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# The impact of economic and political factors on popularity for France (1981-2017)

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## Abstract

In this article, we study a popularity function for the popularity of the French political parties (1981Q2-2017Q1). At first, we suppose that voters have a retrospective behaviour according to reward-punishment model in a closed economy. We show that the unemployment rate has a significant influence on the popularity of the French political parties. We find unfavourable results for the partisan hypothesis. We also show that the economic openness has an influence on popularity. We also find a partly expected result for the asymmetry hypothesis: punishment without reward. For the political variables, we show the significant influence of the honeymoon effect, the second order elections (regional or European), and the congresses of the Socialist party.

**Keywords:** popularity functions; voters' behaviour; economic situation; political variables; econometric models

## 1. Introduction

Since the beginning of the 1970s and the first articles of Mueller (1970) for the United States (popularity of the American president) and of Goodhart and Bhansali (1970) for Great Britain (popularity of the British political parties), numerous studies showed the significant influence of the economic situation on the popularity of the President and / or the Prime Minister, and the political parties. It is a subject of research for the public choice school; see notably the surveys of Nannestad and Paldam (1994), Auberger (2001, 2010), Mueller (2003), Lewis-Beck and Stegmaier (2013), and Kirchgässner (2019) on the vote-popularity functions. The popularity functions allow us to explain the popularity of those in power (President, Prime Minister, government) and the political parties. They have an economic part and a political part. The most used economic variables are the rates of inflation and unemployment (we mostly use their first lagged variables, the previous data before the data of opinion polling institutes). The GNP or GDP real growth and the gross disposable household income are also used. Generally, economic variables depend on the economic situation (objective measure), but they can possibly depend on the perception of the economic situation by voters (subjective measure). Political variables can depend on election cycles: honeymoon effect or depreciation of the popularity (the popularity of those in power is high after an election or an appointment, and then regularly decreases), the personality of those in power (personal factors). International events, wars (as the Vietnam war for the United States) or domestic events (as the Watergate scandal for the United States) can have an influence on the popularity of those in power. The political context can also have an influence on the popularity of those in power. Finally, political variables can depend on economic policy decisions; and also on the legislative activism: see Boukari and Farvaque (2018). Generally speaking, as highlighted by Nannestad and Paldam (1994), the economic part of the popularity functions is better studied than the political one; furthermore, the popularity functions are rather unstable over time; according to Lafay (1981), the bad specification of these functions and, in particular, political variables is a cause of this instability.

There were also for France some studies showing the significant influence of the economic situation and of political variables on the French President's and Prime Minister's popularity and on the popularity of French political parties. We notice that articles mainly concerned the government's popularity (the President of the Republic and the Prime Minister). Most authors supposed that voters behave according to the reward-punishment model of Key (1966) by judging absolutely economic performance of the government and by taking into account current or very recent economic performance or by attaching more importance to recent economic performance.<sup>2</sup> In many studies on the President's and Prime Minister's popularity, unemployment was a significant economic variable. For example, Lewis-Beck (1980) showed the significant negative influence of the unemployment figures on the President's and Prime Minister's popularity (1960-1978) and Gerstlé and François (2011) showed the the significant negative influence of unemployment on the President's popularity (1960-2003). We note that Courbis (1995) did not show a significant influence of unemployment on the President's popularity; on the other hand, Courbis (1995) showed the significant negative influence of unemployment on the Prime Minister's popularity (1971-1994).

The popularity of the French political parties has been little studied compared to the popularity of the President and that of the Prime Minister. Lafay and Servais (2000) have studied the difference between the left-wing popularity and the right-wing popularity by highlighting the negative influence of scandals (number of scandals, left-wing scandals – right-wing scandals). It is interesting to study the difference between the left-wing popularity and the right-wing popularity because this indicator of popularity can be a good predictor of the vote for the Left at the national elections (French presidential and legislative elections before 2017).<sup>3</sup>

The object of this article is to study the influence of the economic situation on the French political parties (difference of the popularity of the Left and the popularity of the Right). The different models (hypotheses of behaviour for voters) are studied: the reward-punishment model with a retrospective behaviour of voters, the partisan model for which the preferences of political parties and voters are different between unemployment and inflation, a model taking into account the openness of the national economy, a model studying the asymmetry hypothesis with a retrospective behaviour of voters. We show that these models give similar results for the change in the quarterly unemployment rate and partly expected results for the asymmetry hypothesis is found; we find here that only the variable for positive change in the unemployment rate is significant: punishment without reward.

The article is organized as follows. We present the popularity function, the economy and voter's behaviour (section 2). Next, we present the choice of the dependent variable and the econometric model used (section 3) and some estimations for the popularity function of the French political parties over the 1981Q2-2017Q1 period: reward-punishment model, partisan model, model taking into account the degree of openness of the national economy, the asymmetry hypothesis (section 4).

