

**Reward and Punishment**  
**Essays on Party Popularity and Economy**

by

ANNA-LEENA ASIKAINEN

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# I

## Introduction

### 1 Background

Elections and public opinion surveys on the political actor's success are part of democratic life. In elections, aim is to pick the most suitable candidate to govern in the future. In the public opinion polls, respondents reflect their experiences of the political actors' policies and actions so far. In both cases, individual citizen is given a chance to express her/his opinion. In both occasions, the outcome can be simplified to phrases like either-or, for-or-against, 0-or-1.

There have been several different attempts to understand and interpret forces swinging the decision from 0 to 1 and vice versa. This trivial seeming outcome can be traced to have been influenced by social, economic and political contexts. In this dissertation, the economic context is the main focus, but we will not forget the social nor the political context as we proceed to the last chapter.

The first to theoretically emphasize the economic context was Anthony Downs with his influential work 'Economic Theory of Democracy' (1957), which binds self-interest and rationality to the study of human political activities. Downs connects abstaining from voting and choice of candidate. A central role is given to so-called party differential obtained by subtracting expected utility supplied by opposition from expected utility supplied by incumbent. In calculating the expected party differential the voter uses the incumbent's past performance as an indicator of the future. The expected utility provided by the opposition is determined as policy measures it would have taken, had it been the incumbent. If the result of this difference is

zero, then it is rational to abstain from voting. If it is positive, then it is rational to vote for the incumbent, but otherwise the opposition. In addition, abstaining is rational if the information gathering costs exceed the utility from voting. If the decision has to be made between several parties, the Downsian choice is the most preferred party. But in the case that the most preferred party has no chance to win, then the choice is to vote against the least preferred party.

Each incumbent wishes to get reelected and its policies are designed to further that desire. Thus, it is straightforward to hold each incumbent accountable for the economic policy and economic outcomes in its period. The voters punish (reward) the incumbent for bad (good) economic development by voting against (for) it. Downs named this pattern as responsibility hypothesis<sup>1</sup>.

Downs assumes that parties have identical preferences on the economic outcomes. Hibbs (1977) was the first to connect the trade-off between unemployment and inflation to the trade-off between left-wing and right-wing parties. This assumption transformed the responsibility hypothesis to either partisan hypothesis, also known as clientele hypothesis (Hibbs, 1987, Swank, 1993), or salient goal hypothesis (Powell and Whitten, 1993). According to the partisan hypothesis left-wing (right-wing) voters are more likely to be hurt by unemployment (inflation), which places the lowering of unemployment (inflation) to left-wing (right-wing) parties' top priorities. Thus, high and/or increasing unemployment (inflation) raises support for left-wing (right-wing) parties. The support decision in the salient goal hypothesis is just the opposite to the partisan hypothesis. According to the salient goal hypothesis each party is held more accountable for the development of its salient goal. Hence, left-wing (right-wing) incumbent is evaluated

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<sup>1</sup>The same line of thought applies to the poll respondent's behavior. In polls, the incumbent seeks the highest possible approval for its policies. High approval is also a signal to the political rivals.

by its success with handling the unemployment (inflation).

Kramer (1971), Mueller (1971) and Goodhard and Bhansali (1970) were the first to capture this multidimensional phenomenon into a simple statistical relationship. The different hypotheses conditioning the incumbent's poll success to its economic success can be subjected to empirical testing using so-called popularity function. Existence and strength of economic approval can be empirically tested in two ways. The first involves national aggregate variables on both sides of the estimation equation. The second applies individual-level survey data with information on the respondent's background and reporting of her/his own economy and her/his perceptions of the national economy. When applied to either of the data sets, the popularity function tells the economic variables, political and other events that shake public opinion. Aggregate data allows taking account of the passing of time and studying the differences between long-term and short-term relationships between the popularity series and the explanatory variables. In addition, it allows the researcher to find out about trends, cycles and shocks and their persistence in popularity series. Applying the individual-level data gives information on whether one's socioeconomic and demographic background matters for the approval behavior. Major benefit of using the individual-level data is avoiding problem of ecological inference. Namely, often the interpretation of the aggregate results involves an aim to infer the underlying individual behavior.

Standard linear formulation of the popularity function in aggregate form<sup>2</sup> is as follows

$$P_t = \beta_0 + \beta_1 P_{t-1} + \sum_{i=1}^n \beta_{2i} E_{it} + \sum_{i=1}^k \beta_{3i} X_{it} + \sum_{i=1}^p \beta_{4i} T_{it} + \epsilon_t,$$

where  $P_t$  is the poll share of government or the party at time  $t$ , the first variable on the right hand side is its lagged value ( $P_{t-1}$ ).  $E_{it}$  stands

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<sup>2</sup>Respective disaggregate form is as follows:  $P_{i,t} = \beta_0 + \beta_t + \beta_1 P_{i,t-1} + \beta_2 E_{i,t} + \beta_3 X_{i,t} + \epsilon_{i,t}$ , where  $i$  refers to individual,  $E$  to economic variables and  $X$  to socio-demographic variables.

for independent economic variables. The included economic variables have to have a direct effect on the citizens' well-being and have to be clearly noticeable via media or personal experience. The most often tested economic arguments are unemployment, inflation and incomes<sup>3</sup>.  $X_{it}$  includes political variables, which highlight significance of atypical events concerning internal or foreign affairs<sup>4</sup>.  $T_{it}$  includes time-related variables that expose trends, cycles and sudden changes in popularity levels. Typical trends are so-called honeymoon effect in the beginning of an incumbency period and cost-of-ruling trend reflecting wear and tear in popularity caused by passing of time.

## 2 Issues related to Estimation of Popularity Function

In the following, we review some central aspects of the popularity function research from the point of view of our study but for a more detailed and wider surveys see for example Monroe (1984), Kiewiet and Rivers (1985), Lewis-Beck (1988), Schneider and Frey (1988), Nannestad and Paldam (1994), Anderson (1995), Norpoth (1996) or Lewis-Beck and Stegmaier (2000). In addition, Drazen (2000, Ch. 7) and Mueller (2003, Ch. 19) discuss both theoretical and empirical aspects of the popularity function and issues related to it.

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<sup>3</sup>In addition, effects of income taxes, balance of payments deficit, government expenditures and debt, exchange rate, vacancies, bank rate, house building rate, Standard and Poor's Market index, military expenditures, food price and ratio of tax revenue to GDP have been tested.

<sup>4</sup>For example wars, terrorist attacks, assassinations, scandals related to politicians or parties, strike activities, by-elections, change of party leader.

### **National economy, local economy and one's own pocketbook**

A central issue in the popularity function research is determination of the poll respondent's economic reference group. In other words, what is the economic unit whose development the respondent evaluates while making the support decision. Is it the national economy that has essential role (sociotropic approval basis) or is it the respondent's own pocketbook that matters (egotropic approval basis)? Or is it something between them, like the local economic development?

Division between egotropic and sociotropic basis of approval was originally raised in Kinder and Kiewiet (1979). Both aspects have their supporters, though e.g. in Nannestad and Paldam (1994) it is concluded that the sociotropic hypothesis receives more empirical support. The local economy aspect is quite a new approach. Diverging regional economic development and regionally diverging voting behavior has led the researchers to assume and test whether it is the local economy that decides the party fate<sup>5</sup>. Applying the local economic indicators means going beyond the national averages and closer to the poll respondent's real decision-making environment.

Unemployment is often chosen to reflect the welfare of different socio-economic groups and geographic regions. Overall, there are several different unemployment indicators for the incumbent to be worried about. On the individual level, unemployment has wide economic and mental consequences as it not only affects the person unemployed but also his/her family. On the aggregate level, unemployment tells about unused resources. The local unemployment labels the region either to potential future makers or losers which attracts or distracts business.

Too often researchers see these different reference groups exclusive to each other. However, it shouldn't be so. Minding one's own pocketbook

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<sup>5</sup>There are several studies on British data showing the importance of local economies and residential neighborhoods for one's political opinions. See e.g. Pattie and Johnston 1995, 1997, 1998.

shouldn't mean not minding the local economy or the national economy. But whatever the researcher's aspirations are, it is usually availability of data that directs and sets limits to the research.

### **Similar behavior over time and everywhere**

Generally, in the popularity function studies it is assumed that same factors affect the respondents' decision making with same volume wherever they live and whatever their socioeconomic background is. In addition, the influence is assumed to stay stable over time no matter how long the research period is or how turbulent the economic and/or political development is. Possible changes in the society influencing the popularity series include sudden or smooth changes of actors behind the institutions, small or large scale ideological fluctuation on party-level or in the society. Economic crisis, new economic policy paradigms and changes in industrial composition may also be seen in the popularity series. Not to mention that part of the respondents change their opinion fast, another part change it slowly if at all. Not only do these changes influence the relationship between the dependent and explanatory variables in the popularity function, but they may also change the statistical nature of the popularity series.

Every mentioned aspect is relevant in modern societies. Instability of the estimated coefficients is an admitted problem though there is a lack of serious attempts to capture this instability. Time series econometrics provides several techniques to model the changing coefficients, depending whether we assume the change to take place smoothly or abruptly (see for example Maddala and Kim, 2001). Before modeling the relationship between the popularity series and the explanatory variables, one needs to be informed about the nature of the popularity series itself. This aspect of research has received lately some attention in the US, where forecasting the Presidential election result with help of survey data has become more and more important.

### **3 Summaries of the Essays**

These studies are partly inspired by the above mentioned problems in the popularity function research, partly by the depression that Finland and Sweden experienced in beginning of the 1990's. We address the above discussed issues in the first essay by studying the memory properties, i.e. shock persistence, of party popularity series and examine whether the classifications are linked to the existence of structural breaks in the series. In the second essay, we loosen the assumption of stable coefficients by applying period analysis and identifying two different regimes for the influence of unemployment on the party popularity. In the third essay, we connect each of the poll respondents to their local economies and try to find out whether the respondents in different areas behave differently either because of the economy or because of the provincial effect.

#### **3.1 Long Memory and Structural Breaks in Finnish and Swedish Party Popularity Series**

Lately, studying time series properties of party popularity series has become a topic in itself. Particularly, interest has arisen around the long memory property found in the series (see e.g. Box-Steffensmeier and Smith, 1996, 1998, Byers et al., 1997, 2000, Clarke and Lebo, 2002, Lebo et al., 2000). Composition of the popularity series gives us reason to assume that such series have long memory but neither short nor perfect memory. Another property that these series, as any other macro-level time series, may possess is structural breaks. Testing stationarity in the presence of structural breaks may lead to miscategorizing. In the usual stationarity tests, ignoring structural breaks leads us to conclude that the series has a unit root when in reality it does not (Perron, 1989). The same problem applies to a series with long memory. When we have classified a series as having long memory, there is a chance that we have confused long memory and a structural break

(Diebold and Inoue, 2001).

We approach the problem by first separately seeking long memory and unknown multiple structural breaks. If both are found, then we control the structural breaks in the series and test whether a unit root or long memory still exists. This particular approach has not been applied to the popularity series before. We apply this method to the popularity series of the four biggest Finnish and Swedish parties for the period from 1987 to 2001. The results classify party popularity series into perfect and long memory series, but a chance of miscategorizing in the presence of structural breaks is also apparent.

### **3.2 Is there a Threshold Effect in the Party Popularities with respect to the Changes in Unemployment?**

In the second essay, aim is to examine the influence of dramatic economic changes to party popularity series in two similar countries implementing different policies and, thus, experiencing different outcomes. The crisis measured by its depth and length was by far greater in Finland than it was in Sweden. We expect to see the mentioned differences in the results. In addition, the turbulence in the economy and transformation in the society brought about by the crisis led us to assume over time changing relationship between party popularity and economy.

