The 2000 Annual Meeting of the European Public Choice Society

(EPCS20)

Popularity functions for Portugal

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Abstract

The paper analyses the political and economic determinants of the Portuguese political entities' popularity, following Veiga (1998), the only published study on popularity functions for Portugal. After a description of the recent evolution and structure of the Portuguese political system, popularity functions are estimated for the Assembly, Government, Prime Minister, and President, using OLS, ARIMAX and SUR with AR components. Strong evidence is found in favor of the responsibility hypothesis, with inflation and, especially, unemployment affecting popularity levels. Results support the existence of popularity erosion over consecutive terms and of honeymoon effects. Ideological issues or support in parliament do not seem to be taken into account in the evaluations of incumbents' economic performance.

JEL codes: H80, E31, E60.

Keywords: popularity functions, inflation, unemployment, Portugal.

1. Introduction

Although the international literature on the influence of economic conditions on the popularity of politicians and electoral results is extensive and started several years ago,[1] there is, to our knowledge, only one published paper about the Portuguese case. Veiga (1998) analyzed whether economic conditions influenced the popularity of the four main Portuguese political entities, during 10 years of social democratic governments, under the leadership of Cavaco Silva (1986-95). Her results indicate that: (1) popularity polls for the Prime Minister and Government are better explained by economic conditions than similar polls for the Parliament and the President; (2) unemployment is a significant variable determining popularity while inflation is not; (3) honeymoon effects are significant; and, (4) popularity deteriorates over consecutive terms.

The period after 1995 has not yet been investigated. The socialist party, under the leadership of António Guterres, won the elections held in October 1995. The resulting socialist minority government remained in office during the entire term and won a second election on October 1999, obtaining exactly 50% of the seats in Parliament. Therefore, this is the perfect timing to investigate whether the main determinants of popularity remained the same. We start by describing the evolution and structure of the Portuguese political system in order to provide some background to the analyses performed. The following section presents the data set used in the paper. The empirical work is reported in section 5. We started by replicating Veiga's (1998) specification and then performed some fine-tuning of the econometric work. Finally, the conclusions are discussed along with directions for future research.

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[1] Seminal papers are Goodhart and Bansali (1970), Kramer (1971) and Mueller (1971). See Nannestad and Paldam (1994) for a survey on the topic.

2. The Portuguese political system since April 25, 1974[2]

In a bloodless coup on April 25, 1974, the Armed Forces Movement (*Movimento das Forças Armadas – MFA*), a group of mainly left-wing military officers, seized power and put an end to the so-called New State (*Estado Novo*), an authoritarian regime that lasted 48 years. In the two following years, the country was run by the Junta of National Salvation (replaced by the Council of the Revolution on March 1975), there were six temporary governments and two presidents, independence was given to the African Overseas Territories, two military uprisings took place (on March and November, 1975), and elections for the Constituent Assembly, that would prepare and approve a new constitution, were held on April 1975.

The new constitution came into effect on April 25, 1976, and elections for the Assembly of the Republic, the Portuguese unicameral parliament, were held on the same day. Two months later, on June 27, General Ramalho Eanes, an independent military candidate, was elected President of the Republic. He then invested a minority government led by Mário Soares, the leader of the socialist party, on July 16. Eleven years of great political instability followed, during which about ten minority and coalition governments came short of completing their terms and five legislative elections took place. After two terms of Ramalho Eanes as President of the Republic, Mário Soares won the second runoff of the most disputed presidential election so far (on February 16, 1986), to become the first civilian head of state in 60 years.

On July 19, 1987, the Social Democratic Party (PSD) managed to become the first political party in the thirteen years since the fall of dictatorship to win an absolute majority of seats in parliament. Cavaco Silva, who had led a minority government in the two

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[2] For a more complete description of the evolution and structure of the Portuguese political system, see several issues of Arthur Banks' *Political Handbook of the World* and the *World Europa Yearbook*.

previous years, was able to form an all-PSD government, and be the first prime minister since 1974 to complete his term. He was then reelected by an overall majority of the electorate on October 1991, ruling the country for another four years.