## **2. The popularity function, the economy and voters' behaviour**

The popularity functions have an economic part and a political part.<sup>4</sup> The use of an autoregressive model of order 1 was theoretically justified by Kirchgässner (1985) and was used in numerous studies as for example: Kirchgässner (1985, 1991) for Germany, Neck and Karbusz (1997) for Austria, and Veiga and Veiga (2004) for Portugal. We suppose that voters are rational in the sense of Downs (1957), maximizing their utility, and it is compatible with a sociotropic and a retrospective<sup>5</sup> behaviour: voters evaluate the economic performances with the national economic situation. Voters behave according to the responsibility hypothesis of Paldam (1981), that is the parliamentary majority is rewarded for good economic performances and punished for bad economic performances; it corresponds to the reward-punishment behaviour of Key (1966) and the satisficing theory of Kramer (1971).

In this article, we don't detail the possible use of the clarity of responsibility variables; see notably, Anderson (2000) and Hobolt et al. (2013). An important result is that: economic effects should be stronger (resp. weaker) when the number of effective parties in parliament is smaller (resp. higher).

In connection with the partisan political cycles: the traditional partisan model of Hibbs (1977) and the rational partisan model of Alesina (1987), we can study the hypothesis of partisan voting.<sup>6</sup> For the partisan voting models,<sup>7</sup> we can notably distinguish the direct interests hypothesis studied notably by Stigler (1973), Kiewiet (1981) and Swank (1993). In this partisan voting model, an increase (resp. decrease) in unemployment leads to an increase (resp. decrease) of the popularity of the Left and an increase (resp. decrease) in inflation leads to an increase (resp. decrease) of the popularity of the Right.<sup>8</sup> Swank (1993), Letterie and Swank (1997) and Swank (1998)<sup>9</sup> have found favourable results to their model with partisan economic variables for the popularity of the American president; Veiga and Veiga (2004) have found unfavourable results with partisan economic variables for the popularity in Portugal. Carlsen (2000) have found favourable results for right-wing governments for four countries (US, Canada, UK, Australia).

Voters are often supposed to behave as in a closed economy and they only take into account the national economic situation (see estimations, table 1). We can also suppose that voters take into account the degree of openness of the economy as Hellwig and Samuels (2007) made it to study the vote for a sample of 75 countries over 27 years. There are two models (two hypotheses): 'the government constraint hypothesis: openness reduces voter tendencies to hold incumbent policy makers responsible'; in that case, the higher (resp. lower) the degree of

openness of the economy, the smaller influence (resp. larger) the national economic situation has on popularity (see estimations, table 3). In this hypothesis, we assume that voters have an unfounded degree of ignorance. ‘The government competence hypothesis: the interaction of the economy with openness should show no effect or even be positive’ and, in this hypothesis, we assume that voters are sophisticated and that the government has the capacity to influence the economic situation under globalization (see estimations, table 2).<sup>10</sup> Hellwig (2007) used international economic variables and showed the positive influence of trade or capital flows (measure of economic openness) in the variance equation of the President’s popularity; on the other hand, these two international economic variables were not significant in the mean equation (GARCH model). Since the beginning of the 2000’s, some articles and books have studied the influence of economic conditions in globalized economies and the main result is that voters reward / punish less when the economies are highly globalized: see notably Hellwig (2001), Hellwig and Samuels (2007), and Duch and Stevenson (2008, 2010). Maloney and Pickering (2015) have taken into account the influence of the global economy and have found favorable results for sophisticated voters (the economic variable is calculated with the difference between the national economy and global economy).

The (grievance) asymmetry hypothesis was originally developed for the vote function in the elections of the American Congress by Bloom and Price (1975). A theoretical presentation is proposed by Nannestad and Paldam (1997). Voters are supposed to have an asymmetric behaviour: they reward less a government for good economic performances than they punish it for bad economic results.<sup>11</sup> Usually, unfavourable or mixed results are found for the asymmetric behaviour for the economic vote: Nannestad and Paldam (1994), and Lewis-Beck and Stegmaier (2013). This asymmetric behaviour hypothesis can be also studied for popularity functions: Headrick and Lanoue (1991) find unfavourable results for the asymmetric behaviour for government popularity in Great Britain. Dassonneville and Lewis-Beck (2014) show that governments (359 elections in 31 European countries) are punished more for bad economic policy during economic crisis (negative GDP growth) than they are rewarded for good economic policy during an economic boom (positive GDP growth).

### **3. The choice of the dependent variable and the econometric model**

In this article, we choose the difference between the popularity of the Left (approximated by the popularity of the Socialist party) and the popularity of the Right (the average of the popularity of the UDF and the RPR parties for the 1982Q4-2002Q3 period and the popularity of the UMP since 2002Q4) for the dependent variable. The popularity data for the French political parties are from the *TNS SOFRES* (and then, *Kantar TNS*) barometer published by the Figaro Magazine, monthly data until July, 2008 and then, quarterly data since September, 2008 (the third month of a quarter). This popularity data for the French political parties is the percentage of people having a good opinion for a party.