Our data consist of popularity ratings of the four biggest parties in Finland and in Sweden from 1987 to 2001. We start with estimating a linear popularity function separately for each party. As expected the results differ between Finland and Sweden. Finnish and Swedish sister-parties are influenced in opposite ways by the economy. Swedish left-wing parties (the Social Democratic Party, the Left Party) are negatively affected by unemployment and inflation but the Finnish equivalents (the Social Democratic Party, the Left Alliance) are positively influenced by the same variables. Popular-

ity of Finnish right-wing parties (the Center Party, the National Coalition) decreases when unemployment and inflation increase, but in Sweden the Moderate Party's popularity increases along with unemployment. Reasons for the differences may lie in the depth of the depression, the contents, and success, of the policies practiced. In Sweden, most of the decisions on public sector saving and cutbacks in transfers were made in 1994-95 by the Social Democratic government, whereas in Finland most of the decisions on cutbacks and public sector saving were made earlier by right-wing government.

We model varying influence of the economic variables on the party popularity by fitting a threshold model to the Finnish and Swedish data. We search for split points that change the influence of the unemployment on the party popularities from plus to minus or to zero. The results confirm our finding that Finnish voters turn to left-wing parties when unemployment is high. We find that unemployment needs to be high (11-15%) to influence significantly Finnish party popularities, except popularity of the National Coalition whose popularity suffers from unemployment all the time. When the unemployment rate lies between 12.2% and 15.1% both unemployment and inflation have a negative influence on right-wing parties. During most of the right-wing government period the unemployment rate was within these limits. Indeed, the Swedish results are much more difficult to interpret and conclude. Either the threshold is not significant (the Left Party, the Social Democratic Party) or the number of observations in regime is very low (the Center Party, the Moderate Party). Maybe the large autoregressive term in the Swedish popularity function estimations absorbs the influence of the other variables. Maybe the unemployment never rose high enough to reveal the thresholds in the Swedish popularity functions.

### **3.3 Local Unemployment and Other Factors Influencing Individual Government Approval in Finland**

In the beginning of the 1990's Finland experienced the deepest peace-time recession in its history. The economic crisis touched somehow everyone but at different volumes. Its influence is still visible as regionally diverging unemployment rates. We connect this to the regionally diverging government approval rates and ask whether the survey respondents base their government evaluations on the local unemployment. In addition, we examine whether the government approval in different socioeconomic groups is linked to their experiences in the crisis. In the Finnish aggregate data studies high national unemployment has been connected to the decline of the incumbent popularity as well as to the increase of left-wing party popularity (Nyberg, 2000, Asikainen, 2003).

Our biannual survey data covers the years of right-wing coalition from 1991 to 1995 and the years of the almost-all-inclusive coalition from 1995 to 2001. All the models are estimated for the different government types separately. Our results concerning the influence of the local unemployment are colored by the dominant position of the Center Party in the Eastern and Northern provinces which suffer from high local unemployment. In the first period, we find that the high local unemployment does not increase the respondent's likelihood of not approving of the government, but the opposite happens in the latter period. Further, our results support the class dealignment, as there is only weak indication of class-based support in the farmers and blue collar workers groups. Even that emerges as 'non-support' since each of the groups is more likely not to approve of the government traditionally in contrast with their interests (farmers - SDP led government, blue collar workers - right-wing government). The differences in approval by gender come up as we estimate the influence of education within genders separately. In the latter period, men with no training and women with

either polytechnic or academic education are less likely to approve of the government. The discontent is visible among the academic women already in the first period. The men without training face the risks of unemployment, poverty and being estranged from the society. The already less-well-off position combined with the cutbacks of social transfers in the 1990's may lead them to oppose the government. The academic women may feel discontent with the government due to the cutbacks in welfare services and transfers which insure against being less-well-off if, for example, faced with the single-parenthood.

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## II

# Long Memory and Structural Breaks in Finnish and Swedish Party Popularity Series

Anna-Leena Asikainen

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### Abstract

A time series with a unit root or fractional root can be miscategorized in stationarity tests if the series has structural breaks. We test this finding on Finnish and Swedish party popularity series. The composition and nature of popularity series provide reasons to assume fractional dynamics. Our observation period, 1987-2001, offers several reasons for the existence of structural breaks. We find that three series have breaks and in two cases control of the structural breaks changes the unit root assumption to a fractional root. Thus, popularity series have either long or perfect memory, but this property cannot be explained by controlling structural breaks.

Keywords: political party popularity, fractional root, structural breaks

JEL Classification: D72, C22

# 1 Introduction

This study asks whether we can completely ignore fundamental changes in society in analyzing the stationarity of party popularity ratings. As time series data is nowadays a popular way to explore voting behavior and factors affecting election results, the stationarity of popularity series has come under intense scrutiny (Box-Steffensmeier and Smith, 1996, 1998, Byers et al., 1997, 2000, Clarke and Lebo, 2002, Lebo et al., 2000). Correct information on stationarity has consequences for econometric modeling if the series are used in further econometric analysis. Incorrect assumptions may cause problems for statistical inference, the forecasting performance of the model and lag structure specification. Good forecasting performance is especially important in countries where the government can decide on the timing of elections and economic policy measures. Incumbents also have a tendency to create politically induced business cycles. In that case it is useful to have information on aggregate approval behavior with respect to economic policy changes. Whether the influence of a change is positive or negative is quite trivial, but a more challenging task is to find out how long the influence lasts. Anticipating the persistence of a shock in political popularity has been of interest to political scientists and politicians for a long time, but until now we have not had proper methods of capturing this effect.

Stationarity analysis is mostly about finding out how a series reacts to a shock. There are three options for shock persistence: it lasts either forever or long or short time. When the series has a unit root, the series has perfect memory, when the shock effect lasts long we say that the series has long memory, and when the effect of the shock dies out quickly the series has short memory. The composition of popularity series gives us reason to assume that such series have long memory but neither short nor perfect memory. Popularity series is a sum of the survey answers of heterogenous respondents, aggregation over individuals favors long-memoried alternatives (Granger, 1980). Thus, it is reasonable to assume that popularity ratings have long memory since, after experiencing a

shock, the rating changes smoothly as some supporters are slow to change their opinion of the party if they are doing it at all (Byers and Peel, 1997). Whereas other respondents change their opinions quickly. This division in the supporter group creates a smooth change over time in the popularity series. In addition, voters react to different events; some react mainly to political events and others only to economic events (Zaller, 1992). Further, the popularity series are bounded from above and from below. Thus, the series can wander only within the limits (1-100).

Another important issue in time series analysis we have to be aware of is structural breaks. Since, several macro-level time series have structural breaks because of exogenous shocks and major institutional changes (Perron, 1989), the occurrence of such breaks in party popularity ratings is also highly probable. In general, public opinion is assumed to project the state of the society and changes in society should be reflected in the polls. Elections can cause structural breaks in popularity series by various means. Before the elections the information level of voters increases as the media concentrate on campaigns and the achievements of the incumbents. After elections the actors behind institutions change and this may cause a break as well. Other possible causes of structural breaks are changes in parliamentary status (from government to opposition, and vice versa; from the prime minister's party to an incumbent or opposition party), changes in the poll sampling method and the wording of survey questions. Party popularity ratings may also reflect changes in the economy and economic policy. We may thus confidently assume that there may be several unknown break points in a popularity series.

When there is a reason to doubt that a series has both of these properties, we have to be especially careful in time series property analysis. In the usual stationarity tests, ignoring structural breaks leads us to conclude that the series has a unit root when in reality it does not (Perron, 1989). The same problem applies to a series with long memory. This is still a potential problem as tests have not yet been developed to distinguish long memory from structural breaks. When we have classified a series as having long memory, i.e. the effect of a

shock lasts long, there is a chance that we have confused long memory and a structural break (Diebold and Inoue, 2001). The nature and composition of party popularity series supports the presence of structural breaks and long memory. We approach the problem by first separately seeking long memory and unknown multiple structural breaks. If both are found, then we control the structural breaks in the series and test whether a unit root or long memory still exists. This particular approach has not been applied to popularity series before, but for example to S&P500 absolute stock returns in Granger and Hyung (2004).

This reasoning applies to the popularity series of Finnish and Swedish parties. The four biggest parties in each country have been chosen as targets of the analysis. The Finnish parties included are the Left Alliance (LA), the Social Democratic Party (SDP), the Center Party (CENT) and the National Coalition Party (NC). The corresponding Swedish parties are the Left Party (LP), the Social Democratic Party (SDP), the Center Party (CENT) and the Moderate Party (MP). Finnish popularity ratings have been obtained by Taloustutkimus and the Swedish ratings are from SIFO. Monthly data is from September 1987 to October 2001. Large fluctuation in economic circumstances, changes in the economic policy regime and political paradigms make it reasonable to assume that these series will exhibit multiple break points in this period. Both countries experienced the deepest peace-time depression ever in the 1990s. Other changes affecting these countries and related to the first mentioned are overall liberalization in the economy (from a controlled market economy to a more pure form of market economy), an increase in general market-orientation, regime change in economic and monetary policy (EMU convergence criteria, inflation targets), EU membership, the collapse of Soviet Union and changes in industrial structure, not to mention elections and events within parties and politics.

In the following, we first describe the statistical differences between unit root, fractional root and stationary series. In chapter 3, we test which of these characterizations best fits the popularity series. As is already clear, there is a serious threat of misinterpretation of those tests if we do not pay proper attention

to the possible existence of structural breaks. Section 4 applies a sequential test in the search for multiple unknown break points. The last procedure is to test whether the break points cause stationarity properties in Finnish and Swedish party popularity series.

## 2 Integer vs. Fractional Integration

This section defines different memory lengths using statistical terms. As is usual (see e.g. Maddala and Kim, 1998) we see how close to each other these nonstationary and stationary series are in theory, noting their behavior of variance and autocorrelation structure. Finally, we explain why it is reasonable to assume that popularity series have each of these structures.

We illuminate the differences between integer and fractional integration by representing a linear time series as ARIMA model. Let us consider a series with the following formulation  $\phi(L)(1 - L)^d X_t = \theta(L)\varepsilon_t$ , where  $L$  represents a lag operator,  $\theta(L)$  is a stationary autoregressive process,  $d$  is a real number between 0 and 1,  $\theta(L)$  a stationary MA process, and  $\varepsilon_t$  is i.i.d. Obviously, many properties depend on  $d$ , the order of integration.

If  $d=0$ , the series has short memory, which means that correlation between consecutive observations fades out quickly and the series returns to its constant mean. Its variance is finite and its mean, variance and covariance are constant. This series is modeled by combining an autoregressive and a moving average parameter as in ARIMA (p,0,q).

If  $d=1$ , the series is a nonstationary unit root process. Variance is time-dependent and infinite. This series is a function of its previous value and current error. The effect of a shock grows (cumulates) over time and the series does not revert to a constant mean level. Modeling involves differencing the unit root process and then applying stationary autoregressive moving average parameters in the form of ARIMA (p,1,q).

If  $0 < d < 1$ , the series has a fractional root (or long memory). This series has properties of both stationary and nonstationary series. All the series with  $d$  in

this range are similar as to memory and mean reversion, but differ in variance behavior depending on whether  $d$  is above or below 0.5. When  $d$  lies between 0 and 0.5 ( $0 < d < 0.5$ ) the variance and autocovariances are finite and constant, and the series is stationary. When  $d$  belongs to  $0.5 \leq d < 1$ , variance is infinite, autocovariances are nonconstant, and the series is nonstationary. Here we concentrate mainly on the case where  $d$  is  $0.5 \leq d < 1$ . It is said that in stationary processes autocorrelation decays at an exponential rate, but in fractional root processes it decays at a hyperbolic rate. In other words, autocorrelation decays more slowly the greater the value  $d$  has. The series is modeled by ARFIMA  $(p, d, q)$ , a general approach to testing autoregressive and moving average properties which includes estimating ARMA  $(p, 0, q)$  and ARIMA  $(p, 1, q)$  models as its special cases. The general properties of  $I(d)$  are discussed in reviews by Baillie et al. (1996) and Sowell (1992).