Table 1. **Legislative elections and parties in government**

Dates	Winning party	Share in Parliament	Prime Minister	Form of government
April 25, 1976	PS	43%	Mário Soares	One party, minority
December 2, 1979	AD=PSD+CDS+PPM	51%	Sá Carneiro	Coalition
October 5, 1980	AD=PSD+CDS+PPM	54%	Sá Carneiro	Coalition
April 25, 1983	PS	40%	Mário Soares	Coalition (PS+PSD)
October 5, 1985	PSD	34%	Cavaco Silva	One party, minority
July 19, 1987	PSD	59%	Cavaco Silva	One party
October 6, 1991	PSD	58%	Cavaco Silva	One party
October 1, 1995	PS	48%	António Guterres	One party, minority
October 10, 1999	PS	50%	António Guterres	One party

Note: PS – Socialist Party (center left); PSD – Social Democratic Party (center right); CDS – Social Democratic Center (right), PPM – Monarchic Popular Party (right, monarchic).

Economic recession and scandals involving members of government led to a growing erosion of the government's popularity, which prompted Cavaco Silva to abandon the leadership of PSD on January 1995, and prepare his bid for the presidency. The Socialist Party (PS) won the October 1995 elections, coming very close to an overall majority in Parliament (112 of a total of 230 deputies), and António Guterres became prime minister. Three months later, Jorge Sampaio, former mayor of Lisbon and candidate of the socialist party, won the presidential elections against Cavaco Silva.

For the first time since 1974, a minority government managed to stay in power for the entire term. The last legislative elections took place on October 10, 1999, and were again won by the socialists, who got exactly half of the seats in parliament. Although they do not have an overall majority, they cannot be turned down by a no-confidence vote, which means that they are in a good position to stay in power until the 2003 elections.

Table 2. **Presidential elections**

Dates	President (Major opponent)
June 27, 1976	General Ramalho Eanes (Otelo S. de Carvalho)
December 10, 1980	General Ramalho Eanes (Soares Carneiro)
January 26 and February 16, 1986	Mário Soares (Freitas do Amaral)
January 13, 1991	Mário Soares (Basílio Horta)
January 14, 1996	Jorge Sampaio (Cavaco Silva)

Taking the evolution of the political system into account we anticipate a change in the way voters held the political entities responsible for economic conditions before 1995 (period analyzed by Veiga, 1998) and the way they do it afterwards. Recall that the October 1995 elections led to a change from a center-right majority government to a center left minority government.

3. Structure of the Portuguese political system

Since the constitutional revision of 1982 that eliminated the Council of the Revolution, the organs of sovereignty are the President of the Republic, the Assembly of the Republic, the Government, and the Courts.

The President of the Republic is elected by direct and secret universal adult suffrage for a five-year term, using a majoritarian system with a second round runoff

between the two main contenders if none of them got more than 50% of the votes in the first round. Presidential candidates must be Portuguese citizens, 35 or older, who can either run as independents or be the appointed candidate of a political party. No President can serve for more than two consecutive terms.

The main duties of the President are: to serve as the head of State and the Commander-in-Chief of the armed forces; to set the dates of legislative elections after consulting the parties; to appoint the prime minister and the members of the government suggested by the latter; to dissolve the parliament and call for anticipated elections; to promulgate and have published laws, decree-laws and regulations; to veto laws and decrees or send them for appreciation by the Constitutional Tribunal.

The Assembly of the Republic is the Portuguese unicameral parliament, currently composed of 230 deputies elected for a period of four years by direct and secret universal adult suffrage, using a proportional electoral system. The duties of the Assembly include, among others: enacting legislation in all areas except those reserved to the Government; approving amendments to the Constitution; approving the government's general budget and plan of activities; passing motions of confidence or censure to the government; and appointing ten of the thirteen members of the Constitutional Tribunal.

The Government formulates the general policy of the country and is the highest organ of public administration. It therefore has political, legislative, and executive powers. Its legislative power consists of proposing laws to the Assembly and on issuing decrees. The executive power concerns the execution of the general plans of activities and budgets of the State. The Government is responsible to both the President, who can dismiss it, and to the Assembly of the Republic, that must approve its plans and budgets, and may dismiss it by passing a censure motion (a no-confidence vote).

The Government comprises the Prime Minister, generally the leader of the most voted party in the last elections, the Ministers, the Secretaries of State, and the Under-Secretaries of State. The Prime Minister is appointed or dismissed by the President after consulting the political parties and having in mind the election results. The other members of government are appointed by the President at the proposal of the Prime Minister.

Finally, the courts are organs of sovereignty with competence to administer justice in the name of the people. They are independent of the other organs and subject only to law. Their decisions are binding on all public and private institutions and prevail over the decisions of all other authorities.

