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How much does the state of the economy influence the popularity and the election outcome of Austrian parties? An empirical investigation*

by

Friedrich Schneider**

Reinhard Neck***

and

Michael M. Strugl****

Abstract:

We estimate popularity functions for the Austrian parties OEVP, SPOE, FPOE over 1987 to 2010 (using annual data) as well as vote functions of the same Austrian parties for the national elections in 1999, 2002, 2006 and 2008 using the 86 election districts. We also estimate, for the first time, popularity functions for OEVP, SPOE and FPOE for Upper-Austria over the period 1979 to 2010 using annual data. In most cases we find a statistically significant and theoretically predicted influence of the economic variables unemployment rate, inflation rate and growth rate of income. However, this influence is not robust and shows a tendency to decline over time.

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** Prof. Dr. Friedrich Schneider, Department of Economics, Johannes Kepler University Linz, Altenbergerstr. 69, A-4040 Linz-Auhof, Austria, Phone: +43-732-2468-8210, Fax: -8209, E-mail: friedrich.schneider@jku.at (corresponding author).

*** Prof. Dr. Reinhard Neck, Department of Economics, Klagenfurt University, Klagenfurt.

**** Michael M. Strugl, PhD-student, Department of Economics, Johannes Kepler University Linz, Altenbergerstr. 69, A-4040 Linz-Auhof, Austria.

1. Introduction

In the 1970s and 1980s we observed a first wave of popularity and vote functions, which had been estimated for almost all highly developed OECD countries¹. In the last ten years the vote and popularity functions gained a “certain” revival with studies for Germany by Kirchgaessner (2009) and for Denmark by Paldam (2004) with partly amazing and new findings: The economic situation has much less influence on popularity as compared to the first waves of studies, where the majority of these investigations showed a highly statistically significant and quantitatively important effect of the unemployment rate, the rate of inflation and the growth rate of income on the popularity and / or on the election outcome. Our paper takes up this issue, and after the pioneering studies of Neck, Karbuz and Hofreither² a second attempt is made to undertake an empirical investigation how much the economic situation influences the popularity of Austrian parties. Additionally, our study is a first attempt to estimate the influence of the economic situation on election outcomes in Austria in the 86 election districts at the federal elections in 1999, 2002, 2006 and 2008. We also find that the influence of the economic situation is mixed and gets less important the more recent the elections are.

Our paper is structured in the following way: In Section 2 we make some theoretical considerations and some remarks about vote and popularity functions from a selective literature review. In Section 3 we present the empirical results. In subsection 3.1 some remarks are made about the specific Austrian political situation. Subsection 3.2 presents the results of the popularity functions estimations and subsection 3.3 shows the results of the election functions. Finally, in Section 4 we summarize and some preliminary conclusions are drawn.

¹ Compare e.g. Lewis-Beck (1988), Nannestad and Paldam (1994), Paldam (2004), Kirchgaessner (2009).

² Compare here also Hofreither (1988), Neck (1977, 1988, 1995), and Neck and Karbuz (1995, 1997).

2. Theoretical Considerations and Literature Review

In this section, we provide some theoretical considerations and give a short literature review with a focus on the latest papers.³ Vote and popularity models analyze the relationship between economic and political variables and the support for a government. According to Nannestad and Paldam (1993) and Paldam (2004), during the last 30 years about 300 papers on vote and popularity functions have been written.⁴ Most of this research has an empirical nature, and if one summarizes the theoretical reasoning starting with Downs (1957), Davis, Hinich and Ordeshook (1970), Mueller (1970), Stigler (1973), Frey and Schneider (1978a,b, 1979), Fair (1979), Hibbs (1979, 1982), Hibbs and Vasilatos (1981), and Kirchgässner (1986), one general finding of these authors⁵ is that, according to the theory of Downs, selfish politicians' and voters' behavior can be reduced to the operational idea known as the responsibility hypothesis: Voters held the government responsible for the past development of the economy. This hypothesis predicts that if the economy goes well, voters will approve this and the popularity or the election outcome of the government party (parties) will be increasing, and if the economy is in a bad shape the popularity and the election outcome of these parties will deteriorate.

Most authors choose a linear functional relation to model the vote/popularity function, and in most cases the economic variables unemployment rate, inflation rate and growth rate of personal disposable income have been used. This will

³ There is a huge literature about the theory of voting, which will not be discussed in this paper; we will provide only some theoretical considerations and latest empirical results; compare e.g. the excellent survey by Nannestad and Paldam (1993, 2002), and the papers by Kirchgässner (1985, 1986), Goodhart and Bhonsali (1970), Kramer (1971), Paldam (2004), Nannestad, Paldam and Rosholm (2003) and Lewis-Beck and Paldam (2000).

⁴ Compare Nannestad and Paldam (1994), Paldam (2004), but also the earlier survey of Schneider and Frey (1988).

⁵ Except for Stigler (1973), who criticized these approaches, arguing that voters have rational expectations and hence the past development of economic variables have no influence on the election outcome.

also be done in this paper; hence, we model the popularity and vote function in the following way:

$$\{\text{POP-Austria Party - A or Election Outcome Party-A}\} = F \{ \text{unemployment rate } UEQ, \text{ rate of inflation } RI, \text{ and growth rate of personal income } RPI, \text{ and other variables} \}$$

The theoretically expected signs are for $UEQ < 0$, $RI < 0$, $RPI > 0$.⁶

Following the contribution by Lewis-Beck and Paldam (2000), Table 2.1 stylizes and summarizes the facts about the empirical results of the vote and popularity functions over the period 1970 to 1990.

Table 2.1

From Table 2.1 we summarize first that most of the empirical findings of vote and popularity functions derive from the estimates built upon the responsibility hypothesis. This hypotheses offer a simple and reduced link between the economy and the voter. A second important finding is that the vote and popularity functions do not produce very stable results. Third, it is difficult to compare the results of the various authors and of the different countries because almost every author has his/her own specification.