The vote for the Left is studied in particular by Lewis-Beck et al. (2008), and Nadeau et al. (2010) for the French presidential elections and notably by Rosa and Amson (1976) and Lewis-Beck (1985) for the French legislative elections. The vote for the Left is better explained than the vote for the Right because the electorate of the Left appears to be more homogeneous than the electorate of the Right: it is notably connected to the important weight of the National Front (National Rally) vote in the right-wing vote with voters of the National Front who are for approximately 25 per cent of the former voters of the Left: these voters are not close to the moderate Right.<sup>12,13</sup> We study here the relative popularity between the Left and the Right because our works on the French presidential and legislative elections show that this popularity index is better than the popularity of the Left to study the vote for the Left at the presidential and legislative elections (the relative popularity of the Left is important and not only the absolute popularity level of the Left since the 2007 French national elections).

Lafay and Servais (2000) also use this dependent variable to study the influence of scandals on the political parties and on the vote. Swank (1995) uses a logit model to study the popularity of the American political parties and the dependent variable is  $lpop = \text{Log}(\text{pop}(d)/\text{pop}(r))$  where  $\text{pop}(d)$  and  $\text{pop}(r)$  are respectively the proportion of approval for the democratic (resp. republican) party.

The choice of the vote for the Left and the popularity of the Left or the difference between the popularity of the Left and the Right ensures us to test the usual hypothesis of reward-punishment behaviour (by multiplying the economic variables by 1 when the Left is the parliamentary majority and by -1 when the Right is the parliamentary majority); the usual hypothesis of reward-punishment behaviour has inverse consequences for the parliamentary opposition. With this dependent popularity variable, it's also natural to test the hypothesis of a partisan behaviour for voters. The usual hypothesis of retrospective voting (reward-punishment model) has been criticized and the choice of this dependent variable also enables us to take into account the partisan hypothesis.

As in numerous articles we use a first-order autoregressive model to estimate a popularity function.

#### 4. Estimations

We used over the 1981Q2-2017Q1 period an autoregressive model of order 1. The dependent variable is:  $\text{POPLR} = \text{POPL} - \text{POPR}$ : the difference between the popularity of the Left and the popularity of the Right.<sup>14,15,16</sup>

Voters are supposed to be myopic and the estimated coefficient of the lagged popularity variable is about 0.80; that means that voters take less into account the past economic performances than the more recent economic performances (the most recent and the two most recent unemployment variables ensures us to take into account more than 20 per cent and more than one third of the influence of the economic situation; and the unemployment variables of the last two years enables us to take into account about 85 per cent of the influence of the economic situation). Voters are supposed to be naive because they don't distinguish the effect of luck (national economic situation) from competence (the difference between the national economic situation and the global economic situation).

The independent variables are economic or political variables. We use the first difference ( $\Delta$ ) of the independent economic variables  $\text{UNEMN}$ ,  $\text{GGDPN}$  and  $\text{INFLN}$ ;  $I$  is a partisan variable,  $I$  is equal to 1 when the Left is the parliamentary majority and  $I$  is equal to -1 when the Right is the parliamentary majority.  $\text{UNEMN} \times I$  is equal to  $\text{UNEMN}$  when the Left is the parliamentary majority and is equal to  $-\text{UNEMN}$  when the Right is the parliamentary majority,  $\text{UNEMN}$  is the quarterly national unemployment rate (quarterly average, France, *OECD*, *csa*)<sup>17</sup> and we are expecting a negative influence of the  $\text{UNEMN} \times I$  independent unemployment variable on the dependent popularity variable ( $\text{POPLR}$ );  $\text{INFLN} \times I$  is equal to  $\text{INFLN}$  when the Left is the parliamentary majority and is equal to  $-\text{INFLN}$  when the Right is the parliamentary majority,  $\text{INFLN}$  is the quarterly national inflation rate (quarterly average, France, *OECD*, *csa*) and we are expecting a negative influence of the  $\text{INFLN} \times I$  independent inflation variable on the dependent popularity variable ( $\text{POPLR}$ );  $\text{GGDPN} \times I$  is equal to  $\text{GGDPN}$  when the Left is the parliamentary majority and is equal to  $-\text{GGDPN}$  when the Right is the parliamentary majority,  $\text{GGDPN}$  is the annual growth rate (France, *OECD*, *csa*) and we are expecting a positive influence of the  $\text{GGDPN} \times I$  independent growth variable on the dependent popularity variable ( $\text{POPLR}$ ).

