ECONOMETRIC DETERMINATION OF VOTING BEHAVIOUR

Nicolae-Marius JULA[*]
Nicoleta JULA[**]

Abstract

In this paper, we are testing the responsive hypothesis: if the economy is growing strongly and unemployment is low, the incumbent party has a very good chance of retaining office. When the economy is faltering, voters will more likely vote for change. We use econometric models for forecasting, based on economic data, the voter's choices and the evolution of the economy under the influence of political pressure.

Keywords: *economic voting, responsive hypothesis, econometric forecasting, regional data analysis, vote function*

Introduction

Forecasting the voting results using the economic data has been an intensive research in western democracies and United States. In Romania, the democratic experience computes a small number of electoral moments. Therefore, it is not possible yet to build an electoral behaviour econometric model using the political time series. In these circumstances, in the following section, by the examination of the political and economic dynamics during the 1990-2012, we try only to identify some significant signals concerning the economic impact of the electoral timing. We use an econometric model to analysis the political behaviour using a regional economic and political data.

The analyses start from the study of Ray C. Fair, *The Effect of Economic Events on Votes for President*. We adapt his model to Romanian's situation and we use this for forecasting the voting results using quarterly data from 2000 until 2012.

The importance of such a study is underlined also by rich international literature focused on the impact of the political behaviour on economic conditions. It is important to analyse if political factors do influence the economy not for the common wealth, but for increasing their chances of re-election.

The answer to this subject is reflected by the results presented in this study. The economic and econometric evidences are presented to support the results. There is a large specialized international literature on economic voting and we tested some methods and models to find out if the results for Romania are in accordance with the results obtained for other western democracies

Ray C. Fair econometric model

In USA, like in other democracies, the voters tend to be influenced by the state of economy. If the economy is growing strongly and unemployment is low, the incumbent party has a very good

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[*] Senior Lecturer, Ph.D., Faculty of Economic Sciences, "NicolaeTitulescu" University, Bucharest, Romania (email: mariusjula@univnt.ro)

[**] Professor, Ph.D., Faculty of Economic Sciences, "NicolaeTitulescu" University, Bucharest, Romania (email: nicoletajula@yahoo.com).

chance of retaining office. When the economy is faltering, U.S. voters will more likely vote for change. Second, Americans tend to favour an incumbent president running for re-election. If the economy is weak enough, however, an incumbent president can lose, as Jimmy Carter learned in 1980 and George H. W. Bush did in 1992.

There were predictions for many years, since 1948. The equation predicts the percentage share of the two-party vote won by the incumbent party, and is fitted over the 16 elections since the Second World War (Table 1). It is driven by a combination of economic and predetermined political factors.

Table 1 [1]					
Election Model Results					
(Percentage of two-party vote for incumbent party)					
				Incumbent Party's	
Election	**Actual**	**Fitted**	**Error**	**Candidate**	**Opponent**
1948	52.4	54.0	-1.7	Truman (D)	Dewey (R)
1952	44.6	42.1	2.5	Stevenson (D)	Eisenhower (R)
1956	57.8	57.6	0.2	Eisenhower (R)	Stevenson (D)
1960	49.9	48.5	1.4	Nixon (R)	Kennedy (D)
1964	61.3	60.6	0.8	Johnson (D)	Goldwater (R)
1968	49.6	50.4	*-0.9*	Humphrey (D)	Nixon (R)
1972	61.8	57.5	4.3	Nixon (R)	McGovern (D)
1976	48.9	50.6	*-1.6*	Ford (R)	Carter (D)
1980	44.7	44.1	0.6	Carter (D)	Reagan (R)
1984	59.2	58.7	0.5	Reagan (R)	Mondale (D)
1988	53.9	53.1	0.8	Bush (R)	Dukakis (D)
1992	46.5	47.0	-0.5	Bush (R)	Clinton (D)
1996	54.7	53.7	1.0	Clinton (D)	Dole (R)
2000	50.3	52.6	-2.4	Gore (D)	Bush (R)

[1]http://www.ihs.com/products/global-insight/industry-economic-report.aspx?ID=1065931711

2004	51.2	54.8	-3.5		Bush (R)	Kerry (D)
2008	46.3	47.8	-1.4		McCain (R)	Obama (D)
2012		50.3			Obama (D)	? (R)

Note: italicized errors represent elections where the equation incorrectly predicted the winner of the popular vote.

