\pi^e_{t} = (1-\tau)\pi^{L}_{t-1} + \tau\left(p\pi^{L}_{t-1} + (1-p)\pi^{R}_{t-1}\right)$$

if $L$ is in power in $t - 1$, \hspace{1cm} (16)

or
\[ \pi^e_t = (1 - \tau) \pi^R_t + \tau (p\pi^L_t + (1 - p) \pi^R_t) \] if \( R \) is in power in \( t - 1 \). \hspace{1cm} (17)

The previous expected inflation expressions (16) and (17) show that:

- The possibility of calling an early election imply, by itself, that left-wing mandates are characterised by a higher expected inflation level, and via (8) also a higher effective inflation rate, than in the case of a right-wing mandate. Only at \( t = \bar{T} \) or if the public is certain that an election will be called – the expected inflation is the same independently of who is in power in the previous period.\(^9\)

- As long as there are partisan differences, \( i.e. \pi^L_t \neq \pi^R_t \), any mandate will be characterised by inflation surprises \( a t e r m o n t \), \( i.e. \pi^e_t \neq \pi^e_t, \forall t, i = L, R \).\(^10\) This is a substantial difference to the exogenous election dates case. The well known neutrality principle of economic policies under rational expectations is not at all verifiable. In particular, during a left-wing (\( r e s p. \) right-wing) mandate, output will be above (\( r e s p. \) below) the natural level as \( \pi^e_t < \pi^L_t \) (\( r e s p. \pi^e_t > \pi^R_t \)). In fact, it is possible to verify that:

\[ \pi^R < \pi^e_{2,...,T} (\text{if } R \text{ is in power}) < \pi^e_1 < \pi^e_{2,...,T} (\text{if } L \text{ is in power}) < \pi^L. \]

Hence, assuming an objective function as

\[ U = \sum_{t=1}^{T} \rho_t \left( -\frac{1}{2} \alpha^2 + \theta y_t \right), \]

is less probable that right-wing incumbents will obtain better results measured by (14) as it was the case with exogenous election dates.

In order to better explore this fact, let us assume that, despite being possible to call an early election, there is no election of this kind during all the mandate. If so, social welfare in case of a left-wing government is given by:

\[ U^L = \rho \left( -\frac{1}{2} (\alpha^2 + \theta (1 - p) (\alpha^L - \alpha^R)) \right) + \sum_{t=2}^{T} \rho^t \left( -\frac{1}{2} (\alpha^L)^2 + \theta (\alpha (1 - \tau) (\alpha^L - (1 - \tau) \alpha^L + \tau (p\theta^L + (1 - p) \theta^R)) \right), \]

\(^9\)Note that the algebraic difference between (16) and (17) is \( (\pi^L_t - \pi^R_t) (1 - \tau) \geq 0 \) and that this does not depend on the probabilities \( p \) and \( (1 - p) \).

\(^{10}\)Note that in order to have \( \pi^e_t \) given by (16) (resp. (17)) equal to \( \pi^e_t \) (resp. \( \pi^e_t \)) one should have \( \pi^L_t = \pi^R_t \).
whereas, in case of a right-wing government is given by:

\[
U^R = \rho \left( -\frac{1}{2} (\alpha \theta^R)^2 + \theta \left( \alpha p (\alpha \theta^R - \alpha \theta^L) \right) \right) + \\
\sum_{t=2}^{T} \rho^t \left( -\frac{1}{2} (\alpha \theta^R)^2 + \theta \left( \alpha \left( \alpha \theta^R - ((1 - \tau) \alpha \theta^R + \tau (p \theta^L + (1 - p) \theta^R)) \right) \right) \right).
\]

Plainly, the difference between the two levels of utilities is given by:

\[
U^L - U^R = \frac{1}{2} \left( \theta^L - \theta^R \right)^2 \rho^2 \theta^L \theta^R \left( \rho^T - 1 \right) + 2 \theta \left( 1 - \rho + \tau \rho - \tau \rho^T \right),
\]

which shows that, in order for the society to be indifferent between the two types of government, it must be characterised by a parameter

\[
\theta^* = \frac{1}{1 - \rho + \tau (\rho - \rho^T)} \frac{\theta^L + \theta^R}{2}, \tag{19}
\]

which shows that, again,

\[
\theta^* > \frac{\theta^L + \theta^R}{2}.
\]

Comparing (14) with (19) it is possible to verify that now the median voter is less likely to prefer the right-wing party. See figures 2 and 4.

![Figure 4: The political spectrum for θ (case 2)](image)

To finalise, we would like to stress that the probability of calling an early election was considered constant. In theoretical terms, it has been acknowledged that as the incumbent’s incentives to call an early election increase as the maximal election date \( t = \bar{T} \) gets closer, one may assume that the probability \( \tau \) is monotonically increasing as \( t \to \bar{T} \); see Balke (1990).\(^{11}\) This fact seems to be also confirmed empirically; see the survival analysis in Caleiro (2000). Therefore, assuming that \( \tau_t \) is indeed increasing with \( t \), this immediately shows us that during a left-wing \( \text{resp. right-wing} \) mandate the expected level of inflation \( \pi_t^e \) will decrease \( \text{resp. increase} \) from \( \pi_t^L \) \( \text{resp.} \) \( \pi_t^R \) to \( \pi_t^* = p \pi_t^L + (1 - p) \pi_t^R \).

\(^{11}\) As Balke (1990) shows, the government has greater incentives to call an election the longer it has been in power and that, in close connection, the longer is the maximum electoral period duration the smaller the incentives to call an election at time \( t \).
3 Conclusions

This note presents some of the consequences due to the possibility of having early elections. First of all, elections, whether exogenously or endogenously determined, are relevant to challenge the well known neutrality principle of economic policies under rational expectations. Furthermore, in the particular case of being possible to admit early elections, the electoral advantages of right-wing parties in relation to left-wing parties suffer a diminishment.

References


Abstract:

Palavras-chave/Keywords:

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