One of the latest studies has been undertaken by Kirchgaessner (2009) with the provocative title “The lost popularity function: Are unemployment and inflation no longer relevant for the behavior of German voters”. As we have seen in the discussion just before, unemployment and inflation (and in most cases the growth of real disposable income, too) have been those variables which quite

⁶ In this paper, we do not discuss whether from an economic/public choice standpoint it is rational to vote at all and whether voters react as rational agents with a forward looking perspective. Compare here the excellent surveys by Paldam (2004); the first papers on this were Fiorina (1978, 1981) and Kinder and Kiewiet (1979).

often showed up highly statistically significant in vote and popularity functions in most countries. Kirchgaessner (2009) correctly argues that up to now there was a general empirical finding that increasing unemployment and inflation have a negative impact on government's popularity. This was true for Germany as well and he found out this result: for the governments of Adenauer, Erhard, Brandt, Schmidt and Kohl they had the theoretically predicted negative influence on the popularity of these governments and were highly statistically significant. For example, in the popularity function of the Kohl government over the period December 1991 to September 1998, the coefficient of the variable unemployment is -1.99 and that of the inflation rate is -0.69, both being highly statistically significant. However, this result does not hold for the Schroeder government. When Kirchgaessner estimates the popularity for the Schroeder government, neither unemployment nor inflation have a statistically significant influence on the popularity of this government. Kirchgaessner argues that the missing impact of unemployment might be due to statistical reasons: the short observation period and the low variance of the explanatory variables. Considering inflation, the citizens might have recognized that they cannot hold responsible the government for this phenomenon any longer as the European Central Bank (ECB) is executing monetary policy in Europe since 1999. To summarize: Kirchgaessner finds no significant influence of the macro economic variables on the popularity of the Schroeder government, but he thinks it is much too early now to draw the general conclusion that voters do not hold responsible a government for the economic development because he needs more and better data to undertake further investigations to verify these results.

The only studies which according to our knowledge deal with the Austrian situation are the one by Reinhard Neck (1977, 1988, 1996), Markus Hofreither (1988) and Reinhard Neck and Sohbet Karbuz (1995, 1997)⁷. In their papers the

⁷ Compare also Neck (1979, 1988, 1996), Neck and Karbuz (1995, 1997) and Hofreither (1988).

authors present econometric evidence for the influence of macroeconomic variables on the popularity of political parties in Austria. They use popularity data provided by the Institute for Market and Social Analyses (IMAS), Linz, and use quarterly data over the period 1975 to 1993. The main results are as follows: the rate of unemployment, the growth rate of disposable income and the rate of inflation were identified as economic determinants of voters' evaluation of political parties. They found out that there is clear evidence for a structural break in the popularity functions related to the change from a one-party and/or small coalition government to a "grand" coalition (a coalition of the big parties OEVP and SPOE). For a one party government or a small coalition, the predictions of the responsibility hypothesis for the popularity functions are confirmed, meaning that unemployment rate and inflation rate have the theoretically predicted negative sign and are statistically significant in most cases. However, their results are not very stable; in some cases they had the predicted statistically coefficient and theoretically expected sign, in other cases they did not.

3. Empirical Results

In this section, the econometric results of popularity and election functions are presented. In part 3.1 some remarks are made about the specific Austrian political institutions. Part 3.2 presents the results about popularity functions and part 3.3 presents the results about election functions.

3.1 Some Remarks about the Austrian Political System

Austria is a representative democracy in which parliamentary elections took place every four years (from 2008 on, every five years). At the federal level, we have a clear differentiation between opposition and government, and during most periods the government was formed either by a "grand" coalition by the two "big" parties, the Social Democratic or the Austrian People's Party or by a

coalition of one big party with a “minor” partner, the Austrian Freedom Party. It is very rare that we have in Austria a majority of a single party in the parliament, at least not since the late 70s.

At the Austrian provinces (sub-national states, *Laender*) level, in most provinces, like the one which is investigated, Upper Austria, we have a government in which all parties are represented according to their strength they got at the last election. This means, here we have no real opposition-and-government structure but instead a situation where all parties are in government. The biggest party in terms of seats in the province parliament nominates the head of the province government, the governor (*Landeshauptmann*). For Upper Austria, the head of the state government came from the Austrian Peoples’ Party (OEVP) because this party was the dominating party over the whole investigation period (1979-2010). Number two was the Austrian Social Democratic Party (SPOE), and number three was the Austrian Freedom Party (FPOE). In this case it is not so clear whether and to what extent the voters hold the parties responsible for the economic situation, as they all are in government.

3.2 Results of the Popularity Function in Austria and in Upper Austria

Next, the estimation results of the popularity functions are presented for the Austrian parties at the federal level (subsection 3.2.1) and at the province level for the case of Upper Austria (subsection 3.2.2).

3.2.1 Estimation Results of the Popularity Functions of the Austrian Parties at the Federal Level

Due to data restrictions and due to the switching of the two big parties between government and opposition, we only investigate popularity functions over the time period 1987 up to 2010. These are 24 annual observations. Here we have the situation that only the Austrian People’s Party (*AUPP* or *OEVP*) was

continuously in government either as a junior or a senior partner. As a junior partner together with the Social Democrats (*SPAU* or *SPOE*), they governed from 1987 to 1999 and from 2007 to 2010; as a senior partner, the OEVP governed together with the Freedom Party (*LPAU* or *FPOE*) from 2000 to 2006. For the SPOE and FPOE, the empirical investigation is more difficult because for these two parties there is a switch between government and opposition within this period, but at least the OEVP was in government all the time.

In Table 3.1, the estimation results of popularity functions of the Austrian parties at the federal level are shown over 1987-2010⁸. Taking into consideration that the Austrian People's Party (OEVP) was the dominating force over 2000-2006 and the chancellor came from this party (OEVP), we model this with a dummy variable *DYV* (=1 over the period 2000 to 2006, else=0).

Table 3.1

First consider the econometric results of the Austrian People's Party, the chancellor dummy variable has a statistically significant influence and raises the popularity of the Austrian People's Party by 3.2 percentage points. The unemployment rate, the inflation rate and the growth rate of disposable income have the predicted signs, but only the unemployment variable is statistically significant, and only if one omits the income variable. If the rate of unemployment rises by 1 percentage point, the popularity of the Austrian People's Party (OEVP) drops by 0.81 percentage points. If one turns to the Social Democratic Party (SPOE) and to the Freedom Party (FPOE), the

⁸ To estimate the popularity functions using time series data (Tables 3.1 to 3.3), we use a Generalized Least Squares (GLS) method with a Prais-Winsten transformation. This transformation controls for serial correlation and accounts for the first observation, which would otherwise be lost. By doing so, we get efficient results for an autoregressive process of order one. This estimator is also known as the Yule-Walker estimator. All regressions are iterated multiple times and converge according to a default threshold (see Sargan J.D. (1964) Wages and prices in the U.K.: A study in econometric methodology. In P.E. Hart et al. (eds.) Econometric Analysis for National Planning, pp.25-59. London: Butterworth).

economic variables have no statistically significant influence and the popularity of the Freedom Party incurs a severe drop when taking into account the chancellor dummy variable for the Austrian People's Party. The Freedom Party loses 6.1 percentage points over this time period, and this influence is statistically highly significant. Otherwise, here all economic variables are not statistically significant, which is not astonishing as we have here a situation where these parties were partly in government and partly in opposition.