Since the Government is responsible for the conduct of economic policy, we expect it to be the organ of sovereignty whose popularity depends the most of the performance of the Portuguese economy. Next comes the Prime Minister, who leads the government and is its most visible member. Since the Assembly is usually dominated by the party in government and approves the laws, plans, and budgets proposed by the latter, it may also be held responsible for the performance of the economy. Finally, the President can only veto the laws or decrees proposed by the government or dismiss it. Thus, we expect the popularity of the President to be the least affected by economic performance.

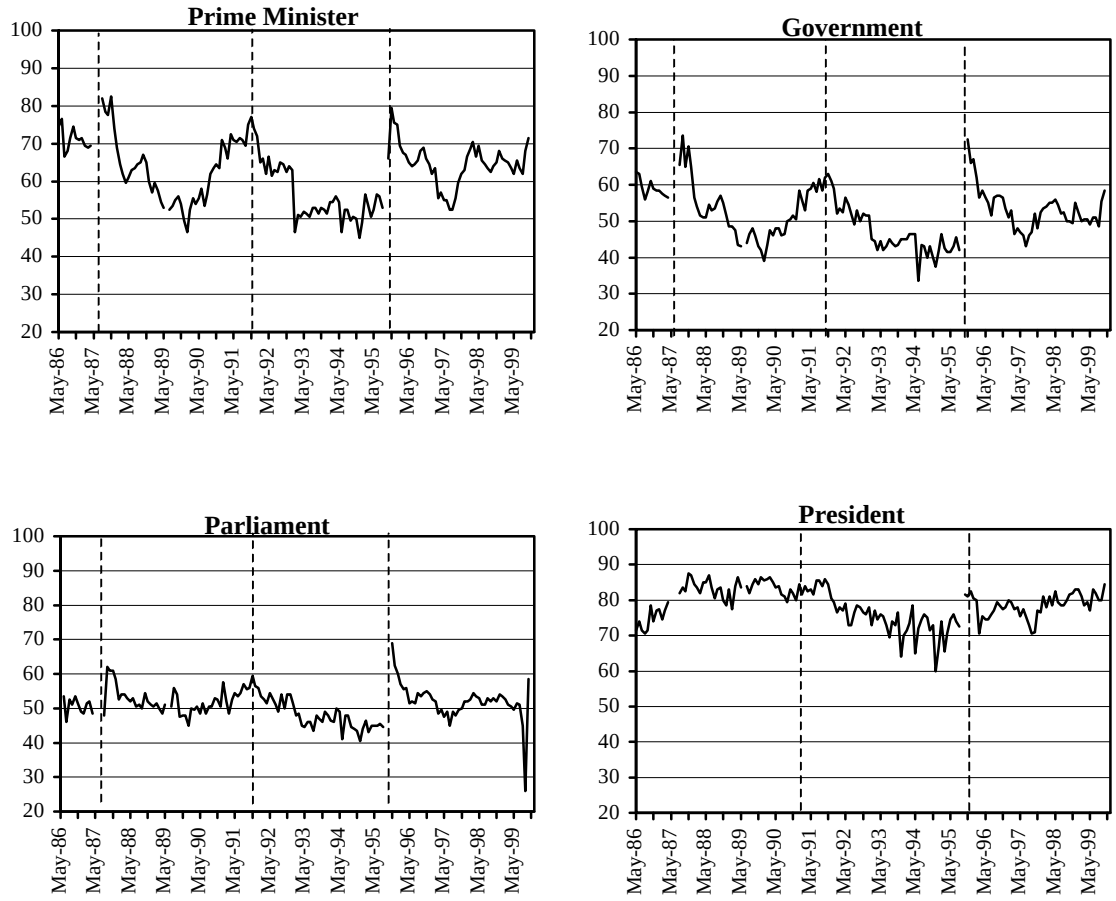
Taking into account the increasing influence of the European Union on domestic policies, especially on monetary issues, we expect the way voters hold national political entities responsible for economic conditions to vary over time.

4. The data

The period analyzed in this paper goes from May 1986 to October 1999 covering three terms of social democratic governments and a term of a socialist government. Popularity data was collected from a weekly national journal called *Expresso*.

Euroexpansão conducts the polls on a monthly basis, by telephone interviews to a representative sample of about 600 Portuguese. Interviewed individuals classify the performance of the Prime Minister, the Government, the Assembly of the Republic, and the President of the Republic as very good (*VG*), fairly good (*FG*) or bad (*B*). Given these series, a popularity index, POP_t, was calculated for each of the four entities as a weighted sum of the three possible answers. Specifically, $POP_t=(2*VG_t+FG_t)/2$.[3] Its values over time for the political entities studied are shown in Figure 1.