In general, macro-level time series are found to have unit roots (Nelson and Plosser, 1982). In popularity series stationarity means very stable popularity shares because of mean reversion. Strict stationarity in popularity series practically blocks the emergence of new parties, which is not a very plausible assumption in normal democracies. In unit root processes large and persistent shocks may occur, but in the normal situation large and persistent popularity changes are not likely. The interest in understanding why popularity series could be characterized by fractional dynamics has increased recently (e.g. Box-Steffensmeier and Smith, 1996, 1998). Popularity series are created by aggregating heterogeneous individual-level behavior. If one survey respondent's behavior has a unit root or a fractional root, then the whole aggregated data set has it (Granger, 1980). Heterogenous in this context means differences in a persons's autoregressive behavior. Heterogenous memory properties may arise from differences in the information level of voters, the persistence of party identification, myopia, rationality and reaction speed<sup>1</sup>. The fact that the series has clearly defined upper and lower limits (0-100) also supports the assumption about fractional

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<sup>1</sup>There are several empirical studies showing the influence of information level differences on the pattern of party approvals, such as Zaller 1992.

dynamics.

As we have seen, the description of  $I(0)$ ,  $I(1)$  and  $I(d)$  is quite simple in statistical theory. The crucial differences between the actual series are caused by one parameter.

### 3 Detecting Fractional Integration

Our strategy in testing stationarity is to move from autocorrelation plots to more sophisticated tests. In this phase we take the possibility of structural breaks into account. There are several easily applied and widely used tests to detect whether a series is either  $I(0)$  or  $I(1)$ . We start with one of them, the Augmented Dickey-Fuller (ADF) test. After that we move on to a more sophisticated method to ascertain whether the results differ from each other.

The first approach to exploring the length of memory in a time series is to examine the correlation structure of consecutive observations. In the following figures (Figures 1-2), actual party popularity ratings are plotted with corresponding autocorrelation functions in Finland and Sweden. The more slowly decreasing an autocorrelation structure a series has, the longer the memory.

There are two more precise ways to find out whether a series is fractionally integrated or not: tests and point estimation of  $d$ , the decay rate. In general, unit root tests are consistent against  $I(d)$  alternatives (Baillie, 1996). Although fractional root is not an explicit alternative in the ADF test, we have chosen it because it has some power against fractional integration and it is best adaptable unit root test for a short series. The  $H_0$  hypothesis of ADF is a unit root. The ADF test has been criticized for its low power in detecting fractional integration (Diebold and Rudebusch, 1991). It does not directly indicate whether the series has a fractional root but this weakness can be covered if we can conclude that a series possibly has a fractional root when both alternatives are excluded. Table 1 shows ADF test results. The Augmented Dickey-Fuller test does not reject the hypothesis of  $I(1)$  for any series. The ADF test sheds some light on the question of long as against short memory but, as we recall, the ADF test tends

to underreject  $H_0$  if there are breaks in the trend.

Table 1. ADF test results<sup>2</sup>,  $H_0$ : unit root.

	Finland	Sweden
LA/LP	-2.54	-1.16
SDP	-1.83	-1.82
CENT	-1.92	-1.38
NC/MP	-2.10	-1.66

LA - Left Alliance, SDP - Social Democratic Party, CENT -Center Party, NC - National Coalition Party

The most exact information on the memory decay process is obtained by estimating the decay rate,  $d$ . There are three methods of doing this: semiparametric estimation (Geweke and Porter-Hudak, 1983), the approximate maximum likelihood in the frequency domain (Li and McLeod, 1986, Fox and Taqqu, 1986) and the exact maximum likelihood in the time domain (Sowell, 1992). Since the first two do not perform well in small samples (Sowell 1992), the following results are computed with ARFIMA 1.0 (Ooms and Doornik, 1998) which uses Ox (Sowell) and GiveWin frameworks<sup>3</sup>.

Before applying Sowell's method, the data is first-differenced to ensure stationarity. ARFIMA models with different  $p$ 's and  $q$ 's are estimated and the most suitable ARFIMA model chosen using Akaike's Information Criteria. The AIC depends on the number of parameters estimated, the residual sum of squares and the sample size. Simplifying to some extent, the smaller the AIC value gets, the better the model fits the data. The AIC values are reported in the Appendix (Table 1.). The AIC shows that ARFIMA (0,d,0) describes every Swedish party popularity series best.

<sup>2</sup>Constant included, applied lag length 4. The lag length is chosen with help of general to specific rule (see e.g. Ng and Perron, 1995). Critical values: 5%=-2.881 1%=-3.475.

<sup>3</sup>Sowell's Exact Maximum Likelihood estimator for OX. The ARFIMA package is downloadable from Doornik's homepage ([www.nuff.ox.ac.uk/users/doornik](http://www.nuff.ox.ac.uk/users/doornik)).

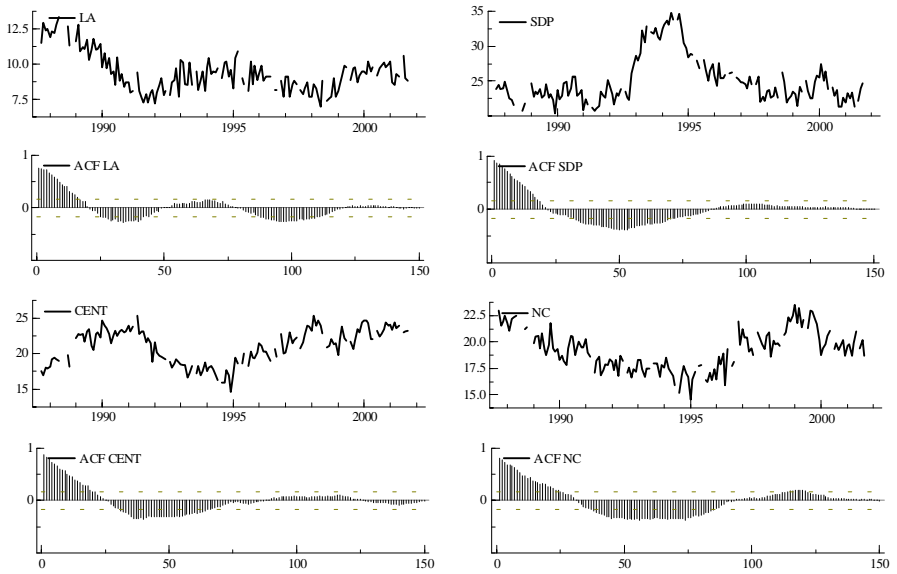


Figure 1. Time series plots and autocorrelation functions of Finnish party popularities.

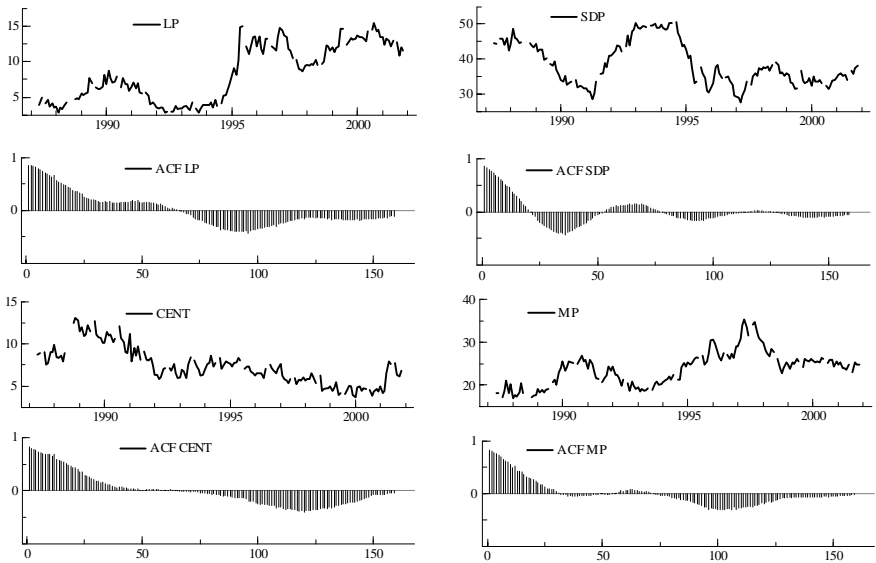


Figure 2. Time series plots and autocorrelation functions of Swedish party popularities.

There is more variation in the Finnish results. ARFIMA (0,d,1) performs best in the SDP's and NC's popularity series, ARFIMA (3,d,0) in the LA's and ARFIMA (2,d,0) in the CENT's popularity series. In previous studies AIC has in most cases chosen the ARFIMA (0,d,0) model to best describe the properties of party or US presidential popularity (Byers et al., 2000, Lebo et al., 2000, Box-Steffensmeier and Smith, 1996). The ARFIMA model selected has been estimated and a combination of tests and point estimates used in categorizing a series as a unit root, fractional root or short memory series. A series is concluded to have a fractional root when  $d$  falls within  $0.5 \leq d < 1$ . In addition, the t-test determines whether  $d$  differs from 0 or 1 t-test. There is reason to suspect fractional integration if the tests reject both stationarity and a unit root (Baillie et al., 1996). In tables 2-3  $\hat{d}$ 's and their standard errors are reported as well as t-test values for two different  $H_0$  hypotheses ( $d=0$  and  $d=1$ ). Normal distribution is used for critical values in the t-test.

Table 2.  $\hat{d}$ 's, standard errors and t-tests for Finnish parties.

Finland	t-test			
	$\hat{d}$	s.e.	$H_0: d=0$	$H_0: d=1$
LA	0.98	0.09	11.59***	-0.21
SDP	1.00	0.16	6.21***	-0.00
CENT	0.95	0.12	8.29***	-0.40
NC	0.96	0.39	2.47***	-0.09

LA - Left Alliance, SDP - Social Democratic Party, CENT -Center Party, NC - National Coalition Party. Significance levels: \*\*\* = 0.01, \*\* = 0.05, \* = 0.1.

In general, the assumptions of  $I(0)$  are rejected in favor of  $I(1)$ . Fractional integration is not suspected in any instance. Because Finnish party popularities have not been tested before for fractional integration, there is no comparable evidence for these results. In this phase we conclude that these series seem to be  $I(1)$ . This result leaves the possibility of confusion between long/perfect memory and structural break still open.

Table 3.  $\hat{d}$ 's, standard errors and t-tests for Swedish parties.

Sweden	$\hat{d}$	s.e.	t-test	
			H <sub>0</sub> : d=0	H <sub>0</sub> : d=1
LP	0.88	0.06	13.67***	-1.95*
SDP	0.97	0.06	15.93***	-0.46
CENT	0.69	0.07	10.38***	-4.77***
MP	0.86	0.06	13.38***	-2.25**

LP - Left Party, SDP - Social Democratic Party, CENT - Center Party, MP -

Moderate Party. Significance levels: \*\*\* = 0.01, \*\* = 0.05, \* = 0.1.

Results for Swedish parties are different. In all but the Social Democratic Party popularity series both hypotheses, I(0) and I(1), are rejected. I(0) is rejected at the 1% level of significance, whereas I(1) is rejected for the Left Party at 1% level of significance, for the Center Party at the 1% level of significance and for the Moderate Party at the 5% level of significance. This leads us to assume fractional integration in those series. The magnitude of estimated d also supports the assumption of a fractional root. In the Social Democratic Party series only I(0) is rejected which signals that the series is I(1). There are previous results on stationarity in Swedish party popularity series in Byers et al. (2000). In their study Swedish parties have somewhat higher estimated d's than those reported here, but the sample period also differs. Byers et al. (2000) found that the popularity series of 26 parties possess very similar properties. In large samples d gets values from 0.65 to 0.85. Controversial results are also possible, since for example for the approval ratings of the US President the length of persistence has been best characterized by a stationary, unit root, strongly autoregressive near integrated or fractionally integrated process<sup>4</sup>.