The econometric model

Ray C. Fair uses a model like:

$$VOTE_t = a_1 + a_2(GROWTH_t - GROWTH^*) + a_3(INFLATION_t - INFLATION^*)(1 - WAR_t) + a_4(GOODNEWS_t - GOODNEWS^*)(1 - WAR_t) + a_5PERSON_t + a_6DURATION_t + a_7PARTY_t ,$$
$$t=1,...,23$$

The notation for the variables is as follows:

- *VOTE* = Incumbent share of the two-party presidential vote.
- *PARTY* = 1 if there is a Democratic incumbent at the time of the election and -1 if there is a Republican incumbent.
- *PERSON* = 1 if the incumbent is running for election and 0 otherwise.
- *DURATION* = 0 if the incumbent party has been in power for one term, 1 if the incumbent party has been in power for two consecutive terms, 1.25 if the incumbent party has been in power for three consecutive terms, 1.50 for four consecutive terms, and so on.
- *WAR* = 1 for the elections of 1920, 1944, and 1948 and 0 otherwise.
- *GROWTH* = growth rate of real per capita GDP in the first three quarters of the election year (annual rate).
- *INFLATION* = absolute value of the growth rate of the GDP deflator in the first 15 quarters of the administration (annual rate) except for 1920, 1944, and 1948, where the values are zero.
- *GOODNEWS* = number of quarters in the first 15 quarters of the administration in which the growth rate of real per capita GDP is greater than 3.2 percent at an annual rate except for 1920, 1944, and 1948, where the values are zero.

The variable WAR appears in the vote equation because INFLATION and GOODNEWS are zeroed out for 1920, 1944, and 1948. This treatment leads to there being a different constant term in the equation for these three elections, which is what WAR is picking up. To see this precisely, consider the equation:

GROWTH* is the "normal" rate, normal in the sense that growth rates above this value are a plus for the incumbent party and growth rates below it are a minus. The same is true for INFLATION* with the sign reversed, and the same is true for GOODNEWS*.

The equation has VOTE on the left hand side and the other variables plus a constant term on the right hand side. It is linear in coefficients. The estimation period begins with the 1916 election. The equation is estimated by ordinary least squares.

For the 2012 election PARTY is 1, PERSON is 1, DURATION is 0, and WAR is 0. Multiplying these values by their respective coefficients and adding the intercept gives a value of 48.39. A modified version of the vote equation for 2012 is then:

VOTE = 48.39 + .672*GROWTH - .654*INFLATION +0.990*GOODNEWS

or

The equation to predict the 2012 presidential election is

VP = 48.39 + .672*G - .654*P + 0.990*Z

Interpretation: In January 28, 2012, forecast from the US model compared with data from October 30, 2011: G is now 2.88 rather than 2.75, P is now 1.54 rather than 1.88, and Z is still 1. (The one strong growth quarter is 2012:3.) The new economic values lead to a predicted value of VP of 50.30, essentially the same as the 50.0 in October.

As Ray C. Fair stated, "The main message from the presidential vote equation is again the same as it has been from the beginning. For a moderately growing economy, which the US model is now forecasting, the election is predicted to be close. The current US model forecast is probably somewhat more optimistic than consensus, but with slightly slower growth in 2012, the election would still be predicted to be close. If the economy suddenly starts to boom - say 5 or 6 percent growth - Obama would be predicted to win by a comfortable amount. If the economy suddenly goes into another recession - say minus 5 or 6 percent growth - the Republicans would be predicted to win by a comfortable amount. As of this writing the economy in 2012 looks like it will be ok, but not great, which means a close election - essentially too close to call. If the economy does turn out to be ok, but not great, and if the election is close, the voting equation will have done well. If instead in this case the election is not close, the equation will have made a large error."[2]