$\text{HM} \times I$ ,  $\text{ELEC}$  and  $\text{CONG}$  are the independent political variables.  $\text{HM} \times I$  is a honeymoon variable equal to 2 during the first quarter after the appointment of a left-wing Prime Minister after a victory in the presidential election or in the legislative elections (1988Q2 and 1997Q2) and equal to 1 during the second quarter after the appointment of a left-wing Prime Minister

after a victory in the French presidential election or in the French legislative election (1988Q3 and 1997Q3), equal to -2 during the first quarter after the appointment of a right-wing Prime Minister after a victory in the French presidential elections or in the French legislative elections (1986Q2, 1993Q2, 1995Q2, 2002Q2 and 2007Q2) and equal to -1 during the second quarter after the appointment of a right-wing Prime Minister after a victory in the French presidential election or in the French legislative election (1986Q3, 1993Q3, 1995Q3, 2002Q3 and 2007Q3). We are expecting positive effects of the honeymoon on the popularity of the party in power. ELEC is an electoral variable equal to 1 in 1998Q2, 2004Q2 and 2010Q2 after the 1998, 2004 and 2010 French regional elections won by the Left and equal to -1 in 2009Q2 after the 2009 French European election (unfavorable election result for the Socialist party). We are expecting negative effects of the outcomes of these second-order elections. CONG is equal to 1 in 1990Q2 (Rennes Congress), 2005Q4 (Le Mans Congress) and 2008Q4 (Reims Congress) taking into account the negative consequences of some congresses of the Socialist party on its popularity.

When we suppose that voters are naive (closed economy), we study the effect of the national economic situation<sup>18</sup> on the popularity; with the hypothesis of reward-punishment behaviour according to the responsibility hypothesis, the expected signs for the estimated coefficients are:  $\hat{\alpha}_2 < 0$ ,  $\hat{\alpha}_3 > 0$  and  $\hat{\alpha}_4 < 0$  ( $\alpha_2\Delta UNEMN_{t-1}\times I + \alpha_3\Delta GGDP_{t-1}\times I + \alpha_4\Delta INFLN_{t-1}\times I$ ).

We obtain the following estimations over the 1981Q2-2017Q1 period (table 1):<sup>19</sup>

Table 1 Regression of popularity, reward / punishment model 1981Q2-2017Q1

Variable	1	1a
Constant	1.96 (3.54)***	1.96 (3.61)***
POPLR <sub>t-1</sub>	0.80 (21.09)***	0.80 (21.36)***
$\Delta UNEMN_{t-1}\times I$	-5.69 (-3.13)***	-5.70 (-3.25)***
$\Delta INFLN_{t-1}\times I$	0.04 (0.05)	
$\Delta GGDPN_{t-1}\times I$	0.03 (0.05)	
HM $\times I$	3.82 (5.23)***	3.82 (5.29)***
ELEC	11.34 (4.57)***	11.35 (4.82)***
CONG	-6.03 (-2.20)**	-6.03 (-2.22)**
N	144	144
Ad. R <sup>2</sup>	0.82	0.82
SC	6.14	6.07
h	-0.94	-0.94
JB	2.79	2.77

Common notes for Tables 1 to 4

\*\*\* significant at 1 per cent level. \*\* significant at 5 per cent level.

\* significant at 10 per cent level;

N: Number of observations; Ad. R<sup>2</sup>: adjusted R-squared;

SEE: standard error of the estimate; SC: Schwarz criterion (calculated with Eviews 9);

h: test of Durbin

According to the estimation (1a), an increase (resp. a decrease) in the national unemployment rate of 0.1 point when the Left is the parliamentary majority leads to a decrease (resp. increase) in the POPLR popularity rating by about 0.57 point a quarter later and leads to a decrease (resp. increase) in the POPLR popularity rating of 2.35 points over two years. Inflation and economic growth don't have a significant influence in the estimation (1); the estimated coefficients of the INFL and GDPL variables have the expected sign but are not significant at the 10 per cent level; the significance of these coefficients is very low.

The HMLR2, ELEC and CONG political variables are significant with the expected effect.<sup>20</sup>

We can test the partisan model without any link with the economic variables with a I (partisan) variable; as in models of Fair (1978), and Borooah and Van der Ploeg (1982) notably; the utility of every voter depends on a partisan component: loyalty of voters for a party and on economic performances of the governing party. We can also test the direct interests model (estimations 3 and 3a or 1a) in which voters have different preferences.

As Swank (1993, 1998) and Letterie and Swank (1997), the partisan economic variables are: the partisan unemployment variable:  $\text{Left} \times \Delta \text{UNEMN}_{t-1} \times I - (1 - \text{Left}) \times \Delta \text{UNEMN}_{t-1} \times I = \Delta \text{UNEMN}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta \text{UNEMN}_{t-1} \times I$  when the Left is the parliamentary opposition with  $\text{Left} = 1$  when the Left is the parliamentary majority and  $= 0$  when the Left is the parliamentary opposition; the partisan inflation variable:  $\text{Left} \times \Delta \text{INFLN}_{t-1} \times I - (1 - \text{Left}) \times \Delta \text{INFLN}_{t-1} \times I = \Delta \text{INFLN}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta \text{INFLN}_{t-1} \times I$  when the Left is the parliamentary opposition.