Due to the switching of the SPOE and the FPÖ between government and opposition, an attempt is made to split up the economic variables into two periods, one period from 1987 to 1999 and 2007 to 2010, the other period from 2000 to 2006. This shall serve to take into consideration that the economic variables have a different influence when a party is in opposition as compared to the situation when it is in government. The results are shown in Table 3.2; in part 1 with all three economic variables and in part 2 with only inflation and unemployment as explanatory variables.

Tables 3.2 part 1 and 3.2 part 2

Considering Table 3.2 part 1, at a first glance the results are better than in Table 3.1 but are still quite mixed. If we first turn the Austrian People's Party (ÖVP), we realize that the estimated coefficients for the unemployment rate have the negative signs as predicted theoretically but are only statistically significant for the period 1987-1999 and 2007-2010. If the rate of unemployment rises by one percentage point, the Austrian People's Party loses 1.66 percentage points of popularity. We also get the predicted negative sign of the inflation rate, but it is statistically significant only for the period 2000-2006, with a quantitatively important coefficient. If inflation rises by 1 percentage point, the Austrian

People's Party loses 2.72 percentage points of popularity. The growth rate of disposable income has no statistically significant influence.

Considering the Social Democratic Party (SPOE), the split of the three economic variables yields the theoretically predicted signs: When the Social Democrats were in opposition over the period 2000-2006, an increase in unemployment helped them to gain popularity. If the unemployment rate rose by 1 percentage point, the Social Democratic Party gained 1.7 to 2.2 percentage points. Also the growth rate of disposable income has the predicted negative sign and is highly statistically significant for the period when this party was in opposition. If the growth rate of income rises by 1 percentage points during the period 2000-2006, the Austrian Social Democratic Party lost between 1 and 0.75 percentage points. For the second period (1987 to 1999 and 2007 to 2010), in which the Social Democrats were in government, when the growth rate of disposable income increased by 1 percentage point, the Social Democratic Party gained 0.53 percentage points. Considering the Freedom Party (FPOE), which was in government from 2000-2006, we get a positive influence of the inflation rate, contrary to theoretical predictions. All other coefficients are not statistically significant. Also the chancellor variable is not statistically significant when the split up of the economic variables is undertaken.

Now turn to the results of the popularity functions at the federal level, using the unemployment rate and the inflation rate as explanatory variables only, which are shown in Table 3.2 – part 2. Here we do not find different results for the Austrian People's Party (OeVP) and the Austrian Social Democratic Party (SPOE). However, for the Freedom Party (FPOE) we have the expected negative influence of the unemployment rate when this party was in government during 2000-2006 and a positive influence of the unemployment rate when this party was in opposition. During its time in government, the Austrian Freedom

Party lost 4.8 percentage points if the rate of unemployment rose by 1 percentage point, and it gained 2.7% during its time in opposition. The Austrian Freedom Party “profited” from rising inflation: the party gained between 1.7 and 4.6 percentage points - a result that is not in accordance with theoretical predictions as the Freedom Party was in government during this time. If one summarizes the results of Tables 3.1 and 3.2 part 1 and part 2, we get the overall impression that there is some influence of the economic variables on the popularity of the Austrian parties at the federal level, but in general the influence is quite weak and not very robust.

3.2.2 Popularity Function of the Upper Austrian Parties 1979-2010

In Table 3.3, econometric results of the Austrian popularity function for the Upper Austrian parties over the period 1979-2010 (32 annual observations) are shown.

Table 3.3

We first discuss again the result of the Austrian People’s Party, which was the dominant governing party with the governor (Landeshauptmann) over this entire period. We find that the unemployment rate has the theoretically predicted negative sign and is statistically significant at the 10% significance level. If the rate of unemployment rises by 1 percentage point, the Austrian People’s Party (OEVP) loses 1.4 percentage points of popularity. The inflation rate has the predicted negative sign but is not statistically significant. Turning to the Austrian Social Democratic Party (SPOE), the second biggest party in the Upper Austrian government, the coefficient of the rate of unemployment has the theoretically predicted negative sign. If unemployment rises by 1 percentage point, the Social Democratic Party (SPOE) loses a little bit more than 1 percentage point. Neither the inflation rate nor the income growth rate exerts a statistically significant influence for either party. Turning to the Austrian

Freedom Party (FPOE), we find a statistically significant positive influence of unemployment: if unemployment rises by 1 percentage point, the Freedom Party gains between 2.5 and 1.5 percentage points. We also find a statistical significant influence of the income growth rate, and the Freedom Party (FPOE) profits from a rise in income. If the income rises by 1 percentage point, the Austrian Liberal Party gains 0.41 percentage points. As all parties are government, it is not so clear who is responsible for the state of the economy but we clearly realize that the two dominating parties in Upper Austria, the Austrian People's Party (OeVP) and the Austrian Social Democratic Party (SPOE), are negatively affected by an increase of the unemployment rate, with a quantitatively important influence. But the results again show that with the exception of the unemployment rate economic variables (the inflation rate and the income growth rate) do not have a statistically significant influence.

3.3 The Influence of the State of the Economy on Federal Election Outcomes of the Austrian parties in 1999, 2002, 2006 and 2008

The influence of the state of the economy on the election outcome of single parties was investigated for the national elections in 1999, 2002, 2006 and 2008 in 86 election districts at the federal level.

The Austrian People's Party was in the federal government over these four elections and was a dominating party (with the federal chancellor) for the elections 2002 and 2006; in the two remaining elections (1999 and 2008), the Social Democrats (SPOE) were the dominant government party. In our empirical investigation, the four elections are separately investigated for the Austrian People's Party, the Austrian Social Democratic Party and the Austrian Freedom Party. These empirical results are presented in Tables 3.4, 3.5 and 3.6. Here we investigate how strong is the influence of two independent variables, unemployment rate and growth rate of income, on these four election outcomes.