Estimation for Romanian Presidential elections

We start with the Ray C. Fair's model:
$VOTE_t = a_1 + a_2(GROWTH_t - GROWTH^*) + a_3(INFLATION_t - INFLATION^*)(1 - WAR_t) + a_4(GOODNEWS_t - GOODNEWS^*)(1 - WAR_t) + a_5PERSON_t + a_6DURATION_t + a_7PARTY_t$, t=1,...,23

For Romania:
WAR=0
PERSON=0
DURATION=1
PARTY=1 (we use 1 for incumbent party and -1 for opposing coalition)
GROWTH*=0
INFLATIN*=0
GOODNEWS*=1
So, the adjusted equation for Romania is:
$VOTE_t = a_1 + a_2GROWTH_t + a_3INFLATION_t + a_4GOODNEWS_t + a_5PERSON_t + a_6DURATION_t + a_7PARTY_t$, t=1,...,23

In Romania, the democratic elections were recorded in 1992, 1996, 2000, 2004 and 2009. The elections from 1990 cannot be considered in the model because of the change in the political system following the revolution from 1989. We have only 5 different moments, so an econometric model based on these data cannot be validated.

Assuming that the coefficients in the regression would be close to the ones from Fair's model, in a calibration model for Romania, we have the following situation:
Growth=7.2 (in trimester III, 2011, the GDP is 1.8 higher than in trimester II)
Inflation=21.81 (for the last 45 months)

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[2] http://fairmodel.econ.yale.edu/vote2012/index2.htm

$Z=7$ (7 trimesters of growth for GDP from last 15)

$VP = 48.39 + .672*G - .654*P + 0.990*Z$

$VP=45.89$

That means the candidate from the ruling party would obtain about 45% in a direct competition with an opposing candidate.

Paldam model - Presidential election - November 2009

Elections for President of Romania from 22nd November – 6th December 2009 were conducted in accordance with Law no. 370/2004, as amended and supplemented, supplemented by Government Emergency Ordinance no. 95/2009.[3]

According to the new electoral law that marks the difference between the term of President's seat (5 years) and duration of the seat of Parliament (four years) for the first time in Romanian politics, election of the President of Romania was not held simultaneously with elections for the Chamber of Deputies and the Senate. Instead, its first round of electing the President of Romania overlapped with the time of the national referendum held on the initiative of the President in office, on the shift from a bicameral Parliament in an unicameral Parliament and reducing the number of Parliament's members to the maximum of 300. The first round of Presidential elections was set on November 22nd, 2009, and the second round was scheduled two weeks later (December 6th, 2009).

In due time, a total of 29 applications were made, of which the Central Electoral Bureau admitted 12 (3 - of the independent candidates and 9 from political parties)[4]. The percentage of voters was 54.37%, over 15 percentage points higher than in parliamentary elections (39.20%).

Results for Presidential elections – 1st round, 22nd , November 2009

		Valid cast votes	
No.crt.	Name and surname of the candidate	Number	% of total number
1	Traian BĂSESCU (PD-L)	3153640	32.44%
2	Mircea-Dan GEOANĂ (PSD)	3027838	31.15%
3	Crin ANTONESCU (PNL)	1945831	20.02%
4	Corneliu VADIM-TUDOR (PRM)	540380	5.56%
5	Hunor KELEMEN (UDMR)	373764	3.83%
6	Sorin OPRESCU (independent)	309764	3.18%
7	George BECALI (PNGcd)	186390	1.19%

Source: Central Electoral Bureau for election of the President of Romania from 2009, first round results, November, 22nd, 2009, http://www.bec2009p.ro/rezultate.html

The other five candidates have obtained each a percentage less than 1% of votes, which means less than the required minimum number of supporters that was presented to support the application (200,000 supporters).

In the second round, held on December 6th, 2009, the first two runners competed and the turnout has been higher, 58.02%. TraianBăsescu, the President in office, won by a close shave the

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[3] Government Emergency Ordinance no. 95/2009 amending and supplementing Law no. 370/2004 for the election of the President of Romania, published in Official Journal no. 608 of September 3, 2009.

[4] Applications rejected did not meet certain criteria imposed by the electoral law: in most cases, were not accompanied by a list of at least 200,000 supporters.