When we study the hypothesis of partisan voting (the unemployment or inflation competence or the direct interests model), the expected signs for the estimated coefficients are:  $\hat{\alpha}_4 > 0$  and  $\hat{\alpha}_5 < 0$  ( $\alpha_4 \Delta \text{UNEMN}_{t-1} + \alpha_5 \Delta \text{INFLN}_{t-1}$ ).



We obtain the following estimations over the 1981Q2-2017Q1 period (table 2):

Table 2 Regression of popularity, reward / punishment and partisan models 1981Q2-2017Q1

Variable	2	2a	3	3a or 1a
Constant	1.87 (3.42)***	1.89 (3.49)***	2.17 (3.77)***	1.96 (3.61)***
POPLR <sub>t-1</sub>	0.81 (21.06)***	0.81 (21.22)***	0.78 (20.38)***	0.80 (21.36)***
$\Delta$ UNEMN <sub>t-1</sub> ×I	-5.33 (-2.95)***	-5.26 (-2.98)***	-5.10 (-2.73)***	-5.70 (-3.25)
$\Delta$ INFLN <sub>t-1</sub> ×I	0.15 (0.19)		0.17 (0.21)	
$\Delta$ UNEMN <sub>t-1</sub>			-2.76 (-1.43)	
$\Delta$ INFLN <sub>t-1</sub>			0.09 (0.11)	
I	-0.74 (-1.70)*	-0.73 (-1.69)*		
HM×I	4.19 (5.57)***	4.18 (5.59)***	3.91 (5.37)***	3.82 (5.29)***
ELEC	11.10 (4.67)***	11.16 (4.76)***	10.52 (4.25)***	11.35 (4.82)***
CONG	-6.40 (-2.36)**	-6.38 (-2.36)**	-5.91 (-2.17)**	-6.03 (-2.22)**
N	144	144	144	144
Ad. R <sup>2</sup>	0.82	0.82	0.82	0.82
SC	6.12	6.08	6.16	6.07
h	-1.44	-1.42	-0.93	-0.94
JB	2.64	2.57	3.44	2.77

The estimation (2a) shows that the I variable is significant at the 5 per cent level with a negative estimated coefficient but the popularity of the Left is higher than the popularity of the Right over the 1981:2-2017:1 because it is necessary to take into account the influence of the change of the unemployment rate which declined more (resp. increased less) with the Left in government than with the Right; the estimated coefficient is lower in absolute value than in the estimation (1a). The estimation (3) shows that the partisan model of Swank doesn't give favourable results because the estimated coefficient of the  $\Delta$ UNEMN<sub>t-1</sub> variable has not the expected sign: the sign is negative (and not significant) while a positive sign is expected.

When we take into account the degree of openness of the economy (estimations 4 and 4a), we use the following independent economic variables for the estimations (4) and (4a): OE is equal to the ratio between the sum of the exports and imports and the GDP (*INSEE* data),  $\Delta$ UNEMN<sub>t-1</sub>×I×OE<sub>t-1</sub> is equal to UNEMN<sub>t-1</sub>×OE<sub>t-1</sub> when the Left is the parliamentary majority and is equal to -UNEMN<sub>t-1</sub>×OE<sub>t-1</sub> when the Right is the parliamentary majority; OE<sub>t-1</sub>×I is equal to OE<sub>t-1</sub> when the Left is the parliamentary majority and is equal to -OE<sub>t-1</sub> when the Right is the parliamentary majority.

The influence of the  $\Delta$ INFLN×I,  $\Delta$ INFLN×I×OE,  $\Delta$ GDPN×I and  $\Delta$ GDPN×I×OE economic independent variables is not significant (see also estimation 1, table 1).

When we take into account the degree of openness of the economy, the expected signs for the estimated coefficients are:  $\hat{\alpha}_3 < 0$  with the government constraint hypothesis, or  $\hat{\alpha}_3 > 0$  with the government competence hypothesis with sophisticated voters, ( $\alpha_3 \Delta \text{UNEMN}_{t-1} \times \text{I} \times \text{OE}_{t-1}$ ).

We obtain the following estimations over the 1981Q2-2017Q1 period (table 3):

Table 3 Regression of popularity, the degree of openness of the economy 1981Q2-2017Q1

Variable	4	4a
Constant	1.92 (3.56)***	1.86 (3.44)***
POPLR <sub>t-1</sub>	0.81 (21.62)***	0.81 (21.51)***
$\Delta \text{UNEMN}_{t-1} \times \text{I}$	-14.48 (-2.16)**	-5.49 (-3.15)***
$\Delta \text{UNEMN}_{t-1} \times \text{I} \times \text{OE}_{t-1}$	21.61 (1.39)	
$\text{OE}_{t-1} \times \text{I}$	-1.48 (-1.68)*	-1.66 (-1.89)*
$\text{HM} \times \text{I}$	3.76 (5.28)***	3.75 (5.25)***
ELEC	10.60 (4.48)***	11.21 (4.80)***
CONG	-6.47 (-2.40)**	-6.52 (-2.41)**
N	144	144
Ad. R <sup>2</sup>	0.82	0.82
SC	6.10	6.08
h	-1.42	-1.41
JB	1.74	2.34