These results suggest that it is possible to conclude confidently that in any case these series are not I(0). There is some discrepancy between the ADF and ARFIMA results. In 3 of 8 cases, ADF classifies the series differently than ARFIMA does. It is also interesting that all the differently classified series are

<sup>4</sup>The time series properties of the US President's popularity have been studied in DeBoef 2000, Ostrom and Smith 1992, Durr 1993 and Wlezien 1996.

Swedish. There are several possible explanations for these inconsistent results. Firstly, the ADF test has low power against  $I(d)$ . Secondly, especially the small number of observations may make it difficult to tell a stationary from a nonstationary process<sup>5</sup>. We can also question the assumption of long memory in series which cover only 14 years. If we find long memory, can we really speak about long-term time dependence? Thirdly, it has been shown in theory that both  $I(0)$  and  $I(1)$  can mistakenly be classified as  $I(d)$  when there is a structural change in the series (Diebold and Inoue, 2001). Let us assume a structural change taking place in the following stationary series of the form  $y_t = \alpha y_{t-1} + \varepsilon_t$ ,  $|\alpha| < 1$ . Whatever the size and form of the change in all cases its effect is downsized by the coefficient of the autoregressive term ( $|\alpha| < 1$ ), which eventually drives the series back to its mean. Thus, long memory and structural change can be confused with each other. As to the nonstationary series, the weak small sample properties of the unit root tests often yield results that classify  $I(d)$  as  $I(1)$ .

## 4 Detecting Structural Changes

Domingo and Tonella (2002) have described the nature of structural changes very well "Structural changes appear when some part or properties are lost or added to the object, some relations appear, disappear or change their form. In other words, structural changes imply changes in the object identity. Of course, this may happen in such a small degree that the change is unnoticeable, or in such a degree that the system becomes practically a new one."

It is essential to test the potential existence of structural breaks in these series, as they might be the reason for controversial results in the stationarity tests discussed above. There is already textbook-like literature on unit roots and structural breaks (see e.g. Maddala and Kim, 1998) but when the unit

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<sup>5</sup>Probability of rejection of  $I(1)$  in the ADF test when the series actually is  $I(d)$  increases with sample size. For a series with  $d=0.75$ , the rejection probabilities are about 50% when  $N=100$  and about 70% when  $N=250$ .(Hassler and Wolters, 1994)

root assumption is replaced by a fractional root there is not much literature to which to refer. A study by Diebold and Inoue (2001) provide both theoretical proof and Monte Carlo evidence for this possibility of misunderstanding. In their paper structural change is considered as one cause of long memory classification. In the Monte Carlo part of their study, Diebold and Inoue stress the importance of testing both  $I(0)$  and  $I(1)$ , as these two classifications have contrary memory properties. They conclude that they have clear theoretical and empirical evidence for confusing long memory and structural change. After Diebold and Inoue, Granger and Hyung (2004) dealt with the same problem and we approach the question as they do.

There is already evidence for our series to have long or perfect memory. In other words, they are either  $I(d)$  or  $I(1)$ . We start by testing the existence of structural breaks with the method developed by Bai (1997), which is suitable for seeking multiple unknown structural break points in autoregressive models. This method finds one break point at a time. Beside finding an unknown break point, this test indicates its timing as well. Basically, the test procedure goes as follows. An autoregressive model, like  $y_t = \rho y_{t-1} + \varepsilon_t$ ,  $\varepsilon_t \sim IN(0, 1)$ ,  $t = 1, 2, \dots, T$ , is estimated by OLS. The appropriate number of lags is chosen by AIC, reported in Appendix (Table 2). Let us assume that a break point is found at time point  $m$ . The data is then divided into two subsamples

$$y_t = \rho_1 y_{t-1} + \varepsilon_{1t}, t = 1, 2, \dots, m$$

and

$$y_t = \rho_2 y_{t-1} + \varepsilon_{2t}, t = m + 1, \dots, T.$$

These autoregressive models are estimated by OLS, the exact number of lags for each party's AR-model is found with help of AIC. The parameter constancy over the subsamples is examined by a test presented in Bai and Perron (1998). We have applied critical values in Bai and Perron (2004)<sup>6</sup>. Our trimming percentage is 15. This procedure is repeated until parameter constancy is not rejected for any subsample.

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<sup>6</sup>The critical values in Bai and Perron (2004) recognize the trimming percentage, the number of parameters in the model and how many breaks have already been found.

Structural break tests were performed for every Finnish series, though the ADF and ARFIMA results were not controversial. The plot of the SDP's series, however, reveals the need for a structural break test. Appendix (Tables 3 and 4) lists all the potential break points with their significance and timing<sup>7</sup>. Of the Finnish series only the SDP's popularity has structural breaks. Two Swedish series have structural breaks, the SDP and the LP. There are 1-3 break points in the series. All these series have one break time in common, 6/1994. In many Swedish series the breaks are very close to being significant. The dates of the break points coincide with closeness of an election, the deepest phase of the economic crisis and a turning point in unemployment.

We complement our stationarity tests with a unit root test that takes structural breaks into account (Lanne et al., 2002)<sup>8</sup>. In the test the potential break points are highlighted by a dummy variable one at a time. We find that the null hypothesis of nonstationarity is rejected for the Left Alliance at the 10% level of significance. Complete results are listed in the Appendix (Tables 3 and 4).

The next phase is to find out whether these breaks are the source of long memory. Our way to approach this question is to estimate an autoregressive model in which the breaks are controlled by step-dummies. If step-dummies remove or reduce long memory properties (i.e. decrease the value of  $d$ ) in the series, then the breaks can be suspected of being the cause of long memory. In the following, we illustrate the estimation with an AR(1) model that has two breaks<sup>9</sup>  $y_t = \alpha_1 + \beta_1 y_{t-1} + D_1(\alpha_2 + \beta_2 y_{t-1}) + D_2(\alpha_3 + \beta_3 y_{t-1}) + \varepsilon_t$ .  $D_1$  equals 1 starting from the first break date and  $D_2$  equals 1 starting from the second break date, otherwise they are 0. The residuals of this AR(1) model are saved and the order of integration  $d$  is estimated by Sowell's ARFIMA method. In other words, the existence of unit roots in these series, which are "cleansed" of structural breaks, is estimated. If there is long or perfect memory left then it

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<sup>7</sup>Here we applied Hansen's (2000) GAUSS code for estimating the break points.

<sup>8</sup>Test is found in statistical package JMulti ([www.jmulti.de](http://www.jmulti.de)).

<sup>9</sup>It appears that there are from one to three breaks and the model varies from AR(1) to AR(5).

should be of pure form, not to be confused with structural breaks. This testing is done for the series with breaks and for the series where unit root test rejected unit root.

Table 4.  $\hat{d}$ 's, standard errors and t-tests for residuals<sup>10</sup>.

	party	ARFIMA		t-test		
		residuals	model	$\hat{d}$	s.e.	H <sub>0</sub> :d=0
Finland	SDP	(0,d,0)	0.81	0.06	12.60***	-2.98***
Sweden	SDP	(0,d,0)	0.83	0.07	11.48***	-2.40**
	LP	(0,d,0)	0.90	0.06	14.10***	-1.50

SDP- Social Democratic Party, LP - Left Party. Significance levels: \*\*\* = 0.01, \*\* = 0.05, \* = 0.1.

Controlling structural breaks seems to alternate classifications I(1) and I(d). In the case of the Finnish and Swedish SDP it looks as if controlling for structural breaks removes the unit root property. The value of d declines and the t-test rejects both options, I(0) and I(1). There is thus a possibility that these party series could have been classified as I(1) when in fact they had structural breaks and long memory. For the Finnish SDP this should not be a surprise since a quick look at the time series plot reveals the existence of structural change. The Left Party results do not support the hypothesis, although the change in the value of d is very small. We have performed checks for robustness by including breaks that are close to being significant in d estimations and checked whether their inclusion changes the value of  $\hat{d}$ . The result is that this does not occur.

## 5 Conclusions

The results reported in this paper categorize party popularity series into perfect and long memory series, but a chance of miscategorizing in the presence of structural breaks is also apparent. After different stationarity tests, we examined whether the same series have structural breaks. If they did, their in-

<sup>10</sup>Critical values from standardized normal distribution.

fluence on the series was removed by estimating an autoregressive model with step-dummies at break points. The residuals of the regression were tested for stationarity.

The weakest form of stationarity test applied here, the ADF test, categorizes all the series as having a unit root. A slightly more elaborate way to explore stationarity in time series is to estimate the order of integration. Sowell's estimation method recognizes 5 series with unit root and 3 with fractional root. When the influence of structural breaks is removed and order of integration is reestimated, the classification changes in two of the three series. In both cases it changes from a unit root to a fractional root.

After these exercises we can conclude that of the Finnish parties the Left Alliance, Center Party and National Coalition Party have series with a unit root. In Swedish parties only the Left Party popularity has a unit root. Parties with a fractional root in popularity series are the Swedish Center Party and the Moderate Party and Social Democratic Parties in both countries. Obviously, a series with well-defined limits can not possess all the properties of a unit root series. But nevertheless that seems to be the result for many party popularity series here. As a solution to this controversy, we suggest that unit root is the best local approximation for those series.

Clearly the issue needs more attention in the future. Our results initiate several interesting new approaches. Firstly, increasing the number of observations. It is possible that classification between stationarity and non-stationarity depends on the period under study. Secondly, including smaller parties in the sample. It might be that larger swings in popularity, typical of big parties, result in (local) unit root conclusion, whereas smaller parties experiencing smaller swings would be classified with fractional root. Thirdly, finding fluctuation boundaries for each party. Despite the swings of any size each party has its cleavage whose support leads the popularity ratings to fluctuate between some boundaries. Finding these boundaries and studying how the series behaves in the vicinity of the boundaries might add some new aspects to the behavior of party popularity series. Fourthly, disaggregating the data and estimating the

degree of integration in different groups (gender, education, income, etc.) might shed some light on whether there is a group whose behavior drives the result.

If these series are applied in popularity function estimation, which is often the case, the same kind of procedure should be conducted for the explanatory variables, since there is an obvious risk of co-integration. Apart from that, combined examination might give some indication of the occurrence of (partisan) political business cycles. The logic is that if popularity and economic variables have structural breaks at the same time and if this happens around elections then we could conclude that the party in power affects the nature of unemployment and/or inflation series.

## Appendix

Table 1. AIC's for different ARFIMA models, \* marks the lowest value.

	Finland				Sweden			
	LA	SDP	CENT	NC	LP	SDP	CENT	MP
0,d,0	2.39	3.49	3.09	2.94	2.78*	3.93*	2.45*	3.39*
1,d,0	2.34	3.48	3.10	2.92	2.79	3.94	2.47	3.40
2,d,0	2.31	3.48	3.08*	2.92	2.79	2.95	2.47	3.41
3,d,0	2.26*	3.49	3.09	2.94	2.79	3.96	2.48	3.43
0,d,1	2.28	3.47*	3.09	2.91*	2.79	3.94	2.47	3.40
0,d,2	2.27	3.49	3.10	2.92	2.79	3.95	2.47	3.42
0,d,3	2.27	3.49	3.09	2.94	2.80	3.96	2.48	3.43
1,d,1	2.83	3.49	3.10	2.93	2.80	3.95	2.47	3.42

Table 2. Number of lags used in AR models for seeking a break point. Number of lags determined by AIC.