Figure 1. **Popularity index**



Note: Vertical hatched lines represent election dates.

[3] Note that the weighted sum of VG_t and FG_t is divided by two instead of three, as in Veiga (1998). This forces the index to be comprised between 0 and 100.

Monthly unemployment rates, seasonally adjusted and standardized, were collected from OECD-Main Economic Indicators. Inflation rates, nominal exchange rates, real effective exchange rates, and the industrial production index were collected from I.M.F. – International Financial Statistics.

5. Empirical Work

Popularity functions explain poll support for incumbent politicians by economic and political variables. Economic variables are included to test the responsibility hypothesis, according to which voters hold politicians responsible for economic conditions. Several economic series have been used in previous studies of popularity functions, but unemployment and inflation are the most commonly used, and also the ones that generate stronger results. The underlying idea is that the evolution of these series affects the utility of voters, who therefore, punish (reward) politicians for increasing (decreasing) unemployment or inflation.[4] The influence of political factors is typically taken into account by including variables to control for the erosion of popularity over time in office, honeymoon effects of the newly elected politician with the electorate immediately after an election and dummy variables to control for personality factors or special events.

The popularity functions we estimate are of the following form:

$$(1) \qquad POP_t = a + b(L)POP_{t-1} + fP_t + hH_t + d_iT_{it} + jE(x_t) + u_t$$

The dependent variable, *POP*, is the popularity index for each of the four political entities. The underlying idea is that popularity levels depend on previous levels of popularity,

[4] Whether voters are forward-looking or backward-looking in their vote decisions will not be an issue for the moment. For simplicity, we assume expectations to be based on competence revealed by politicians in the past. Nannestad and Paldam (1994) state on page 238: "voting is retrospective; but the relevant expectations are very static. Forward looking expectations consequently work equally well."

(L)POP, the Prime Minister or President in office, *P*, honeymoon effects, *H*, the number of terms in office, T_i, and overall economic performance, *E(x)*.

Portugal had two Prime Ministers and two Presidents during the time period considered here. It is possible that the popularity levels they enjoyed depended partly of their personal characteristics. In order to account for personal effects on the popularity of the political entities considered in the present paper, two dummy variables were included in the set of explanatory variables. The first, *GUTERRES*, takes the value of one when António Guterres is the Prime Minister, and zero otherwise. It was included in the estimations for the Prime Minister, Government, and Assembly. The second, *SAMPAIO*, takes the value of one when Jorge Sampaio is the President of the Republic, and zero otherwise. It was included in the estimations of the President's popularity.

Honeymoon effects are captured by a discrete variable, *H*, that takes the value of six in the first month of each term, declining to one in the sixth month, and taking the value of zero thereafter. The hypothesis being investigated is that politicians have higher popularity indexes during the first months of their administration. Since longer time in office is usually associated with erosion of popularity, we expect negative coefficients for the dummy variables representing the second and the third terms in office, when the dummy for the first term is not included in the estimation.

In our basic specification, overall economic performance is captured by the rates of inflation and unemployment. We also tested for the effects of the percentage changes of the industrial production index, the nominal exchange rate, and the real effective exchange rate. The economic variables were always lagged because economic data is released with a time lag, in some cases of a few months, making it impossible for the interviewed people to know their current values.

We proceeded by estimating the model using the OLS method. Then, the time series properties of the series were more properly taken into account applying the Box-Jenkins methodology for model selection, and an ARIMAX model was estimated. Because the popularity of the four entities analyzed is likely to be influenced by common factors, we estimated a system of popularity functions for the four entities by seemingly unrelated regressions (SUR).

5.1. OLS results

Results of OLS estimations are shown in Table 3. The first lag of the popularity index is always highly statistically significant and a second lag is also significant in the estimations for the Government and President. The coefficient associated with the dummy variable *GUTERRES/SAMPAIO* has a negative sign in the four estimations. It is statistically significant in the estimations for the Prime Minister and Government, showing that the popularity of these two entities tended to be smaller when António Guterres was Prime Minister (a socialist government was in office). The same cannot be said about the Assembly, whose popularity does not seem to depend on the Prime Minister or the ideology of the government in office. With respect to the President's popularity, results suggest that it was not affected by the replacement of Mário Soares by Jorge Sampaio on January 1996.