The degree of openness of the economy is directly taken into account by the OE×I variable: the estimated coefficient has the expected sign (negative) and the openness of the economy has directly a negative influence on the popularity: -0.44 to -1.07 depending on the value of the OE and OE×I variables and also has an indirectly negative influence because the estimated coefficient of the  $\Delta \text{UNEMN} \times \text{I}$  variable is slightly lower in absolute value than in the estimation (1).<sup>21</sup> The estimation (4) shows that the  $\Delta \text{UNEM} \times \text{I} \times \text{OE}$  variable is not significant at the 10 per cent level, thus taking into account the degree of openness of the economy shows favourable results for the government competence hypothesis and unfavourable results for the government constraint hypothesis. According to the estimation (4a), a quarterly change in the national unemployment rate of 0.10 point leads to a decrease in the POPLR popularity rating by about 0.55 point a quarter later and leads to a decrease (resp. increase) in the POPLR popularity rating of 2.43 points over two years.

Empirically the asymmetry hypothesis can be studied in different ways that are similar. Bloom and Price (1975) make three estimations: the first for elections preceding by declining income, the second for elections preceding by rising income (the percentage change in real capita), and the third for all elections: their results show that the impact of the percentage change of income is stronger with a declining income than with a rising income. Dassonneville and Lewis-Beck (2014) use a variable for negative GDP growth and a variable for positive GDP

growth: their results show also that the effect of GDP growth is asymmetric and is stronger when the GDP growth is negative. Cho and Young (2002) use simultaneously these two positive and negative variables to study the influence of the unexpected inflation on the popularity of the American president and find favourable results for the asymmetry hypothesis. Another possibility is to use simultaneously an economic variable and the absolute value of this variable as Maloney and Pickering (2015) make for the vote and find favourable results for the raw economic growth and for the cyclical component of GDP. Headrick and Lanoue (1991) use this method with unemployment levels to study the asymmetry hypothesis for the government popularity in Great Britain.

The asymmetry economic variables are: the asymmetry unemployment variables (positive and negative):  $\Delta\text{UNEMNP}_{t-1} \times I = \Delta\text{UNEMNP}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta\text{UNEMNP}_{t-1}$  when the Right is the parliamentary majority;  $\Delta\text{UNEMNN}_{t-1} \times I = \Delta\text{UNEMNN}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta\text{UNEMNN}_{t-1}$  when the Right is the parliamentary majority; the asymmetry inflation variables (positive and negative):  $\Delta\text{INFLNP}_{t-1} \times I = \Delta\text{INFLNP}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta\text{INFLNP}_{t-1}$  when the Right is the parliamentary majority;  $\Delta\text{INFLNN}_{t-1} \times I = \Delta\text{INFLNN}_{t-1}$  when the Left is the parliamentary majority and  $= -\Delta\text{INFLNN}_{t-1}$  when the Right is the parliamentary majority.

When we study the asymmetry hypothesis, the expected signs for the estimated coefficients are:  $\hat{\alpha}_2 < 0, \hat{\alpha}_3 > 0$  and  $\hat{\alpha}_4 < 0, \hat{\alpha}_5 > 0$  ( $\alpha_2\Delta\text{UNEMNP}_{t-1} \times I + \alpha_3\Delta\text{UNEMNN}_{t-1} \times I + \alpha_4\Delta\text{INFLNP}_{t-1} \times I + \alpha_5\Delta\text{INFLNN}_{t-1} \times I$ ).

We obtain the following estimations over the period 1981Q2-2017Q1 (table 4):

Table 4 Regression of popularity, the asymmetric hypothesis 1981Q2-2017Q1

Variable	5	5a
Constant	1.81 (3.22)***	1.74 (3.21)***
POPLR <sub>t-1</sub>	0.82 (19.99)***	0.83 (21.83)***
$\Delta\text{UNEMNP}_{t-1} \times I$	-7.15 (-2.65)***	-7.61 (-3.36)***
$\Delta\text{UNEMNN}_{t-1} \times I$	-3.10 (-0.95)	
$\Delta\text{INFLNP}_{t-1} \times I$	-0.52 (-0.30)	
$\Delta\text{INFLNN}_{t-1} \times I$	0.11 (0.11)	
HM $\times I$	3.71 (5.03)***	3.72 (5.16)***
ELEC	11.47 (4.71)***	11.59 (4.91)***
CONG	-6.18 (-2.26)**	-6.14 (-2.27)**
N	144	144
Ad. R <sup>2</sup>	0.82	0.82
SC	6.16	6.06
h	-1.31	-1.32
JB	2.82	2.83