Table 3.4

In Table 3.4, the results for the election outcome of the Austrian People's Party for these four elections are presented. The two economic variables with one exception have the predicted signs, but the statistical significance varies over the four elections. If we first turn to the unemployment rate, we realize that unemployment had no statistically significant influence on the election outcome of the Austrian People's Party (OEVP) in the 1999 election, but a statistically significant influence on the results of the remaining three elections (2002, 2006 and 2008). If the rate of unemployment increases by 1 percentage point, the Austrian People's Party loses 1.2, 1.4 and 1.0 percentage points in the elections in 2002, 2006 and 2008, respectively. If we turn to the growth rate of disposable income, we have a statistically significant influence in all four cases, but for the last election 2008 the estimate has the "wrong" (not theoretically expected, negative) sign; the Austrian People's Party (OEVP) would lose 0.7 percentage points by an increase in the rate of income by 1 percentage point. For the remaining three elections (1999, 2002 and 2006), the Austrian People's Party would gain 3.6, 4.3 and 1.6 percentage points, respectively, if the income rate rises by 1 percentage point.

Table 3.5

In Table 3.5, the election function results for the Social Democratic Party (SPOE) are shown. As the Social Democrats were in opposition in the elections 2002 and 2006 and in government in 1999 and 2008, we have to consider this when interpreting these results. For the election 2002 (Social Democrats were in opposition), we get the expected result: if unemployment rose by 1 percentage point, the election outcome of the Social Democrats increased by 1.6 percentage

points; if the growth rate of disposable income increased by 1 percentage point, the Social Democrats in opposition lost 3.3 percentage points. However, the same influence is indicated for the year 1999; here we do not get the theoretically expected signs, as the Social Democrats were in government and even had the federal chancellor. For the elections in 2006 and 2008 the economic variables had no statistically influence.

Finally, if we turn to the election results of the Austrian Freedom Party (FPOE), which was in government in the elections in 2002 and 2006, we find a statistically significant and theoretically expected sign for the unemployment variable for the elections 2006 and 2008:

Table 3.6

If the rate of unemployment rises by 1 percentage point, in 2006 the Freedom Party (FPOE) loses 0.48 percentage points. However, the growth rate of income has the “wrong” (theoretically not expected) negative sign, meaning that if income rises by 1 percentage points, the Freedom Party loses 0.16 percentage points. For the elections 2008 the unemployment rate exerts a statistically significant negative influence, which is again the “wrong” sign, meaning that if unemployment would rise by 1 percentage points, the Freedom Party (in opposition!) would lose 0.1 percentage points.

Summarizing the results of the separate estimation of the four election functions for the three parties, we must admit that considering the influence of economic variables only may lead to a misspecification of the estimated equations. In Tables 3.7, 3.8 and 3.9, a first attempt is made to tackle this issue by considering

also the influence of the past election.⁹ If we first start with the Austrian People's Party (OEVP), the results are shown in Table 3.7

Table 3.7

The lagged endogenous variable (outcome of the last election) has a highly statistically significant positive influence on the result of the current elections for the years 1999, 2002, 2006 and 2008. If we turn to the two economic variables (unemployment and income growth), we realize that unemployment has a statistically significant influence with the theoretically predicted negative sign only for the election in 1999: When the unemployment rate rises by 1 percentage point, the Austrian People's Party (OEVP) loses 0.68 percentage points in 1999. Also the growth rate of disposable income has a highly statistically significant positive influence (as theoretically expected) on all four election outcomes: If the growth rate of disposable income rises by 1 percentage point, the Austrian People's Party gains 1.3, 0.76, 0.2 and 0.13 percentage points in the elections in 1999, 2002, 2006 and 2008, respectively. Interesting to note, the quantitative influence of the income growth variable shrinks considerably over these four elections from 1.3 percentage points in the election in 1999 to only 0.13 percentage points in the election in 2008, but it is statistically highly significant in all four elections.

In Table 3.8, the empirical results of the four elections for the Social Democrats (SPOE) are shown.

Table 3.8

⁹ Here we make the assumption that except for the economic situation the other influences can be captured if we include the last election result; i.e. the lagged endogenous variable.

Again, we remind the reader that they were in opposition in 2002 and 2006 and in government in 1999 and 2008. Only for the two elections in 2002 and 2006 we find a statistically significant influence of the independent variables, for unemployment in 2002 and for the growth rate of disposable income in 2006. In both cases, the economic variables have the “wrong signs”, negative for unemployment and positive for inflation; for an opposition party (here the SPOE) one would expect the opposite effect.

In Table 3.9, the estimations for the election results for the Freedom Party (FPOE) are presented.

Table 3.9

Again, reminding the reader that the Freedom Party was in opposition in the election 1999 and 2008 and in government in the elections 2002 and 2006, the two economic variables have the theoretically predicted signs (for an opposition party) in the election 1999: a positive influence of unemployment and a negative one of the growth rate of income. If unemployment rises by 1 percentage point, the FPOE gains 3 percentage points; if income rises by 1 percentage point, they lose 0.76 percentage points. In the election in 2006, where the Freedom Party was in government, the two economic variables again are statistically significant. If unemployment rises by 1 percentage point, the party lost 0.5 percentage points, as predicted theoretically, but if income rises by 1 percentage point they lost 0.2 percentage points, which is not the predicted sign. In the other cases, the economic variables have no statistically significant influence.

To summarize: If we include the lagged dependent variable (the last election result) in order to take account of the *ceteris paribus* condition, the economic

variables have a statistically more significant influence with the predicted signs in most cases.

Finally in Tables 3.10 and 3.11 an attempt is made to undertake panel estimations over all four elections. Of course, this is only possible for the Austrian People's Party (OeVP) as this party was the only one which was in government all the time. In Table 3.10; a panel estimation (RE: Random Effects method) is shown including election dummies for 2002, 2006 and 2008.¹⁰

Table 3.10

If we consider the results in Table 3.10, we realize that the election dummy variables for 2002 and 2006 have a statistically significant influence. The two economic variables have the predicted signs and are highly statistically significant. If the unemployment rate rises by 1 percentage point, the election outcome of the Austrian People's Party decreases by 0.46 percentage points. If the growth rate of disposable income increases by 1 percentage point, the election outcome of the Austrian People's Party increases by 0.15 percentage points. These influences are quantitatively not important, but they are statistically highly significant.