The coefficients associated with the dummy variables that represent the second and the third terms in office (*T2* and *T3*, respectively) have a negative sign in all estimations, as expected. The estimated coefficients are statistically significant in all but one occasion: *T2* is not significant in the estimation for the Assembly. But, *T3* is highly significant in the

same estimation, meaning that there is still evidence in favor of the hypothesis that consecutive terms in office lead to the erosion of popularity.[5]

Table 3: **OLS Results**

	Assembly of the Republic	Government	Prime Minister	President
C	35.31269 (7.05)***	23.38360 (4.54)***	30.05654 (5.53)***	37.74491 (3.44)***
POP(-1)	0.429018 (5.53)***	0.555430 (6.16)***	0.712621 (13.73)***	0.393488 (4.55)***
POP(-2)		0.171121 (1.86)*		0.202317 (2.21)**
GUTERRES SAMPAIO	-0.594510 (-0.61)	-2.938192 (-2.84)***	-3.657721 (-3.02)***	-0.819072 (-0.85)
T2	-0.518927 (-0.47)	-3.509206 (-2.59)**	-5.034330 (-3.65)***	-2.681201 (-2.26)**
T3	-3.329814 (-3.03)***	-5.187273 (-3.54)***	-7.324925 (-4.69)**	
H	1.289120 (3.41)***	0.679571 (2.44)**	1.295563 (3.00)***	0.137430 (0.50)
AvInflation(-2)	-1.654305 (-1.89)*	-1.835005 (-1.82)*	-1.826062 (-1.44)	0.363067 (0.31)
UnempRate (-1)	-0.718405 (-2.73)***	-0.870739 (-2.38)**	-1.164999 (-2.95)***	-0.861265 (-2.01)**
Adjusted R-squared	0.672631	0.822103	0.864471	0.650014
Schwarz criterion	4.817269	5.206359	5.417069	5.368770
F-statistic	40.91905	77.82819	125.8362	36.55327
Durbin-Watson statistic	1.892032	1.926127	1.931813	2.077864

Notes:
- the dependent variable is the popularity of the political entity shown in the column heading;
- t-statistics are in parentheses;
- significance level at which the null hypothesis is rejected: ***, 1%; **, 5%, and *, 10%;
- White Heteroskedasticity-Consistent Standard Errors & Covariance.

Results support the existence of honeymoon effects for all entities except the President. That is, the Assembly, the Government and the Prime Minister had higher levels of popularity at the beginning of their terms (during the first six months in office).

[5] In the case of the Assembly, "consecutive terms in office" means that the same party dominated the parliament over consecutive terms.

There is weak evidence that higher average inflation[6] leads to lower popularity. This variable is only marginally statistically significant for the Assembly and Government (at the 10% level), and is not statistically significant for the Prime Minister and President (and the coefficient has the wrong sign for the latter). Given his very small influence over economic policy, it is not surprising that the President's popularity is not affected by inflation. Much more surprising is the result for the Prime Minister, as we would expect him to be penalized by inflation more or less in the same manner as the Government he leads.

Results reinforce Veiga's (1998) finding that higher rates of unemployment decrease the popularity of the political entities considered. The estimated coefficients have a negative sign, as expected, and are statistically significant in all estimations. Regarding the President, results are a bit surprising given his small influence on economic policy. We would expect his popularity to be the least affected or even unaffected by economic conditions.

Augmented Dickey-Fuller and Phillips-Perron[7] tests were performed in order to check whether the series are stationary. This is very important, since the classical OLS model necessitates that the series are stationary and the errors have a zero mean and finite variance. Thus, in the presence on nonstationary variables, there might be what Granger and Newbold (1974) called a "spurious regression", meaning that OLS results are not reliable. Results of ADF and Phillips-Perron tests, not shown here,[8] indicate that the popularity indexes, the monthly inflation rate, and the unemployment rate are stationary.

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[6] The variable used in the estimations of Table 3 to account for the effects of inflation on popularity levels is the second lag of the four-month moving average of monthly inflation:

$$AvInflation_t=(Inf_t+Inf_{t-1}+Inf_{t-2}+Inf_{t-3})/4.$$

[7] See Dickey and Fuller (1979) and Phillips and Perron (1988).

[8] An appendix including all results discussed but not shown in the present paper is available from the authors upon request.

Thus, all continuous variables used in the estimations of Table 3 are stationary, meaning that our results are not spurious. As cointegration is not a problem either, there is no need to estimate an error correction model (see Engel and Granger, 1987). Concerning other economic variables used in alternative estimations, the monthly percentage changes of the industrial production index, of the end-of-period nominal exchange rate, and of the real effective exchange rate are also stationary.