	Finland	Sweden
LA/LP	4	3
SDP	2	1
CENT	3	2
NC/MP	5	2

Table 3. List of break points in Finnish series.

var	obs.	time	Break test	UR test <sup>a</sup>
LA	40.	4/1991	5.19	-2.64*
	119.	10/1998	11.63	-2.63*
SDP	10.	4/1988	8.07	-1.74
	53.	8/1992	23.94***	-1.76
	74.	6/1994	13.78*	-1.75
	105.	6/1997	6.38	-1.58
	129.	10/1999	8.3	-1.74
CENT	36.	1/1991	12.44	-2.02
	94.	5/1996	9.58	-1.86
	104.	5/1997	7.7	-1.91
NC	31.	8/1990	13.27	-2.03
	89.	12/1995	16.08	-2.13
	126.	6/1999	10.23	-1.92

<sup>a</sup>H<sub>0</sub>: I(1). Significance levels: \*\*\* = 0.01, \*\* = 0.05, \* = 0.1.

Table 4. List of break points in Swedish series.

var	obs.	time	Break test	UR test <sup>a</sup>
LP	11.	4/1988	8.3	-1.51
	40.	1/1991	10.57	-1.46
	78.	6/1994	26.11***	-1.44
	89.	6/1995	12.49	-1.52
	103.	10/1996	11.41	-1.46
	132.	5/1999	13.57	-1.59
SDP	17.	12/1988	12.54*	-1.86
	42.	3/1991	14.12**	-1.86
	78.	6/1994	13.89**	-1.88
	107.	2/1997	4.84	-1.88
	123.	8/1998	5.7	-1.84
CENT	12.	5/1988	10.64	-1.79
	38.	11/1990	11.98	-2.22
	59.	10/1992	12.95	-1.68
	105.	11/1996	11.66	-1.66
	150.	1/2001	16.66*	-1.75
MP	12.	5/1988	11.47	-1.99
	78.	6/1994	9.82	-2.14
	121.	4/1998	13.49	-1.99
	128.	1/1999	10.64	-2.06
	146.	9/2000	10.68	-2.08

<sup>a</sup>H<sub>0</sub>: I(1). Significance levels: \*\*\* = 0.01, \*\* = 0.05, \* = 0.1.

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### III

## Is there a threshold effect in party popularity with respect to changes in unemployment?

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#### Abstract

Our aim is to examine how a severe economic crisis with similar causes in different, but similar countries is reflected in party popularity when there are differences in recovery policies, and in the depth and length of the crisis. In 1987-2001 unemployment and inflation had the opposite effect on the popularity of Finnish and Swedish left-wing and right-wing parties. The popularity of Finnish right-wing (left-wing) parties decreased (increased) when unemployment and inflation increased but in Sweden the opposite happened although the countries simultaneously experienced a similar economic crisis. Instability in the influence of the economy is almost inevitable in times of turbulence. We model this instability by establishing a threshold model in popularity functions. High unemployment ( $<10.7\%$ ) increases the popularity of Finnish left-wing parties. Right-wing parties lose support when unemployment is between  $12.2\%$  and  $15.1\%$ . In other respects their popularity moves in different directions with respect to the economy. For Swedish parties no meaningful thresholds are found.

Keywords: popularity function, depression, threshold model

JEL Classification: D72

# 1 Introduction

It is an undeniable empirical fact that the economy affects election outcomes and political parties' monthly popularity ratings. Party fortunes alternate with economic up- and downturns. Incumbent parties are found to be especially vulnerable to changes in unemployment levels although these changes would be of a size expected in a normal business cycle. Our aim is to examine how dramatic changes in the economy, particularly in unemployment, influence party popularity. The depression of the 1990's in Finland and Sweden was not just an economic phenomenon, it also transformed society as a whole. However, the most visible, and easiest to measure, change occurred in the level of unemployment. Turbulence in the economy leads us to assume that the relationship between the economy and party popularity changes in nature over time. We expect the relationship to vary, not only according to the party involved, but also the level of unemployment. In order to verify this, we first analyze by subperiods. If there are significant differences in the results of this period analysis, we attempt to find out whether these differences are related to variations in unemployment. More specifically, does the party popularity behave differently with respect to unemployment in circumstances of low unemployment and high unemployment?

The idea of election outcomes being a result of the incumbent's performance originates in Downs (1957). In the Downsian world, voter and government maximize their utilities. The government tries to please the voter in order to get re-elected, and the voter holds the government responsible for its economic policy. The voter shows his/her trust (distrust) by voting either for or against the incumbent. The elections are like referendums on the incumbent's economic performance. Downs called this pattern of behavior the responsibility hypothesis. Hibbs (1977) complemented the responsibility hypothesis by attaching different issue-priorities to left-wing and right-wing parties. The partisan hypothesis holds that left-wing parties

are more concerned about unemployment and right-wing parties are more concerned about inflation.

There are some institutional requirements for the Downsian voting hypothesis: there have to be clear patterns of accountability between political institutions, and the voters have to be able to get the underachievers out of office with their vote. Furthermore, the incumbents have to offer incentives for their re-election and the opposition has to have a credible role. However, the Downsian theory does not provide answers for all the issues involved. One group of questions concerns unexpected changes in the economy and unintended consequences of policy actions. How should a voter react when an incumbent's deviation from a promised policy actually increases the voter's welfare? Is it reasonable to punish the incumbent for such a deviation if the reason for the deviation is an exogenous shock? One answer given in Alesina, Roubini and Cohen (1997, 35) is that "a naive voter would punish an unlucky incumbent, whereas a rational voter would, at least in part, take bad luck into consideration". In interpretations of the causes of the 1990's economic crisis bad luck, among other reasons, has been considered (Honkapohja and Koskela, 1999). These issues are relevant for this study, as, during the crisis, politicians were forced to act in an environment where the next day would almost certainly bring about something unexpected.

In addition, one has to consider certain features in the political structures of the countries concerned, if one wishes to interpret the results from the point of view of Downsian theory. From 1995 to 2001, Finland was governed by two successive multi-party governments each consisting of two left-wing parties, a green party, a right-wing party, and a liberal party. Each and every government was formed around the National Coalition. In Sweden, there had been a social democratic one-party minority government since 1994. One-party minority governments are forced to rely on the help of opposition parties in order to pass legislation. Thus, it is not only the incumbent that

is responsible for the outcome. These features give us an opportunity to try and shed some light on the question as to how incumbent parties are treated in a coalition government. Do the cabinet positions held by a party count or is something else responsible for success or failure, praise or blame? Who does one punish when almost all the parties are included in the governing coalition? Is it the issue-priorities of the parties that determine approval? Nevertheless, these shortcomings in Downsian theory should not deter us from taking the responsibility hypothesis as our starting point.

The first studies (Kramer, 1971, Mueller, 1970, Goodhart and Bhansali, 1970) empirically connecting party, presidential, or congressional popularity to economic development were concerned with two-party systems. Since the beginning of the 1970's, research has widened to cover almost all relevant countries and party systems. In addition, the questions posed have evolved from the simple existence of the relationship to more delicate issues. The latest Finnish and Swedish studies on the vote (Sweden: Jordahl, 2001) and popularity function (Finland: Nyberg, 1999, Mattila, 1994) provide support for the responsibility hypothesis. Earlier studies concerning Sweden found that government popularity was influenced by both inflation and unemployment (Jonung and Wadensjö, 1979) or by unemployment alone (Lybeck, 1985, Hibbs and Madsen, 1981). A multi-country study (Denmark, Finland, Norway, Sweden) on government popularity concluded that the fewer the incumbent parties, the stronger the influence of the economy (Mattila, 1996). Using the same group of countries, another study concluded that the vote for the leftist parties in particular depends on the success of the economy (Pacek and Radcliff, 1999).

Our study differs from previous studies as the focus here is on the effect of an economic depression on party popularity. More specifically, the following hypotheses are proposed:

1. In the beginning of the 1990's, Finland and Sweden experienced its worst depression in peacetime. In the period under study there is a lot of variation in the economic indicators. Reliable results regarding the economy's influence on party popularity in so-called normal times are already available. Thus, we are eager to find out whether these results still hold true in extraordinary times. We expect that the way voters evaluate parties changes over time. In addition, we wish to examine how any blame is distributed among the incumbents in a coalition government.
2. The causes of the crisis and the timeline of events were identical in Finland and Sweden. Nevertheless, the economic policies used to handle the crisis were different. The financial policy in Sweden was more countercyclical than it was in Finland. For the average citizen, the unemployment rate is expected to reflect differences in economic policies. In Sweden unemployment never rose above 10%, whereas in Finland the unemployment rate rose to about 18%. In Finland, unemployment has remained relatively high since the depression years. Thus, the question is, are the incumbent parties treated differently in the two countries?
3. We assume that in circumstances of low unemployment voters are likely to rate the parties differently with respect to the economy than in circumstances of high unemployment. The result can follow either the responsibility hypothesis, according to which the incumbents are punished for high unemployment, or the issue-priority hypothesis, according which high unemployment increases support for left-wing

parties. In order to determine the level of unemployment at which approval behavior changes, we apply a threshold model. At the threshold point, the influence of unemployment on party popularity alternates its sign.

In the following, we provide a brief description of the political structures in Finland and Sweden and an outline of the depression. The popularity function and the hypotheses are presented next, and the rest of the paper explains the results.

## 2 Similarities in Political Structure and Economic Development

### 2.1 The Political Structure

Finnish and Swedish politico-economic structures are rather similar. Both countries are Nordic welfare states, and the maintenance of their welfare states means high tax rates and, thus, small income differences. Consensual procedures in the political system, a high-level of social security, a high organization rate in the labor market, a high share of government in GDP and a stable political system are all characteristic of these two countries. The party structure consists of five party types: leftist, social democratic, agrarian, liberal and rightist. In addition, a high share of the vote for, and popularity of, the respective Social Democratic parties is typical. The popularity of the four biggest parties is shown in Figures 1 and 2.

Until 1991, Finland was governed by a coalition of the Social Democratic Party and the National Coalition. Sweden was governed by the Social Democratic Party. For the next 3 to 4 years there were right-wing governments in both countries. The right-wing governments coincided with the deepest phase of the crisis, and the incumbent coalitions changed in both countries after the crisis. Sweden returned to Social Democratic one-party minority

government, and, in Finland, the so-called rainbow coalition was formed. This coalition included parties from the left and the right and also included the Greens, leaving out only one big party, namely, the Center Party. The incumbent parties are listed in Table 1.

Table 1. Government parties<sup>1</sup> in Finland and Sweden.

Finland		Sweden	
1987-1991	NC, SDP, SSPP, FRP	1987-1990	SDP
1991-1995	NC, CENT, SSPP, CD	1991-1994	MP, CENT, LP, CD
1995-1999	NC, SDP, LA, GL, SSPP	1994-1998	SDP
1999-2001	NC, SDP, LA, GL, SSPP	1998-2001	SDP

In order to compare the results, the parties have to be ideologically close to each other. Table 2 shows that from 1970 to 1990 the biggest parties in Finland and Sweden were close to each other on a left-right spectrum (Gilljam and Oscarsson, 1996). These ratings suggest that the popularity changes of parties other than Social Democratic Parties can also be compared.

Table 2. Party positions on the left-right-wing spectrum<sup>2</sup>.

Party	Finland	Sweden
Left Alliance/Left Party	1.8	2.6
Social Democratic Party	3.7	3.9
Center Party	5.4	6.1
National Coalition/Moderate Party	7.5	7.5

<sup>1</sup>NC (National Coalition), SSPP (Swedish Speaking People's Party), SDP (Social Democratic Party), FRP (Finnish Rural Party), CP (Finnish Centre Party/Centre Party), LA (Left Alliance), GL (Green League), MP (Moderate Party), LP (Liberal Party), CD (Christian Democratic Party/Christian Democrats).

<sup>2</sup>On the spectrum 1 denotes the farthest position on the left and 10 the farthest position on the right.