In Table 3.11, the results of a panel estimation using the lagged dependent variable (last election outcome) and applying a FGLS¹¹ regression are shown.

¹⁰ When the Random Effects (RE) estimation method is used, sometimes it is argued that this method generates a quasi-differenced estimator. This is due to the fact that the Generalized Least Squares (GLS) regression, delivering this random effect estimator within panel data, is equivalent to Ordinary Least Squares (OLS) using quasi-demeaned data. In other words, from each estimator's average, we subtract a fraction θ . Therefore, θ needs to be calculated, which in turn requires estimates of the within and between variances. In general, if assumptions are met, RE is efficient and consistent. In our model, the GLS estimator is the weighted average of the between and within variance.

¹¹ As it is very difficult to undertake a panel estimation using a lagged dependent variable, one possible tool is Feasible Generalized Least Squares (FGLS), which explicitly computes an individual covariance matrix for GLS each time instead of using an assumed one.

Table 3.11

In comparison to Table 3.10, we realize here that the growth rate of disposable income still has a statistically highly significant influence which has increased in terms of quantitative importance, but the unemployment variable is not statistically significant. If the growth rate of disposable income increases by 1 percentage point, the election outcome of the Austrian People's Party increases by 0.39 to 0.47 percentage points. This is a much larger influence when compared to the result of Table 3.10.

3.4 Summary of the Results

What can we learn, considering the econometric results of the popularity and the election/vote functions? For the case of Austria, we see that there is some statistically significant influence of the state of the economy on the popularity and election outcomes. Unemployment in half of the cases is statistically significant. In the election functions we find that the growth rate of income is statistically significant in more cases than the unemployment variable.

4. Summary and Conclusions

Summarizing the results of our paper, we find:

- (1) With respect to the popularity functions of the Austrian parties at the federal level over the period 1987-2010, we have to take into account that only the Austrian People's Party (OEVP) was in government all the time while the other parties examined switched from government to opposition and vice versa. If we consider the period where the Austrian People's Party (OEVP) was dominating and the FPÖ was the "junior" partner (2000 to 2006), only the inflation rate had a statistically significant influence and the theoretically

predicted negative sign. If the inflation rate rose by 1 percentage point, the OEVP lost between 2.4 and 2.6 percentage points. For the Social Democrats (SPOE), during this time in opposition, the coefficient of the unemployment rate had the predicted positive sign. It is statistically significant as is that of the growth rate of disposable income, which also has the theoretically predicted negative sign. For the junior coalition party, the Freedom Party (FPOE), we now get a statistically significant influence except for the coefficient of the inflation rate, which has the wrong (positive) sign.

Considering the second period, where Austria had a “grand coalition” of the Austrian Social Democratic Party with the Austrian People’s Party, unemployment had a negative influence as predicted theoretically, which is statistically significant. If the unemployment rate rises per 1 percentage point, the Austrian People’s Party loses between 0.6 and 1.6 percentage points. We also find for the Social Democrats, now back in government, that the rate of income has the expected positive sign and is statistically significant. If income growth rises by 1 percentage point, the Austrian Social Democrats’ popularity gains half of a percentage point. In general these results show some influence on the economic situation on the popularity of the Austrian parties, but these results are mixed and are not stable.

- (2) Finally, if we consider the popularity of the Upper Austrian parties over the period 1979-2010, where we had an all-party government (Konzentrationsregierung), the OEVP always was the strongest party with the government head (Landeshauptmann), we find a statistically significant negative influence of unemployment and no significant influence of the inflation rate and of the income growth rate.
- (3) If we turn to the influence of the economic situation on the election outcomes of the Austrian parties OEVP, SPOE and FPOE for the federal

elections 1999, 2002, 2006 and 2008, we find for the OEVP, which was in government before and after these four elections, that unemployment has a statistically significant influence on OEVP election outcomes in the years 2002, 2006 and 2008. On average, if the unemployment rate rose by 1 percentage point, the OEVP lost around 1 percentage point in terms of votes. Here the rate of income has a statistically significant influence, but unfortunately with the “wrong” sign in the last election 2008. In general we find a declining influence of the growth rate of disposable income: if the growth rate of disposable income rose by 1 percentage point, the OEVP gained 3.6 percentage points in votes in the election 1999, 4.3% in the election 2002, but the gain dropped down to 1.67% in the election 2006.

If one tries to take account of the *ceteris paribus* condition by including a lagged dependent variable into the estimated functions, the unemployment variable has the theoretically expected sign, but only in the election 1999 this variable is statistically significant, indicating that if unemployment rises by 1 percentage point, the Austrian People’s Party loses 0.7 percentage points. In addition, the growth rate of disposable income is statistically significant and has the theoretically expected sign for all four elections. Here, too, we find a declining influence of this economic variable. If the rate of income rose by 1 percentage point, the Austrian People’s Party gained 1.3 percentage points in the election 1999, but only 0.13 percentage points in the 2008 election. In a panel estimation for the OEVP over all four elections, both unemployment and the growth rate of disposable income are statistically significant and have the expected signs. For the other parties SPOE and FPOE, the influence of the economic variables is mixed and in some cases we obtain the wrong sign.

What conclusions can we draw from these results?

- (1) There is some influence of the economic situation on the popularity of the three Austrian parties OEVP, SPOE and FPOE and on the election outcome of these parties at the federal level. However, the results for the popularity functions are mixed and the influence of the economic variables is not robust. In the case of the election/vote functions, the influence of the economic variables for the Austrian People's Party, which was in government in these four elections, is somewhat more stable, and except for one case, we get the theoretically predicted sign for the unemployment rate and the growth rate of disposable income.
- (2) This instability may be caused by the complicated Austrian political system and by the fact that we had switching coalitions in the 1980s and 1990s and in the last decade. The time period considered is not long enough to investigate possible economic influences on these different types of coalitions in a thorough way.
- (3) Similar to the results of Kirchgaessner for Germany, it seems that the economic influences on party popularity and election outcomes are weakening over the last decade. However more thorough investigations are required to confirm this finding.