Recursive Least Squares[9] was used to evaluate the stability of the model over time[10] in several ways. We started by simply checking whether the recursive residuals tended to lie within the ±2 standard errors bands. Then, one-step-ahead and n-step-ahead forecast tests[11] were performed. All these tests revealed that the parameters of all four estimations of Table 3 are quite stable.

We also estimated a considerable number of robustness tests not reported here. First, using alternative definitions of the popularity index[12], POP_t (the dependent variable). Second, in order to test whether popularity deteriorates smoothly with time in office and not just over consecutive terms, a variable measuring time in office (in months) was also included in the model. Third, other definitions of the honeymoon effects dummy, *H*, were used.[13] Fourth, using alternative definitions of average inflation.[14] Fifth, including a

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[9] This procedure estimates an equation repeatedly, using increasing subsets of the sample data. The first estimation of the coefficient vector uses the number of observations that is strictly necessary to run the model. Then, the next estimation uses one more observation, and this process is repeated until the entire sample is used. At each step, a one-step-ahead forecast of the dependent variable can be performed using the last estimate of the parameter vector. The errors resulting from the series of predictions are the recursive residuals, which are independently and normally distributed with zero mean and constant variance if the model is valid.

[10] Structural breaks at election dates indicated by Chow tests are accounted for in our model by the dummy variables for the terms in office (*T2* and *T3*) and for the personal effects (*GUTERRES/SAMPAIO*).

[11] The n-step-ahead forecast test uses the recursive calculations to perform Chow Forecast tests for all feasible time periods, adding one observation at a time.

[12] $POP_t=VG_t+FG_t$ and $POP_t=VG_t$. Where VG_t and FG_t are the percentage of the interviewed people classifying the performance of a political entity as *Very Good* or *Fairly Good*, respectively, at time *t*.

[13] Using dummy variables that took the value of one in the first 6, 5, 4 or 3 months of an administration, and zero afterwards.

[14] A moving average of the last five or six values of monthly inflation, or just the second lag of monthly inflation.

dummy variable that takes the value of one after April 1992, when the Escudo joined the Exchange Rate Mechanism of the European Monetary System, and zero otherwise.[15] Finally, adding the monthly percentage change of the industrial production index, of the nominal exchange rate, and of the real effective exchange rate, either jointly or one at a time. None of these changed results significantly.

The analysis performed above assumes that the electorate holds the political entities responsible for higher inflation or unemployment in a way that is independent of the entities' political orientation. Although the dummy variable *GUTERRES* also represents the left,[16] a positive coefficient would only mean that the left-wing oriented political entities tended to be more popular in general. Swank (1993) introduced partisan considerations into popularity functions. Following Hibbs (1977), he assumed that left-wing parties care more about unemployment and economic growth than right-wing parties, which are more concerned with inflation. Therefore, during recessions the demand for expansionary policies increases, making left-wing proposals more attractive, and the reverse occurs during expansions. Assuming that politicians and voters behave optimally, left-wing parties lose support when inflation rises, unemployment falls or economic growth rises, and vice-versa for right-wing parties.

We tested this hypothesis by adding two variables to the model. They the product of average inflation or the unemployment rate by a dummy variable, *LEFT*, that takes the value of one when the political entity in office is left-wing oriented, and zero otherwise. A positive coefficient was expected for the product of the *UnempRate(-1)* and *LEFT*, as the left gains support when unemployment rises, and a negative coefficient was expected for

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[15] The entrance of the Portuguese Escudo to the Exchange Rate Mechanism of the European Monetary System placed additional constraints on monetary policy which could have affected the way people held the political entities responsible for economic outcomes.

[16] In our sample, the socialist party is in power when António Guterres is Prime Minister (*GUTERRES=1*) and the social democrats rule when he is not (*GUTERRES=0*).

the product of *AvInflation(-2)* and *LEFT*, as the left loses support when inflation rises. These two variables were not statistically significant for any of the political entities considered, meaning that we did not find support for Swank's partisan theory.

According to Anderson (2000) and Powell and Witten (1993), evaluations of the political entities' performance should take into account their power and responsibility over economic policy. That is, political entities with greater authority to set economic policy should be those most accountable for economic outcomes. Then, governments that are not supported by a majority of seats in parliament should be less accountable than those that are, since lapses in performance can be blamed on actions taken by the opposition.

We tested the hypothesis that the Assembly, the Government, and the Prime Minister are less accountable for economic outcomes when the party in power does not have a majority of seats in the parliament by adding the interactions of inflation and unemployment with a dummy variable that takes the value of one when no party has a majority of seats in the Assembly of the Republic[17], and zero otherwise. Results did not support this hypothesis, meaning that the Portuguese held the Assembly, Government and prime Minister equally responsible for economic outcomes regardless of whether a single party had a majority of seats in parliament or not.