## 2.2 The Economic Crisis of the 1990's<sup>3</sup>

Cyclical behavior in Finland and Sweden has always been highly correlated due to similar production structures in both countries. The economic crisis was far deeper in Finland than it was in Sweden, but the following outline of the crisis applies to both countries. Typical of the crisis was that nobody could forecast the huge decline in economic growth. Furthermore, this was a combination of bad luck and bad policies (Honkapohja and Koskela, 1999). The depression had its roots in the overheated economy of the end of the 1980's. Deregulation of the capital and credit markets began in the mid-1980's. New regulation allowed foreign debt for households and non-exporting firms. The saving rate approached zero and consumer expectations were optimistic. Furthermore, fiscal policy was not particularly restrictive. Tax deductible interest payments for households and companies favored debt financing of consumption and investment. Due to the above-mentioned factors and a fall in export demand, caused by a world-wide economic downturn and the collapse of the Soviet Union, the current account deficit grew and subsequently became a problem. The maintenance of fixed exchange rates whilst experiencing current account deficits and amidst expectations of devaluation forced the central banks to increase interest rates.

The interest rate rise and the later inevitable devaluation led many debtors to sell their properties, which resulted in deflation, especially in the real estate market. Unsound company financing produced bankruptcies and credit losses. Unemployment increased, economic growth fell, and a banking crisis followed. In welfare states, the balancing effect of automatic stabilizers results in an accumulation of public sector debt.

As the crisis took its first steps, Finland and Sweden aimed at abandoning the Nordic inflation model with its competing devaluations<sup>4</sup>. Following

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<sup>3</sup>This chapter is based on Holmlund (2002), Honkapohja and Koskela (1999), Lindbeck (1997) and Vartia and Kiander (1998).

<sup>4</sup>From the 1960's to the 1990's, both countries exploited the opportunity to devalue

Sweden, Finland pegged the markka to the ecu in June 1991 at the prevailing exchange rate. Because of current account deficits, high foreign debts, rising unemployment, and fixed exchange rate, the financial markets lost confidence in the two countries' ability to cope with the crisis. As a result the currencies pegged to the ecu were attacked in the autumn 1991. The next time the markka came under serious attack was during the EMS crisis in September 1992. Then the markka was allowed to float, and Sweden devalued the krona two months later. These devaluations helped export industries lead the two economies out of the crisis.

Despite the crisis having similar causes, the stabilization policies and the recovery that followed were different in Finland and Sweden. The countries adopted tight fiscal policies as part of a new economic policy paradigm which aimed at reaching EU membership convergence criteria. In Finland, the government downsized its financing of municipal governments, which led to cuts in public services. In Sweden, a policy decision was made to avoid cuts in public services. In Finland, cutbacks in public expenditure had more weight than tax increases in the country's consolidation policy. In Sweden, these two policies had a fifty-fifty share in the stabilization policy. In Finland, the cutbacks and the decisions on savings in public sector expenditures were mostly made in the early 1990's by a right-wing government, whereas in Sweden in 1994-95 they were made by the Social Democratic government. (Kautto, 2001) In Sweden, the government incurred greater debt in order to finance welfare provision. Thus, the average Swede did not suffer as much from the economic crisis. Open unemployment never rose above 10% in Sweden, whereas in Finland it reached almost 20%. Unemployment started to decline faster in Finland than in Sweden. The Finnish and Swedish unemployment rates are plotted in Figure 3.

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their currencies as the competitiveness of export industries decreased. This is the so-called Nordic inflation model (see e.g. Jacobsson, 2003).

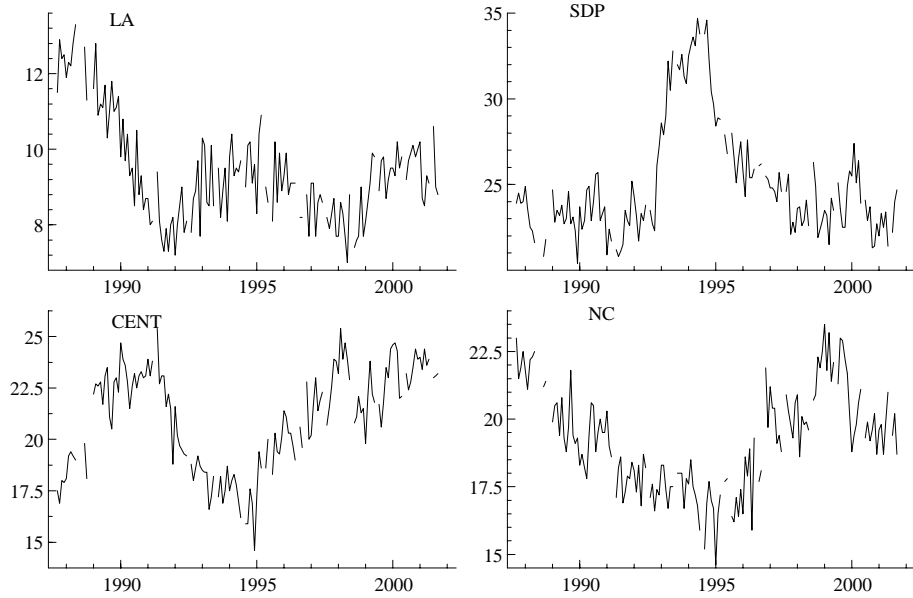


Figure 1. Party popularity in Finland.

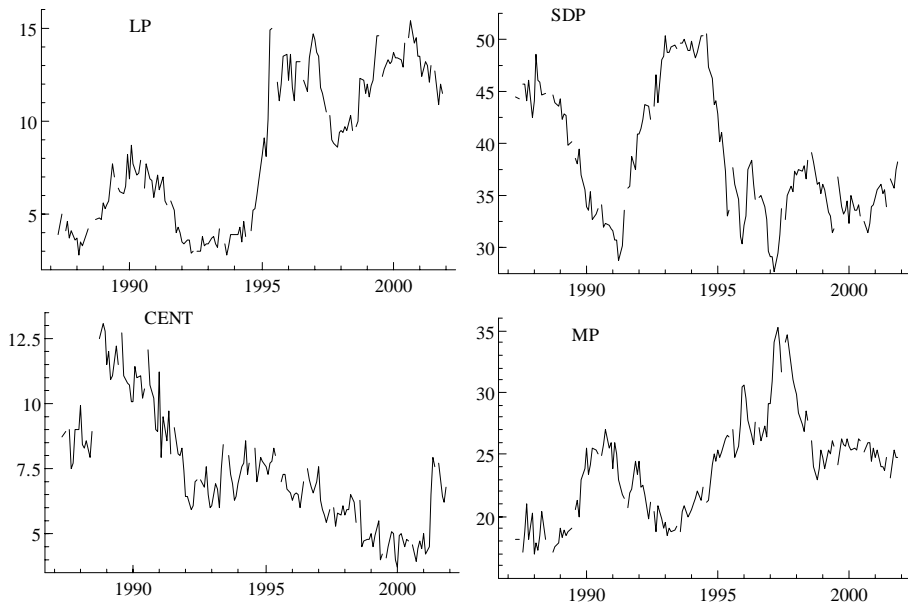


Figure 2. Party popularity in Sweden.

The nature of unemployment changed over the years as production technology experienced a structural change. The leading role of the paper, pulp, and metal industries was gradually taken over by the electronic industry. The latter needs different kinds of skills and schooling than those required in the metal and paper industries. This mismatch caused a high level of structural unemployment. Service industries have also played a big part in the creation of new jobs. (Koskela and Uusitalo, 2003) The depression brought the economy into public focus for at least a decade.

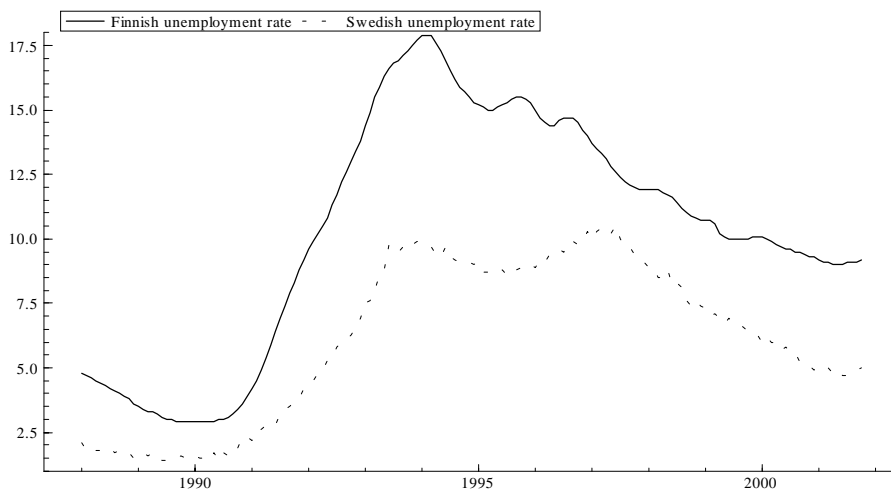


Figure 3. Seasonally adjusted unemployment rates in Finland and Sweden.

### 3 Estimation of the Popularity Equation

#### 3.1 The Linear Model

First, we estimate a linear regression model for the whole period. Second, we divide the data into three subperiods in order to examine changes in the economy-popularity relationship. The subperiods, that is, before-the-crisis, the crisis, and after-the-crisis, roughly coincide with the incumbency periods. The exact periods and the number of observations in each period are shown in Table 3.

Table 3. The exact subperiods and number of observations in each period.

Period	Finland	Sweden
9/1987-9/1990	32	36
10/1990-9/1995	53	55
10/1995-10/2001	63	67
Total	148	158

The popularity function has the standard linear formulation as follows:

$$(1) \quad P_t = \beta_0 + \beta_1 P_{t-1} + \beta_2 I_t + \beta_3 U_t + \sum_{i=1}^p \beta_{4i} Pol_{it} + \sum_{i=1}^g \beta_{5i} GD_{it} + \sum_{i=1}^r \beta_{6i} T_{it} + \varepsilon_t.$$

On the left hand side there is the popularity ( $P_t$ ) of the party in question ( Finnish: left-wing Alliance, Social Democratic Party, Center Party, National Coalition Party, Swedish: left-wing Party, Social Democratic Party, Center Party, Moderate Party) and on the right hand side is its first lag ( $P_{t-1}$ ) with other explanatory economic and political variables<sup>5</sup>.

Unemployment and economic growth are essential indicators of the depth of an economic crisis. Because of the strong correlation between these indicators, including both in the same regression equation may cause multicollinearity, and estimating their separate influences would be difficult. We have decided on unemployment since it is more visible from the point of view of the average voter. We have used both seasonally adjusted and non-seasonally adjusted unemployment rates. The results for both seasonally adjusted unemployment and non-seasonally adjusted unemployment did not differ crucially from each other. The results reported here were obtained using the seasonally adjusted unemployment rate. Inflation (I) is the 12-month change in the cost of living index. We apply one lag for both economic variables because of a delay in publishing the statistics. The model is

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<sup>5</sup>The Finnish popularity ratings are from Taloustutkimus, and the Swedish, from SIFO. Economic data is from OECD Statistics for both countries.

completed with political variables ( $Pol_{it}$ ) which highlight the significance of atypical, one-off political events like a change of party leader, referendums, and municipal elections. Most political events are coded as dummies thus creating asymmetry in explanatory power between the economic and the political variables. The incumbency periods are denoted by dummies ( $GD_{it}$ ). Time-related variables ( $T_{it}$ ) expose trends, cycles, and abrupt changes in popularity levels. A trend variable is created for the Left Alliance to detect the universal fall in the popularity of leftist ideology. We estimate the popularity function for each party separately. All the applied political variables are listed in the Appendix in Tables 1 and 2. Below the tables is a list of economic variables that did not have a significant influence on party popularity and were, thus, excluded from the models.