Table 2.1. The main stylized facts about the VP-function¹⁾

I.	Vote and popularity functions are basically similar, but the fit of popularity functions is better.
II.	Economic changes explain about one third of the change in the vote.
III.	The big two: the vote reacts to a few macroeconomic variables – mainly unemployment/growth and inflation.
IV.	Voters are myopic and have a short time horizon.
V.	Retrospective/prospective controversy: voters react to past (retrospective) events more than to expected (prospective) ones, but the difference is small.
VI.	Sociotropic/egotropic controversy: sociotropic (national) economic voting is generally stronger than egotropic (personal) economic voting. However, there are some notable country exceptions.
VII.	The grievance asymmetry: voters may react more to negative changes than to corresponding positive ones.
VIII.	Little is known about the macroeconomic knowledge of voters and how it is obtained.
IX.	The instability problem: the main problem in the literature is that the VP-function lacks stability, both in cross-country studies and even in the same country over time.

¹⁾ See Paldam (1981), Lewis-Beck (1988), Norpoth et al. (1991) and Nannestad and Paldam (1994, 1997) for literature surveys. Source: Lewis-Beck and Paldam (2000), p. 114.

Table 3.1: Popularity Functions of the Austrian Parties at the Federal Level, 1987-2010, 24 Observations.
***AUPP (OEVP)* - Austrian People's Party, *SPAU (SPOE)* – Social Democratic Party Austria, *LPAU (FPOE)* - Freedom Party Austria**

Dependent variable	Lagged dependent variable $t-1$	Constant term	Dummy var. chancellor (for=2000-2006=1, else=0)	Unemployment rate UEQ_t	Inflation rate IR_t	Growth rate of income RI_t	Test-statistics			
							R ²	rho	D.W (transf.)	D.F.
<i>AUPP/OEVP</i>	0.709** (9.49)	12.946** (3.24)	3.264** (5.03)	-0.710 (-1.48)	-0.360 (-1.06)	0.097 (0.68)	0.934	-0.553	1.78	18
<i>AUPP/OEVP</i>	0.723** (10.40)	13.446** (3.93)	3.286** (5.08)	-0.814* (-1.92)	-0.328 (-1.01)	-	0.935	-0.563	1.76	19
<i>SPAU/SPOE</i>	0.616** (4.19)	4.386 (0.46)	1.955 (1.51)	1.133 (0.97)	0.343 (0.47)	0.316 (1.47)	0.759	0.410	2.10	18
<i>SPAU/SPOE</i>	0.677** (4.46)	6.102 (0.64)	1.918* (1.71)	0.612 (0.57)	0.546 (0.80)	-	0.746	0.735	2.09	19
<i>LPAU/FPOE</i>	0.639** (6.79)	4.370 (0.71)	-6.142** (-3.85)	0.788 (0.80)	-0.089 (-0.20)	-0.266 (-1.05)	0.919	-0.403	1.99	18
<i>LPAU/FPOE</i>	0.660** (6.55)	0.847 (0.17)	-6.252** (-3.92)	1.167 (1.27)	-0.169 (-0.44)	-	0.917	-0.422	1.96	19

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination; D.W.=transformed Durbin-Watson statistic; D.F.=degrees of freedom; Prais-Winsten AR (1) regression.

Table 3.2: Popularity Functions of the Austrian Parties at the Federal Level, 1987-2010, Explicitly Modeling the AUPP/LPAU Coalition, AUPP (OEVP) - Austrian People's Party, SPAU (SPOE) - Social Democratic Party Austria, LPAU (FPOE) - Freedom Party Austria – Part 1

Dependent variable	Lagged dependent variable $t-1$	Constant term	Unemployment rate $UEQ_t * DY1_t$	Unemployment rate $UEQ_t * DY2_t$	Inflation rate $IR_t * DY1_t$	Inflation rate $IR_t * DY2_t$	Growth rate of income $RI_t * DY1_t$	Growth rate of income $RI_t * DY2_t$	DY-V. chancellor from 2000 to 2006=1, else=0	Test-statistics			
										R ²	rho	D.W (transf.)	D.F.
<i>AUPP/OEVP</i>	0.864** (9.36)	7.374 (1.58)	-1.755 (-1.24)	-0.649(*) (-1.92)	-2.487* (-2.30)	0.111 (0.40)	-0.522 (-0.90)	-0.057 (-0.38)	17.444 (1.58)	0.962	-0.62	1.62	15
<i>AUPP/OEVP</i>	0.598** (6.88)	22.699** (4.30)	-0.252 (-0.50)	-1.666** (-2.94)	-2.716** (-3.39)	-0.305 (-0.91)	-0.238 (0.60)	0.030 (0.18)	-	0.955	-0.62	1.87	16
<i>SPAU/SPOE</i>	0.803** (5.88)	7.775 (1.12)	1.701(*) (1.72)	-0.376 (-0.79)	-0.365 (-0.41)	0.109 (0.29)	-1.053** (-3.29)	0.252 (1.19)	-6.860 (-0.74)	0.898	-0.04	1.99	15
<i>SPAU/SPOE</i>	0.726** (4.95)	-0.438 (-0.049)	2.167(*) (2.15)	1.214 (0.99)	-0.197 (-0.17)	0.085 (0.11)	-0.747* (-2.67)	0.526(*) (1.92)	-	0.775	0.249	1.99	16
<i>LPAU/FPOE</i>	0.750** (7.03)	3.723 (1.07)	-1.164 (-0.53)	0.636 (1.26)	2.492 (1.15)	-0.512 (-1.23)	0.281 (0.35)	-0.199 (-0.85)	-0.482 (-0.03)	0.931	-0.189	1.961	15
<i>LPAU/FPOE</i>	0.593** (6.32)	0.739 (0.12)	-0.914 (-1.30)	1.520 (1.48)	4.522** (2.60)	-0.441 (-1.12)	0.014 (0.03)	-0.056 (-0.25)	-	0.949	-0.423	1.86	16

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination, Prais-Winsten AR (1) regression.

DY1 = 1 from 2000 to 2006, else = 0

DY2 = 1 from 1987 to 1999 and 2007 to 2010, else = 0

D.W. = transformed Durbin-Watson statistic; D.F.=degrees of freedom.