5.2. ARIMAX results

The high persistence and autocorrelation of popularity indexes is usually taken into account by including lags of the dependent variable in the estimations, as we did in Table 3. But, the time series structure of a series can be more correctly taken into account by applying the Box-Jenkins (1976) methodology for model selection.

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[17] That happened during the first terms of Cavaco Silva (October 1985 to October 1987) and António Guterres (October 1995 to October 1999) as prime Minister, which correspond to the cases in which the dummy variable *T1* is equal to one. The new variables are then: *(T1*AvInflation(-2))*, and *(T1*UnempRate)*.

Thus, the next step was to find out if the popularity indexes of our four political entities followed an ARIMA process. Since Dickey-Fuller and Phillips-Perron tests show evidence of stationarity for the popularity indexes, these can only follow ARMA processes. Autocorrelations and partial correlations of those series suggest autoregressive processes for all indexes: AR(2) for the Assembly, Government and President; and an AR(1) for the Prime Minister.

These results contrast with the predictions of the rational expectation models tested by Neck and Karbuz (1997): the "permanent benefits model" which follows an ARIMA(0,1,1); and the "stock of goodwill" model, better characterized by an ARIMA(1,0,1). Our results, as well as theirs, indicate that popularity tends to follow a time series process that is different from those predicted by rational expectations models. Thus, as previously stated, voters seem to have mainly retrospective expectations and be backward-looking.

Like Neck and Karbuz (1997), we also estimate an ARIMA model that incorporates the explanatory variables used in our OLS estimations of Table 3. The results of this ARIMAX model, which in our case has only autoregressive (AR) components, are shown in Table 4. These are somewhat similar to those of OLS estimations. The major differences concern the t-statistics, which generally increase, and the fact that the average inflation rate becomes highly statistically significant for the Prime Minister and more significant than before for the Government. Now, results concerning the effects of inflation on popularity are more in line with our expectations. The most affected entities are the Prime Minister and Government, followed by the Assembly, and the President's popularity does not seem to be affected by inflation. Conclusions regarding other variables remain the same.

Table 4: **ARIMAX Models Results**

	Assembly of the Republic	Government	Prime Minister	President
C	62.60717 (11.05)***	84.04746 (8.70)***	104.4377 (10.35)***	93.04246 (21.17)***
GUTERRES SAMPAIO	-0.467611 (-0.20)	-10.29520 (-3.10)***	-11.20312 (-2.76)***	-2.667976 (-1.50)
T2	-1.862641 (-0.65)	-15.25917 (-3.67)***	-19.55216 (-4.27)***	-5.753877 (-3.56)***
T3	-5.261721 (-2.08)**	-17.87214 (-4.83)***	-24.83087 (-6.46)***	
H	0.915170 (2.62)***	1.083333 (2.22)**	1.833314 (3.34)***	0.421128 (0.99)
AvInflation(-2)	-1.815724 (-1.73)*	-3.131551 (-2.42)**	-3.913605 (-3.07)***	0.471669 (0.31)
UnempRate (-1)	-1.491126 (-2.19)**	-3.204127 (-2.49)**	-4.036013 (-3.00)***	-2.052871 (-3.05)***
AR(1)	0.526017 (5.27)***	0.592406 (6.80)***	0.805245 (15.98)***	0.362911 (4.11)***
AR(2)	0.122465 (1.34)	0.207808 (2.09)**		0.182484 (2.27)**
Adjusted R-squared	0.675236	0.824381	0.861218	0.639055
Schwarz criterion	4.740956	5.195406	5.446699	5.389270
F-statistic	35.04629	77.86647	121.5653	34.38670
Durbin-Watson stat	2.184291	2.016705	2.017707	2.067529

Notes:
- the dependent variable is the popularity of the political entity shown in the column heading;
- t-statistics are in parentheses;
- significance level at which the null hypothesis is rejected: ***, 1%; **, 5%, and *, 10%;
- White Heteroskedasticity-Consistent Standard Errors & Covariance.

As in Neck and Karbuz (1997), the fact that the coefficients on the explanatory variables are statistically significant in the ARIMAX models presents further evidence against the rational expectations models referred to above.

5.3. SUR results

Because the popularity of the four political entities analyzed may be influenced by common factors, and the residuals of the estimations may be correlated, we estimated the four equations as a system, using the seemingly unrelated regressions technique, commonly known as SUR (see Zellner, 1962).