Overall, we expect that unemployment had a more decisive role in changes in popularity than inflation because that variable had more fluctuations, received a lot of attention in the media, and well delineates the development of the crisis. The responsibility hypothesis states that incumbents are punished for rising and/or high unemployment, whilst the issue-priority hypothesis says that voters turn to left-wing parties in order to find a way out of unemployment. At the time unemployment began to rise fast, the government consisted of right-wing parties; thus, it is difficult to tell which hypothesis the results support.

We expect that differences in the levels of unemployment between the two countries matter in terms of the results. The effect of unemployment is greater for Finnish parties than for Swedish parties simply because unemployment increased faster in Finland and to a higher level than in Sweden. This larger influence should be more pronounced in the crisis period. Furthermore, we expect that the incumbents would not be as severely punished in Sweden as in Finland.

In reporting the results, we move from Finland to Sweden and from the

whole period to subperiods. Our estimation method for the linear model is OLS. Of the regression results, we report the coefficients with their significances, standard errors, and some test statistics. The results are displayed in detail in the Appendix in Tables 4-11.

## 3.2 Results with the Linear Model

### 3.2.1 Finnish Results

Our main result is that unemployment had a statistically significant negative influence on the popularity of the National Coalition, but a positive influence on the popularity of left-wing parties, all at the 1% level of significance. Inflation had a negative influence on the popularity of the National Coalition, again at the 1% level of significance, but a positive influence on the Left Alliance's popularity at the 10% level of significance. Overall, unemployment had a stronger influence than inflation on the popularity of left-wing parties, but the opposite is true for the National Coalition. Clearly, this result supports the partisan hypothesis. The National Coalition is held responsible for economic developments in the period under study. This should not come as a surprise as the party has been a member of every coalition and has held the position of finance minister since 1991.

The only party whose popularity was not affected by the economic variables was the Center Party. There is autocorrelation in the residuals, but the economic coefficients remain non-significant even when robust standard errors were applied. However, a quick look at the results for the periods shows that unemployment had a negative coefficient at the 5% level of significance in every regression. Obviously, these results suggest that our linear model does not fit the Center Party data.

The government dummies indicate that, most of the time, parties pay the price of ruling. However, in the right-wing government as well as in the rainbow coalition, the incumbent parties were affected differently by unem-

ployment. In the right-wing government, the Center Party was punished for unemployment and in the rainbow coalition, it was the National Coalition that was so punished. In addition, in two cases the influence contradicts the usual hypothesis. In 1987-91 the Social Democratic Party's incumbency increases its support, whilst the Left Alliance is favored for being the incumbent since 1999. For the Left Alliance, being included in the government may raise its status among the other parties. Having the post of the second finance minister in particular gives the party credibility as regent.

We applied several political dummy variables, but most of them did not have a significant influence on party popularity. All the political variables are listed in the Appendix in Table 1. However, there is one variable that had an influence on the popularity of two parties; namely the 10/96-variable. In October 1996, we had several one-off events that may have affected party approval ratings. Firstly, the markka joined the ERM system with a fixed exchange rate. Secondly, the Social Democratic Party's minister was suspected of leaking information that would weaken Finland's position in the ERM negotiations. Thirdly, there were municipal elections which the Center Party usually wins. Our results show that these events affected the popularity of the right-wing parties' in a positive way, but it is difficult to identify which events caused the increase in popularity. Other political and event dummies which had a significant influence were the trend variable (Left Alliance), a change of party leader (a positive influence on the Social Democratic Party), the membership application for the European Union (a negative influence on the Social Democratic Party) and the Center Party's labor market reform proposal (a suggestion to increase flexibility in the labor market had a negative influence on its popularity).

The period results show that the signs and significance of economic variables vary from period to period. Between the first and the second periods the signs of unemployment and inflation alternate in 4 cases out of 8, whilst

between the second and the third periods the respective number is 5. In the first period, there is only one statistically significant economic variable, whereas in the second and third period there are 4 and 3 respectively. Thus, the importance of economic variables in determining party popularity increases. Our results indicate that in times of economic crisis the voters tend to favor left-wing parties. The reason may lie in their opposition status from 1991 to 1995, or in the policies the parties promised for handling unemployment.

### 3.2.2 Swedish Results

Our results for the Swedish parties are less clear-cut. In the results for the whole period under review there are three statistically significant economic coefficients, of which just one is at the 5% level of significance with the others having lower levels of significance. It seems that inflation affects the popularity of left-wing parties negatively at a 10% level of significance, and unemployment affects the Moderate Party positively at 1% level of significance. This is obviously the opposite result to the one predicted by the partisan hypothesis. In addition, it is remarkable that the Moderate Party's popularity did not suffer from unemployment although it was incumbent during the worst phase of the crisis. We offer two explanations for this. First, the timing and content of crisis policies may matter. In fact, most of the decisions on savings in public sector expenditures and cuts in transfers were made after the Moderate Party's incumbency. Second, the Moderate Party might be seen as the only real alternative to the Social Democratic Party which has long had a hegemonic position in Swedish politics culminating in one-party minority governments.

Without exception, each and every party pays the price of ruling, particularly the Social Democratic Party. Several political variables were included in the popularity functions, but only two had a significant influence. A com-

plete list of the political variables used is in the Appendix in Table 2. The popularity of the Social Democratic Party suffers from its minister's credit card problems, at the 5 % level of significance, and benefits from a change of Prime Minister at the 1 % level of significance.

These results do not change much when the same equations are estimated using the data for the subperiods. The signs of the economic variables vary in the analysis of the periods. Between the first and the second periods the signs change 4 times, and between the second and third, two times. There is only one statistically significant economic variable in each party's results. In the first period, inflation negatively affects the popularity of the Social Democratic Party, and unemployment positively affects the popularity of the Left Party, both at the 10% level of significance. In the second period, inflation has a positive influence on the Center Party, at the 5% level of significance. In the third period, unemployment has a positive influence on the Moderate Party's popularity, at the 1% level of significance.

It is difficult to find either a systematic pattern in the influence of economic variables on party popularity in Sweden, or clear support for any of the common hypotheses. For most parties, lagged popularity accounts for a considerable amount of their popularity. Thus, absorbing the likely influence of other variables. Party popularity is changed by something other than economic development. Thus, we can conclude that in Sweden it is no use for the incumbents to try and create political business cycles as poll respondents (i.e. the voters) are not affected by the economy.

### 3.2.3 Comparison of the Results

In total, there are five significant economic variable coefficients in the Finnish results for the whole period and three, in the Swedish results. The same figures for the subperiod coefficients are 8 and 4. A comparison of the sister-parties shows that the Left Alliance and the National Coalition are more

strongly influenced by the economy than the Left Party and the Moderate Party. Both the Social Democratic Parties are affected by the economy, but in different ways. In Finland, the popularity of the Social Democratic Party increases with rising unemployment, but is not significantly influenced by inflation, whereas in Sweden the popularity of its sister-party is negatively influenced by both unemployment and inflation, but only inflation has a significant coefficient. The Center Parties in both countries are not influenced by the economy in the entire sample period.

In Finland, the examination of the periods shows that unemployment had a significant influence in 6 regressions, whereas in Sweden, in just 2 regressions and in most cases it is only barely significant. A closer look shows that in Finland, not only are the unemployment coefficients for the parties larger, but they also have higher levels of significance. Inflation affects popularity significantly in two whole period regressions in both countries. In the period analysis in Finland there are two significant coefficients and in Sweden, three.

Ultimately, the most striking result is that the economic variables during and after the depression had an opposite influence in Finland and in Sweden. The influence of the economic variables is negative for Finnish right-wing parties, but positive for Swedish ones. A similar pattern is found for left-wing parties. In Finland, left-wing parties are positively influenced by economic variables, when they are statistically significant, whereas in Sweden they are not. It appears that the incumbents during the depression period in Finland are severely punished for their policies, but that in Sweden this is not the case. The reasons for this may lie in the depth of the depression, and the contents, and success, of the policies practiced. In addition, one reason for the weak influence of economic variables on the Swedish Social Democratic Party's popularity may be the tradition of one-party minority governments. Voters know that the party needs the support

of other parties to pass legislation and, thus, is not the only actor to be held responsible.

### 3.3 The Threshold Model

The results above show that respondents evaluate the parties, with respect to the economy, differently in different periods. In other words, there is instability in the estimated economic coefficients. In empirical popularity function literature, coefficient instability has become a central issue (e.g. Paldam, 1991, Nannestad and Paldam, 1994). It is understandable that in an ever-changing world the influence of the economy on party popularity varies. Admitting to instability opens up a huge amount of new research opportunities for the field. Thus, our next task is to model the instability found. Our attempt is based on the assumption that voters are likely to rate parties differently under good and bad economic circumstances. According to previous results, the unemployment rate seems to be the most influential variable, and its influence varies from period to period and from positive to negative to zero. Hence, we assume that there exists a level of unemployment that splits the observations into two regimes between which the influence of unemployment alternates from positive to negative. Our previous results were obtained by matching the subsamples with the electoral periods. In the following, the aim is to let the data determine the subsample selection criteria. In the search for the split point, we employ a threshold method originally proposed by Tong (1983, 1990). This one threshold, one threshold variable -model provides a simple nonlinear alternative<sup>6</sup>. Another advantage

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<sup>6</sup>In Asikainen (2000) we have tested the suitability of another nonlinear alternative, namely, Logistic Smooth Transition Regression (LSTR) (Granger and Teräsvirta, 1994). LSTR was chosen because it assumes that small values of unemployment have a different kind of effect than large values. The slow and smooth transition was also considered an advantage. The applied LM-test (Lin and Teräsvirta, 1994) does not reject the assumption of linearity probably because of the small number of observations in the data set.

of this model is that the threshold is endogenous, that is, it is estimated along with the other parameters of the model<sup>7</sup>. The general presentation of the threshold regression model is as follows:

$$(2) \quad y_t = \sum_{i=1}^k \beta_{1i} x_{it} + e_t, \quad q_{t-d} \leq \gamma,$$

$$(3) \quad y_t = \sum_{i=1}^k \beta_{2i} x_{it} + e_t, \quad q_{t-d} > \gamma.$$

The relationship between the dependent ( $y_t$ ) and the explanatory ( $x_{it}$ ) variables is supposed to change according to the value ( $\gamma$ ) of the threshold variable ( $q_{t-d}$ ), and the error term ( $e_t$ ) is assumed independently, and identically distributed. The null hypothesis states that there is no threshold. Thus,  $\beta_{1i} = \beta_{2i}$  for all  $i$ , which makes the model linear. Despite the fact that the whole data set is used in the estimations, the threshold is looked for in the mid 70% range of all observations, since 15% of the observations from both top and bottom ends are excluded. This trimming guarantees the identification of the model for all thresholds. We proceed in the following way. Firstly, the model is estimated by OLS, assuming linearity. Secondly, the data is sorted in descending order, according to the threshold variable. This rearrangement transforms the threshold model estimation into a change point model estimation. Thirdly, the data is divided into two regimes at each value of the threshold parameter, and the linear model is estimated separately in both regimes. The sums of squared residuals (SSR) from both estimations are added up. The estimated threshold is the one that minimizes the sum of the SSRs. The OLS results include a test for residual heteroskedasticity and according to that test, the significance of the threshold is tested by either F-test (homoskedastic errors) or LM-test (heteroskedastic errors). An essential part of the method is the calculation of bootstrap probability values for the LM- and F-tests. Bootstrapped

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<sup>7</sup>In the estimation of the threshold model, we apply a Gauss procedure coded by Hansen. The Gauss code is available on Hansen's www-page. The code was used in Hansen (1996).

values are needed since the threshold is not identified under the null hypothesis, and, thus, the usual probability distributions are not applicable. After the threshold point is found, the data is divided into two regimes. The two regimes are separately estimated by OLS. In the interpretation of the results, attention is paid to the p-values and the coefficients in the two regimes.