Presidential elections, with a difference of less than one percentage point from the PSD candidate (50.33% vs. 49.66%, nearly 70,000 additional votes, from a total of 10,500,000 valid votes).

As Election Observation Mission OSCE / ODIHR[5] assessed: "The elections for President of Romania in 2009 took place in an atmosphere characterized by respect for fundamental political freedoms and were conducted generally in accordance with OSCE commitments and international standards for democratic elections and with national legislation. Although authorities have taken steps to correct some deficiencies observed in the first round and to investigate irregularities, further efforts are needed to address remaining weaknesses in order to improve election process and to enhance public confidence"[6].

Paldam model

Vote function (hereafter V-function) is defined as a function explaining (the change in) the vote for the government by (changes in) economic conditions and other variables. A Popularity function (hereafter P-function) explains (the change in) the popularity of the government – as measured by pools – by (change in) the economic conditions and other variables.

For Romania, we have studied the impact inducted by the state and dinamics of some economic variables on the change of voting intensions. The data are analysed in regional structures. We used a Paldam type model. In its most simple linear version the function are:

$$\Delta P_t = \{a_1 \Delta u_t + a_2 \Delta p_t + \dots\} + [c_1 D_t^1 + c_2 D_t^2 + \dots] + e_t$$

Here Δ is used to indicate the first difference; P is either the vote or the popularity, for the political parties, in %. The *a*s and *c*s are coefficients to be estimated, and the *e* is the disturbance term. The braces contain the economic variables: the e-part of the model. Two of the variables are *u* and *p*, where *u* is the rate of unemployment and *p* the rate of price rises. The next set of variables, the *d*s, are the political variables forming the p-part of the model – it is found in the square brackets.

For Presidential election, we have built a model where periods are shown separately: May 2008 - November 2008 (PNL in office) and November 2008 - November 2009 (PD-L in office)

$$pr_{ij} = \{a_0 + a_1 \cdot cj_{ij} + a_2 \cdot prescj_{ij}\} + [a_{3,i}(rs_{nov2008} - rs_{mai2008})_j + \\ + a_{3,i}(rs_{nov2009} - rs_{nov2008})_j] + e_{ij},$$

where pr_{ij} – represents the share of votes won by the competitor *i* for Presidency in county *j*, to the total number of valid votes in that county, in the Presidential Elections in November 2009

We anticipate, in line with the economic voting theory, that a_3 is negative for candidates who represent the ruling parties and positive for the ones representing opposition parties.

The results for Presidential elections in November 2009 are not econometrically significant. Nor is any other econometric model, in which the results from parliamentary elections in November 2009 are regarded as political variables and as economic variables are used the change in

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[5] OSCE/ODIHR means Organization for Security and Co-operation in Europe / Office for Democratic Institutions and Human Rights

[6] Romania, Presidential Elections, November 22nd and December 6th, 2009 – Final Report of Election Observation Mission OSCE / ODIHR, cited by the Permanent Electoral Authority, the *White Paper for Election of President of Romania 2009*, p. 103, http://www.roaep.ro/

unemployment between the two time election, or three months before the election. Lack of regional statistics for other economic variables discussed in the specific literature in the context of vote-popularity functions (e.g. inflation) has not allowed the construction of some models with more variables. Subject to this methodological observation, the conclusion of the tested econometric models is that for Presidential elections in Romania, organized in November 2009, the economic voting has no significant influence on election results of the main candidates, as resulted in regional structures.

Conclusions

The recorded data for Romania is a major drawback in the estimation models from international literature regarding the forecasting of vote behaviour based on economic variables. The only solution is to use regional data, when available.

The Ray C. Fair model can be only partially tested and used for Romania because of the history data regarding economic situation for more electoral moments. If for US there are 16 electoral moments, we have only 5. Using this model, the results are that a candidate from the current ruling party would lose the elections.

Other models, like Paldam's presented one, cannot be econometrically supported (estimators do not pass the significance tests). Until further date, we can admit the hypothesis that elections from 2009 were not influenced by an economic voting, but other political and social factors.

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