Results, shown in Table 5, are very similar to those of the ARIMAX models. The major difference is that the dummy variable *SAMPAIO* is now statistically significant. The negative sign of the coefficient suggests that Jorge Sampaio is less popular than Mário Soares was. The estimated coefficients for average inflation and the unemployment rate are higher than before, implying a greater effect of these economic variables on popularity. The political entities whose popularity is most affected by economic events are, again, the Prime Minister and the Government. These results are in accordance with our expectations, as these are the political entities that have greater influence over economic policy.

The residual correlation matrix at the bottom of Table 5 indicates that there is considerable correlation between the error terms of the estimations for the Prime Minister, Government and Assembly of the Republic. The correlations of these equations' residuals with that of the President are smaller but not negligible. Thus, we can safely argue that by estimating the equation as a system, by SUR, a considerable gain in the efficiency of the model was attained.

In order to find out if voters hold the political entities equally responsible for economic performance, we performed several tests for the equality of coefficients associated with the economic variables for the different political entities. The Wald tests performed reject the hypotheses of equal coefficients for the unemployment rate but not for inflation. This means that Portuguese voters do not hold the political entities here considered equally responsible for economic outcomes.

Table 5: **Seemingly Unrelated Regressions (SUR) with AR components**

	Assembly of the Republic	Government	Prime Minister	President
C	64.18052 (21.61)***	77.59970 (16.98)***	103.8944 (18.63)***	97.71104 (36.20)***
GUTERRES SAMPAIO	-1.129774 (-0.91)	-10.18880 (-5.37)***	-14.57263 (-6.29)***	-2.919203 (-2.58)**
T2	-2.954979 (-2.34)**	-11.87110 (-6.09)***	-18.03472 (-7.56)***	-6.914394 (-8.34)***
T3	-6.216360 (-5.02)***	-17.41050 (-9.11)***	-24.52987 (-10.50)***	
H	1.433098 (6.85)***	2.602487 (8.71)***	2.513298 (7.39)***	0.461279 (1.59)
AvInflation(-2)	-2.028404 (-1.76)*	-4.150413 (-2.34)**	-5.817856 (-2.69)***	-1.543728 (-1.14)
UnempRate (-1)	-1.544772 (-5.03)***	-2.076668 (-4.41)***	-3.737978 (-6.51)***	-2.528603 (-7.91)***
AR structure	AR(2)	AR(2)	AR(1)	AR(2)
Adjusted R-squared	0.507541	0.573558	0.576995	0.504328
S.E. of regression	3.110415	4.830264	5.807384	3.730016
Residual Correlation Matrix				
Assembly	1.00	0.74	0.64	0.31
Government	0.74	1.00	0.88	0.28
Prime Minister	0.64	0.88	1.00	0.26
President	0.31	0.28	0.26	1.00

Notes:
- the dependent variable is the popularity of the political entity shown in the column heading;
- t-statistics are in parentheses;
- significance level at which the null hypothesis is rejected: ***, 1%; **, 5%, and *, 10%.

6. Conclusions

We have gathered evidence consistent with the responsibility hypothesis: Portuguese voters hold the four political entities under investigation responsible for economic outcomes, especially unemployment. We also found much stronger evidence that Portuguese voters hold incumbents responsible for inflation than in Veiga (1998). Results also indicate that voters hold social democratic and socialist governments equally responsible for economic conditions, meaning that our data does not support Swank's (1993) partisan hypothesis. Furthermore, the effect of economic outcomes on popularity does not seem to be affected by whether the party in power has a majority of seats in the Assembly of the Republic or not. This contradicts the hypothesis of Anderson (forthcoming) and Powell and Witten (1993) that minority governments should be less accountable for economic outcomes than majority ones.

Our data suggests the existence of honeymoon effects and of popularity depreciation over consecutive terms in office. The popularity of the Government and the Prime Minister tended to be smaller when António Guterres was Prime Minister (a socialist government was in office), while the popularity of the Assembly is not affected by this personality effect. Concerning the President, there is some evidence that Jorge Sampaio is less popular than Mário Soares was.

Future research on the political economic process of the country should include the analysis of the series on vote intentions and on the popularity of the leaders of the parties forming the opposition, which are also published monthly in *Expresso*. It would also be interesting to investigate what the Portuguese know about the evolution of the economy, in the lines of Nannestad and Paldam (2000), since the responsibility hypothesis assumes that voters know how the economy evolves.

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