The estimation (5) shows that the coefficient of the  $\Delta\text{UNEMNP}\times\text{I}$  variable is negative (expected sign) and significantly different from 0 at the 5 % level while the coefficients of other  $\Delta\text{UNEMNN}\times\text{I}$ ,  $\Delta\text{INFNP}\times\text{I}$  and  $\Delta\text{INFNN}\times\text{I}$  variables are not significantly different from 0 at the 10 per cent level. Particularly, the estimated coefficient of the  $\Delta\text{UNEMNN}\times\text{I}$  variable is negative (it is not the expected result) but not significantly different from 0 at the 10 per cent level. According to the estimation (5a), a positive increase in the national unemployment rate of 0.1 point when the Left is in the government leads to a decrease in the POPLR popularity rating by about 0.76 point a quarter later and leads to a decrease in the POPLR popularity rating of 3.06 points over two years. An expected result is that the estimated coefficient of the  $\Delta\text{UNEMNN}\times\text{I}$  variable is greater in absolute value than of the  $\Delta\text{UNEMNP}\times\text{I}$  variable (voters punish more than they reward); this expected result is partly found here and, in this article, we find the result: punishment without reward.

Among all the estimations, the estimations (1), (2a), (4a) and (5a) have nearly the same statistical indicators and we do not show the interest for taking into account the openness of the economy. We also note that the estimated coefficient of the unemployment variable is nearly the same in the estimations (1a) and (4a).

## 5. Conclusion

In this article, we build and estimate some popularity functions for the French political parties over the 1981Q2-2017Q1 period (quarterly data). As in numerous articles, we first suppose that voters have a retrospective behaviour according to the responsibility hypothesis and that voters are naive in a closed economy. The change in the unemployment rate has a significative influence on the popularity according to the reward / punishment hypothesis. We also study the partisan model but the results obtained are not favorable for this hypothesis. Then, we compare the obtained results between a closed economy and an opened economy by taking account the degree of openness of the economy. We do not show the interest for taking into account the degree of openness of the economy because the statistical indicators are similar to those of the first retained estimation. We also find partly favorable results for the asymmetry hypothesis (table 4): punishment for bad economic performance without reward for good economic performance.

In Auberger (2016), we make some estimations over the 1981-2014 period and we don't clearly show that voters are sophisticated and distinguish the effect of luck (national economic situation) from the competence (the difference between the national economic situation and the global economic situation). We find only very slightly favourable results for the sophisticated voters hypothesis (assuming that voters distinguish trends and cycles for each economic variable). We do not clearly show the interest to take into account the degree of openness of the economy. This analysis should be further developed for the French popularity function. We can also use the literature of the political cycles models: see notably Alesina and Rosenthal (1995) and Alesina et al. (1997), Duch and Stevenson (2008, 2010), Aytac (2018) and Arel-Bundock et al. (2019) and make a comparison with the vote at the French national elections and for a sample of countries and elections (future research).

For future research, it is also possible to consider working with a sample of countries by testing the partisan model and the model with the asymmetry hypothesis. The partisan model can be tested as in Dassonneville and Lewis-Beck (2013) notably; we could also compare the obtained results between popularity functions and vote functions. A more sophisticated analysis for the ideology variable is also possible: some preliminary estimations don't show that taking into account the position of the median voter leads to a significant ideology variable.

We could develop the study of the asymmetry hypothesis by using more advanced econometric models (threshold models) as Kappe (2018) made it for the government popularity

in United Kingdom or micro level data as Enkelmann (2014) made it for the government popularity in Germany. We could also compare the obtained results for the asymmetry hypothesis with Dassonneville and Lewis-Beck (2014) for voting in a sample of countries.

Since the 2017 French elections (presidential and legislative), there is the new *LREM* political party which is neither classified on the Left nor on the Right. Thus, we can estimate another popularity functions for *LREM* and *FN*, extreme Right (since 2018, *RN*) French political parties. For the *LREM* party, the political situation seems to have some similarities with the political situation in United Kingdom with the *Liberal Democrat* party, see notably, Sanders (2005); the *LREM* party has higher voting intention polls in France than the *Liberal Democrat* party in United Kingdom.

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## Notes

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2 In the model of Hibbs (1981), voters judge economic performance of the government in a relative way by comparing it with the previous party and government and voters are not very myopic and take into account economic performance over the last four years.

3 Since the 2007 French presidential election, the popularity of the Left (approximated by the popularity of the Socialist party) isn't a good predictor of the vote for the Left at the second round of the French presidential election.

4 As the popularity variable is not simply a political variable but has an economic part, we shall mention it explicitly when it is used.

5 According to Lewis-Beck and Paldam (2000), voters have more retrospective behaviour than forward-looking behaviour but the difference between these two models is weak.

6 In the partisan political cycles originally developed for the United States, the left-wing party (democratic) attaches more importance to the fight against unemployment and the right-wing party (republican) attaches more importance to the fight against inflation.

7 Kayser and Grafstrom (2019) distinguish four voting models: the unemployment competence (direct interests), the growth competence, the class interests of Peltzman (1992), and the material issues models.