Table 3.2: Popularity Functions of the Austrian Parties at the Federal Level, 1987-2010, Explicitly Modeling the AUPP/LPAU Coalition, AUPP (OEVP) - Austrian People's Party, SPAU (SPOE) - Social Democratic Party Austria, LPAU (FPOE) - Freedom Party Austria – Part 2

Dependent variable	Lagged dependent variable $t-1$	Constant term	Unemployment rate $UEQ_t * DY1_t$	Unemployment rate $UEQ_t * DY2_t$	Inflation rate $IR_t * DY1_t$	Inflation rate $IR_t * DY2_t$	Growth rate of income $RI_t * DY1_t$	Growth rate of income $RI_t * DY2_t$	DY-V. chancellor from 2000 to 2006=1, else=0	Test-statistics			
										R ²	rho	D.W (transf.)	D.F.
<i>AUPP/OEVP</i>	0.485** (4.18)	31.963** (4.14)	1.177 (1.18)	-2.524** (-3.67)	-1.818* (-3.06)	-0.346 (-1.06)	-	-	-17.727 (-1.61)	0.956	-0.602	2.025	17
<i>AUPP/OEVP</i>	0.586** (7.53)	23.787** (5.28)	-0.425 (-1.20)	-1.776** (-3.98)	-2.868** (-4.02)	-0.269 (-0.88)	-	-	-	0.953	-0.603	1.821	18
<i>SPAU/SPOE</i>	0.636** (2.85)	9.784 (0.60)	2.403* (1.77)	0.277 (0.17)	0.317 (0.18)	0.557 (0.72)	-	-	-12.129 (-0.73)	0.734	0.350	2.108	17
<i>SPAU/SPOE</i>	0.673** (3.73)	4.901 (0.45)	1.263 (1.22)	0.800 (0.70)	-0.208 (-0.12)	0.662 (0.81)	-	-	-	0.732	0.369	2.104	18
<i>LPAU/FPOE</i>	0.481** (7.07)	-5.499 (-1.30)	-4.871** (-4.26)	2.728** (3.67)	1.757** (2.30)	-0.299 (-0.85)	-	-	40.351** (3.48)	0.069	-0.564	2.126	17
<i>LPAU/FPOE</i>	0.591** (6.99)	-0.067 (-0.01)	-0.821 (-1.45)	1.631* (1.92)	4.672** (3.16)	-0.470 (-1.38)	-	-	-	0.949	-0.428	1.848	18

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination; Prais-Winsten AR (1) regression.

DY1 = 1 from 2000 to 2006, else = 0

DY2 = 1 from 1987 to 1999 and 2007 to 2010, else = 0

D.W. = transformed Durbin-Watson statistic; D.F.=degrees of freedom.

Table 3.3: Popularity Function of the Upper-Austrian Parties 1979 to 2010, 32 yearly Observations, Upper Austria AUPP (OEVP) - Austrian People's Party, SPAU (SPOE) - Social Democratic Party Austria, LPAU (FPOE) - Freedom Party Austria

Dependent variable	Lagged dependent variable $t-1$	Unemployment rate UEQ_t	Inflation rate IR_t	Income growth rate IR_t	Constant term	Test-statistics		
						R ²	D.W. (transf.)	D.F.
<i>AUPP/OEVP</i>	0.676** (3.11)	-1.391(*) (-1.97)	-0.063 (-0.14)	-0.115 (-0.55)	21.704(*) (1.93)	0.643	1.936	26
<i>SPAU/SPOE</i>	0.618** (2.95)	-1.015(*) (-1.87)	-0.088 (-0.16)	0.226 (0.95)	16.280 (2.13)	0.674	1.997	26
<i>LPAU/FPOE</i>	0.681** (5.63)	2.516* (2.15)	0.080 (0.21)	0.409(*) (1.87)	-8.895 (-1.47)	0.656	2.013	26
<i>AUPP/OEVP</i>	0.664** (3.13)	-1.357(*) (-1.98)	-0.124 (-0.28)	- -	21.792(*) (1.97)	0.641	1.94	27
<i>SPAU/SPOE</i>	0.664** (3.29)	-1.089* (-2.08)	-0.017 (-0.03)	- -	16.452* (2.27)	0.645	1.95	27
<i>LPAU/FPOE</i>	0.758** (5.63)	1.510(*) (1.86)	0.292 (0.71)	- -	-4.173 (-0.65)	0.780	1.93	27

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination. D.W.=transformed Durbin-Watson statistic; D.F.=degrees of freedom; Prais-Winsten AR(1) regression.

Table 3.4: Election-Functions for Austrian People's party (OEVP) of the years 1999, 2002, 2006, 2008, AUPP=Austrian People's Party (OEVP); Cross Sectional Regression.

Dependent variable	Constant term	Unemployment rate UEQ_t	Growth rate of income RI_t	Test-statistics	
				R ²	D.F.
<i>AUPP/OEVP 1999</i>	28.099** (5.55)	-0.906 (-1.45)	3.579* (2.12)	0.102	84
<i>AUPP/OEVP 2002</i>	43.801** (9.34)	-1.203** (-2.00)	4.348** (3.20)	0.133	84
<i>AUPP/OEVP 2006</i>	40.550** (10.72)	-1.373* (-2.24)	1.670** (4.85)	0.232	84
<i>AUPP/OEVP 2008</i>	35.054 (10.73)	-0.970(*) (-1.67)	-0.677** (-3.87)	0.162	84

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination. D.F. = degrees of freedom; cross-sectional regression.

AUPP (OEVP) was in government over all four elections.

Table 3.5: Election functions for the Social Democrats (*SPOE*) of the years 1999, 2002, 2006, 2008, *SPAU*=Social Democratic Party Austria (*SPOE*); Cross Sectional Regression.

Dependent variable	Constant term	Unemployment rate UEQ_t	Growth rate of income RI_t	Test-statistics	
				R^2	D.F.
<i>SPAU/SPOE</i> 1999	30.896** (9.10)	1.163** (2.24)	-2.652** (-2.55)	0.115	84
<i>SPAU/SPOE</i> 2002	32.525** (7.60)	1.580** (2.88)	-3.262** (-2.63)	0.139	84
<i>SPAU/SPOE</i> 2006	30.828** (8.10)	0.787 (1.28)	-0.410 (-1.18)	0.029	84
<i>SPAU/SPOE</i> 2008	26.404 (8.22)	0.267 (0.47)	0.264 (1.53)	0.028	84

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R^2 is the adjusted coefficient of determination; cross-sectional regression.

SPAU (*SPOE*) was in government before the 1999 and before the 2008 election, at the elections 2002 and 2006 they were in opposition.