8 Kayser and Grafstrom (2019) write that a variant of this argument is to suppose that left-wing parties hold a reputation for competence in the fight against unemployment and right-wing parties in the fight against inflation.

9 Letterie and Swank (1997), and Swank (1998) construct a complete model with partisan and competence (reward-punishment) variables.

10 The results of Hellwig and Samuels (2007) seem favourable for 'the government constraint hypothesis' but it would be necessary to compare these results with those obtained with an estimation with economic variables without the interaction of the economy with openness.

11 Nannestad and Paldam (1997) and Enkelmann (2014) write that from a rational choice perspective, the (grievance) asymmetry simply reflects the fact that people are risk-averse.

12 Fair (1978) uses as the dependent variable the vote for the democratic candidate at the American presidential elections and details a theoretical model of electoral choice.

13 The most used dependent variable is the popularity of the president or of the prime minister (this is closely links to the vote for the outgoing presidential or parliamentary majority). Pissarides (1980), Borooah and van der Ploeg (1982) and Borooah and Borooah (1990) use as the dependent variable the difference between the popularity of the government and the popularity of the opposition. Borooah and van der Ploeg (1982), and Borooah and Borooah (1990) explain the choice of the dependent variable with a theoretical model (a logit model).

14 We retain the data of the third month of every quarter when the data were monthly.

15 Unit root tests for the popularity dependent variable POPLR have given the following results: with the ADF (augmented Dickey-Fuller) and the SIC or modified SIC criterion, the Phillips-Perron, the KPSS tests, the POPLR

series has not a unit root at 5 per cent level; the Perron test with an endogenous break point at 1996Q4 (with a break in the level or in the slope). The different unit root tests show that the  $\Delta$ POPLR series is stationary at 5 per cent level. Unit root tests for the UNEMN, GGDPN and INFLN economic independent variables have given the following results: with the ADF (augmented Dickey-Fuller) and the SIC or modified SIC criterion, the Phillips-Perron tests, the results are ambiguous for the UNEMN, GGDPN series and the INFLN series is stationary at 5 per cent level; the different unit root tests show that the  $\Delta$ UNEMN and  $\Delta$ GGDPN series are stationary at 5 per cent level.

16 We use this popularity index for the French presidential elections (1981-2012) and a quite similar popularity index:  $(\text{POPL} + \text{POPLR})/2$  for the French legislative elections (1986-2012 and 1986-2017), see Auberger (2018).

17 We use *OCDE* data for the unemployment rate because, with *INSEE* data, the unemployment rate may not be known until two months after the end of a quarter.

18 When we suppose that voters are sophisticated, we study the effect of the difference between the national economic situation and the global economic situation on popularity. With this hypothesis, the government has the capacity to influence a globalized economy and must have better economic performances than the global economy. The results obtained (statistical indicators) are not clearly different (more satisfactory) than with only the national economic situation, see Auberger (2016); then it's not necessary to suppose that voters are sophisticated. We also note that the estimated coefficient of the unemployment variable in a globalized economy is very slightly lower in absolute value than in a closed economy (1981Q2-2014Q4).

19 The clarity of responsibility variables are not significant at 10 per cent level ( $\text{ENEP} \times I$  and  $\text{NPG} \times I$ ) where the ENEP variable is the effective number of parties in parliament and the NPG variable is the number of parties in government. Dassonneville et Lewis-Beck (2014) don't multiply the ENEP and NPG variables by I (equals to 1 or to -1) while they study the vote for the Left and we can question this. However, these variables seem questionable when we don't multiply them by an economic variable to study their influence but then there may be a multicollinearity problem.

20 For the honeymoon variable, different variables have been tested with similar results.

21 The estimated coefficients of the  $\Delta$ GDPL,  $\Delta$ GDPLOE,  $\Delta$ INFLNL and  $\Delta$ INFLNLOE variables aren't significant at 10 per cent level.

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## Appendix

Table 1 Descriptive Statistics of Variables (1981Q2–2017Q1)

Variable	No. obs.	Mean	S.D.	Min.	Max.
POPLR	144	9.90	10.83	-18.50	43.00
$\Delta$ UNEMN	144	0.02	0.22	-0.50	0.80
$\Delta$ INFLN	144	-0.08	0.51	-2.70	1.10
$\Delta$ GGDPN	144	0.01	0.65	-2.00	2.10
OEL	144	0.43	0.12	0.26	0.64
$\Delta$ UNEMN $\times$ OEL	144	0.00	0.10	-0.32	0.41
$\Delta$ UNEMNP	144	0.10	0.15	0.00	0.80
$\Delta$ UNEMNN	144	-0.07	0.12	-0.50	0.00
$\Delta$ INFLNP	144	0.14	0.24	0.00	1.10
$\Delta$ INFLNN	144	-0.22	0.37	-2.70	0.00
HM	144	0.19	0.53	0.00	2.00
ELEC	144	0.01	0.17	0.00	1.00
CONG	144	0.02	0.14	0.00	1.00