Table 3.6: Election Functions for the Freedom Party (FPOE) of the years 1999, 2002, 2006, 2008, LPAU=Freedom Party Austria; Cross Sectional Regression.

Dependent variable	Constant term	Unemployment rate UEQ_t	Growth rate of income RI_t	Test-statistics	
				R^2	D.F.
<i>LPAU/FPOE 1999</i>	25.653** (9.26)	0.373 (0.98)	-0.278 (-0.29)	0.022	84
<i>LPAU/FPOE 2002</i>	9.018** (3.50)	0.418 (1.27)	-0.484 (-0.65)	0.022	84
<i>LPAU/FPOE 2006</i>	13.817** (14.60)	-0.482** (-3.14)	-0.166(*) (-1.93)	0.169	84
<i>LPAU/FPOE 2008</i>	22.047** (15.51)	-0.997** (-3.96)	0.002 (0.03)	0.164	84

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R^2 is the adjusted coefficient of determination; cross-sectional regression.

LPAU (FPOE) was in government 2002 and 2006, 1999 and 2008 in opposition.

Table 3.7: Election Functions for National Austrian Elections of the years 1999, 2002, 2006, 2008, *AUPP*=Austrian People's Party (*OEVP*); Cross Sectional Regression.

Dependent variable	Lagged ¹⁾ dependent variable $t-1$	Constant term	Unemployment UEQ_t	Growth rate of income RI_t	Test-statistics	
					R^2	D.F.
<i>AUPP/OEVP</i> 1999	0.820** (7.98)	5.665 (1.20)	-0.682(*) (1.78)	1.302* (1.99)	0.818	81
<i>AUPP/OEVP</i> 2002	1.026** (31.36)	13.507* (7.48)	-0.079 (-0.40)	0.754* (2.00)	0.918	81
<i>AUPP/OEVP</i> 2006	0.964** (48.30)	-6.106** (-5.15)	-0.123 (1.13)	0.206** (3.91)	0.984	81
<i>AUPP/OEVP</i> 2008	0.858** (29.01)	-3.767* (-2.20)	0.011 (0.06)	0.129** (3.01)	0.942	81

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R^2 is the adjusted coefficient of determination; cross-sectional regression.

1) Means election result of the last election.

Table 3.8: Election Functions for Social Democrats (*SPOE*) of the years 1999, 2002, 2006, 2008, *SPAU*=Social Democratic Party Austria (*SPOE*); Cross Sectional Regression.

Dependent variable	Lagged ¹⁾ dependent variable $t-1$	Constant term	Unemployment rate UEQ_t	Growth rate of income RI_t	Test-statistics	
					R^2	D.F.
<i>SPAU/SPOE</i> 1999	0.864** (12.46)	-0.955 (-0.61)	0.293 (0.88)	-0.020 (-0.06)	0.899	82
<i>SPAU/SPOE</i> 2002	1.150** (85.58)	0.051 (0.08)	-0.174* (-2.50)	-0.386 (-2.33)	0.987	82
<i>SPAU/SPOE</i> 2006	0.977** (68.94)	-0.270 (-0.32)	-0.081 (-0.79)	0.204** (3.81)	0.943	82
<i>SPAU/SPOE</i> 2008	0.865 (44.96)	-1.096 (-1.34)	-0.068 (-0.80)	-0.005 (-0.22)	0.97	82

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R^2 is the adjusted coefficient of determination; cross-sectional regression.

1) Means result of the last election.

Table 3.9: Election Functions for the Freedom Party (FPOE) of the years 1999, 2002, 2006, 2008, LPAU=Freedom Party Austria; Cross Sectional Regression.

Dependent variable	Lagged ¹⁾ dependent variable $t-1$	Constant term	Unemployment rate UEQ_t	Growth rate of income RI_t	Test-statistics	
					R ²	D.F.
<i>LPAU/FPOE 1999</i>	0.924** (26.64)	6.831** (4.45)	0.270* (1.97)	-0.757(*) (-1.68)	0.859	82
<i>LPAU/FPOE 2002</i>	0.809** (13.31)	-11.977 (-5.88)	0.169 (1.08)	-0.278 (-1.10)	0.811	82
<i>LPAU/FPOE 2006</i>	0.042 (0.79)	13.525** (14.32)	-0.504** (-3.02)	-0.170(*) (-1.77)	0.177	82
<i>LPAU/FPOE 2008</i>	1.056** (9.47)	7.907 (4.97)	-0.384(*) (-1.90)	-0.630 (-0.89)	0.556	82

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination; cross-sectional regression.

1) Means result of the last election.

Table 3.10: Election Function of the AUPP (OEVP) over the Elections 1999, 2002, 2006, 2008 Panel-Estimation Random Effects (RE) GLS Estimation Procedure; Election Dummies *DY2002*, *DY2006* and *DY2008*

Dependent variable	Constant term	<i>DY2002</i>	<i>DY2006</i>	<i>DY2008</i>	Unemployment rate <i>UEQ_t</i>	Growth rate of income <i>RI_t</i>	Test-statistics			D.F.
							R ²	rho	chi ²	
<i>AUPP/OEVP</i>	33.351** (25.21)	15.61** (49.21)	7.57** 24.40	-1.372 (-5.74)	-0.458* (-2.50)	0.148** (4.47)	0.358	0.965	5297.0	85

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters. R² is the adjusted coefficient of determination.

Table 3.11: Election Functions of the AUPP (OEVP) over the Elections 1999, 2002, 2006 and 2008; with the lagged dependent variable; Cross Sectional time series FGLS (Feasible Generalized Least Squares) estimation

Dependent variable	Lagged dependent variable <i>t-1</i>	Constant term	Unemployment rate <i>UEQ</i>	Growth rate of income <i>RI</i>	Test-Statistics	
					chi ²	D.F.
<i>AUPP/OEVP</i>	0.601** (13.74)	11.822** (4.57)	0.242 (0.81)	0.387* (2.46)	197.6	85
<i>AUVP/OEVP</i> Common AR (1) coeff. -0.119	0.648* (15.74)	10.385** -2.425	0.206 (0.75)	0.472* (2.89)	259.3	85

Notes: (*), *, **, indicates that the corresponding null hypothesis can be rejected at the 10, 5 and 1% significance level, respectively. The numbers in parentheses are the corresponding t-statistics of the estimated parameters.

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