As previously mentioned, we apply lagged unemployment as the threshold variable. This popularity equation differs from the popularity function described earlier (see page 12) by excluding political, incumbency, and trend variables because there are quite a lot of variables included in the model, and the number of observations is not very high. In addition, we do not expect the influence of one-off political events on party popularity to be affected by the threshold. The exact threshold model is specified as follows:

$$(4) \quad P_t = (\alpha_0 + \alpha_1 P_{t-1} + \alpha_2 I_{t-1} + \alpha_3 U_{t-1}) I(U_{t-d} \leq \bar{U}) \\ + (\beta_0 + \beta_1 P_{t-1} + \beta_2 I_{t-1} + \beta_3 U_{t-1}) I(U_{t-d} > \bar{U}) + \varepsilon_t$$

where  $I(\cdot)$  is an indicator function, which receives a value of 1 when the condition in the parentheses is true.  $d$  is the threshold lag,  $\bar{U}$  is the threshold value, but otherwise the symbols are the same as before. We expect that there is a threshold for each party, that it differs from party to party, and that there are differences between the countries in the results. Drawing on our previous results on the partisan divide regarding unemployment, we expect that in Finland, in a regime of high unemployment, left-wing parties are positively influenced by unemployment and that right-wing parties are negatively affected. In Sweden, we expect the opposite.

### 3.4 Results with the Threshold Model

Detailed results on the threshold estimations are listed in the Appendix in Tables 12-21. In Finland, the estimated thresholds are significant for the

Social Democratic Party and the Left Alliance, whilst for the other two, the Center Party and the National Coalition, they are very close to being significant with levels of 0.1 and 0.12, respectively (see Table 4.). The results are also similar for left-wing parties: in the presence of high unemployment (above 10.7 % for the LA, 12.8 % for the SDP), the popularity of left-wing parties increases. These results clearly support the partisan hypothesis that voters turn to left-wing parties when unemployment is high. The results for the National Coalition and the Center Party seem to be more mixed. The results for the Center Party, the National Coalition, and the Social Democratic Party have one feature in common: the economic variables may have either a negative or positive influence, but the influence of inflation and unemployment is in the same direction.

For the National Coalition, unemployment has to reach high levels (15.1%) in order for it to lose its negative influence (at the 1% level of significance) on the party's popularity, above that it has a non-significant positive influence. A comparison of the course of unemployment and the National Coalition's popularity ratings reveals that when unemployment is above 15.1%, the popularity of the National Coalition is at its lowest level. Thus, it might be reasonable to assume that at that point in time only its core supporters are left - those who believe in the values of the party and who remain unshaken by the bad economy. For the Center Party, unemployment's influence on its popularity becomes negative when it rises above 12.2%. When the unemployment rate lies between 12.2% and 15.1%, both unemployment and inflation have a negative influence on right-wing parties. During most of their shared incumbency period, the unemployment rate was within these limits.

In general, when economic variables have a significant coefficient, their level of significance is always high (at the 1% level). One feature of these results that fits all the parties, except the National Coalition, is that when

unemployment is below the thresholds indicated, it has no significant influence, and the coefficients are close to zero. It seems that high unemployment triggers worries about the economy among the voters, and makes them evaluate the parties according to the economic performance. Table 4. sets out the threshold values and their significance for Finnish parties.

Table 4. Values of the threshold points for different parties, LM-test for heteroskedastic errors, F-test for homoskedastic errors and their bootstrap p-values in Finland.

Party	Threshold	LM/F-test	p-value
NC	15.1	15.35 (F)	0.10
CENT	12.2	14.92 (F)	0.12
SDP	12.8	34.98 (F)	0.00
LA	10.7	48.87 (F)	0.00

In Sweden, the estimated thresholds are significant for right-wing parties and almost significant for the Left Party. For right-wing parties, when unemployment crosses the threshold its sign does not change, but alternates from non-significant to significant. For the Left Party, unemployment has a positive influence below the threshold, at the 1% level of significance, whereas above the threshold it has a non-significant (negative) influence.

In Sweden, the threshold points have lower values than the respective Finnish ones. Further comparison indicates that the threshold points in the Finnish results are higher than Swedish unemployment ever was, in the period under study. Maybe unemployment never rose high enough to create significant thresholds. In addition, the large autoregressive term may have absorbed the influence of the other variables. The only other meaningful conclusion is that, whether high or low, unemployment does not seem to be the driving factor behind party fortunes in Sweden. These results suggest that the chosen way of modelling nonlinearity better fits the Finnish party data. For the Swedish data, the linear model might be adequate, but atten-

tion has to be paid to possible outlier observations. The threshold values for each party and their significance are found in Table 5.

Table 5. Values of the threshold points for different parties, LM-test for heteroskedastic errors, F-test for homoskedastic errors and their bootstrap p-values in Sweden.

Party	Threshold	LM/F-test	p-value
MP	8.3	17.07 (F)	0.06
CENT	2.0	16.97 (LM)	0.00
SDP	3.4	9.41 (LM)	0.27
LP	7.6	15.02 (F)	0.11

## 4 Conclusions

Our results confirm expected differences in the economic approval of parties in Finland and Sweden. Finnish and Swedish sister-parties are influenced in opposite ways by the economy. Swedish left-wing parties (the Social Democratic Party, the Left Party) are negatively affected by unemployment and inflation but their Finnish counterparts (the Social Democratic Party, the Left Alliance) are positively influenced by the same variables. The popularity of the National Coalition falls when unemployment and inflation increase, but in Sweden the Moderate Party's popularity increases along with rising unemployment.

Analysis of the subdivided data suggests that in Finland the importance of economic variables in determining party popularity increases over time. In addition, the period results show that the signs and significance of economic variables alternate from period to period. Our results indicate that in times of economic crisis the voters tend to favor left-wing parties either because they just happen to be opposition parties or because their suggested policies are preferred to those of the government. In the right-wing government, it is the Center Party that is punished for unemployment, whilst in the

rainbow coalition it is the National Coalition. The popularity of Finnish left-wing parties is affected similarly by unemployment, whereas the popularity of right-wing parties is similarly affected only when they are government coalition partners. Overall, our results with the linear model support both the responsibility and the partisan hypotheses because during the time that unemployment rose right-wing parties were incumbents. Thus it is difficult to tell whether the reduction in approval ratings follows the responsibility hypothesis or the partisan hypothesis.

In Sweden, there seems to be no systematic pattern in the influence of economic variables on party popularity. In addition, neither the responsibility nor the partisan hypothesis is supported by the results. The Swedish results more or less contradict the partisan hypothesis as inflation negatively affects the popularity of left-wing parties and unemployment has a positive influence on the Moderate Party. The lagged popularity in every regression accounts for a large share of the popularity, thus absorbing the influence of other variables. We can confidently conclude that the economy is not the driving factor behind party popularity. Hence, in Sweden the incumbent parties do not benefit from creating political business cycles.

Overall, it seems that the incumbents during the depression period in Finland and in Sweden have opposite experiences regarding getting punished for their policies. In Finland, the governing parties are severely punished for their policies, but in Sweden this is not the case. At least part of this difference might be explained by the differences in the depth of the depression, and the contents and success of the policies practiced. Differences in timing of the decisions on public sector savings and cuts in transfers probably can be counted to explanatory factors. In Sweden, most of the decisions on public sector savings and cuts in transfers were made in 1994-95 by the Social Democratic government, whereas in Finland most of the cuts and decisions on public sector savings were made earlier by a right-wing gov-

ernment. Finally, the differences in the government coalition may play a part. In Sweden, in the period under study, the Social Democratic Party has governed as one-party minority government for years. To function properly one-party minority government needs the support from other parties to pass legislation, and, thus, it is not the only actor to be held responsible.

We address the found coefficient instability in the linear model by establishing a threshold model in each party's popularity function. The threshold variable we apply is unemployment. These results clearly support the partisan hypothesis that support for left-wing parties increases when unemployment is high. However, unemployment needs to be high (11-15%) to influence significantly Finnish party popularity. The only exception to this is the National Coalition whose popularity suffers from unemployment all the time. When the unemployment rate lies between 12.2% and 15.1%, both unemployment and inflation have a negative influence on right-wing parties. During most of their shared incumbency period, the unemployment rate was within these limits. When unemployment is high (above 11-13%), it increases left-wing parties' popularity. There is no doubt that unemployment is the major economic variable when it comes to explaining party popularity in Finland. It seems that high unemployment triggers worries about the economy among the voters, and makes them evaluate the parties according to the economy's performance.

The Swedish results are much more difficult to interpret and make it difficult to arrive at satisfactory conclusions. Either the thresholds are not significant (the Left Party, the Social Democratic Party) or the number of observations in the regimes is very low (the Center Party, the Moderate Party). Maybe the large autoregressive term in the Swedish popularity function estimations absorbs the influence of the other variables. Maybe unemployment never rose high enough to reveal the thresholds in the Swedish popularity functions.

## Appendix

Table 1. Political variables, acronyms and definitions for Finnish data.

Acronym	Definitions of Dummy Variables	Timing	Obs.
CPLCENT	Change of party leader, Cent	6/1990	29
ECUFIX	Markka fixed to Ecu	6/1991	41
CSU	Attempted coup in Soviet Union	8/1991	42
EUAPPL	Application for membership in EU	3/1992	49
FIMFLO	Markka to float	9/1992	54
MEL	Municipal elections, SDP won	10/1992	56
CPLSDP	Change of party leader, SDP	6/1993	63
CPLNC	Change of party leader, NC	8/1994	76
REFEU	Referendum on EU membership	10/1994	77
10/96	Municipal elections	10/1996	98
10/96	Markka fixed to ERM	10/1996	98
10/96	SDP Minister suspected of info leaks on ERM decision	10/1996	98
LAD	LA disunity on EMU	12/1997	110
CPLLA	Change of party leader, LA	5/1998	116
LREF	Labor market reform, Cent	11/1998	122
HU	Party leader's sabbatical, Cent	4/2000	136

Table 2. Political variables, acronyms and definitions for Swedish data.

Acronym	Definitions of Dummy Variables	Timing	Obs.
CPLCENT	Change of party leader, Cent	6/1987	2
GCRISIS	Government crisis	2/1990	32
ECUFIX	Krona fixed to Ecu	5/1991	44
EUAPPL	Membership application to EU	7/1991	46
KROFLO	Krona to float	11/1992	60
PLGCENT	Party leader left-wing govt, Cent	8/1994	80
REFEU	Referendum on EU membership	11/1994	82
EUPEL	European Parliament election	9/1995	91
MONA	Minister has credit problems, SDP	10/1995	93
CPMSDP	Change of PM, SDP	3/1996	97
NEMUSDP	Govt says no to EMU, SDP	6/1997	111
CPLCENT98	Change of party leader, Cent	6/1998	122
CPLMP	Change of party leader, MP	8/1999	135

List of all tested economic variables which turned out to have a non-significant influence: inflation measured as consumer price index, and consumer price index for food, consumer confidence index, base rate, 3-month rate, share price index, government debt, employment rate.

Table 3. Acronyms and their definitions used in all the tables.

Acronym	Definition
cons	constant
(t-n)	identifies the lag
GD	government dummy
trend	declining trend variable
U(t-n)	unemployment
I(t-n)	inflation (cost of living index)
R <sup>2</sup>	rate of explanation
LM	residual autocorrelation
Normal	residual normality
White	residual heteroskedasticity
RESET	functional form (Ramsey)

### FINNISH RESULTS

Table 4. Results of popularity function for the Left Alliance.

LA	1987-2001	1987-90	1990-95	1995-2001
cons	6.16***	12.43***	7.59***	4.75***
	[0.77]	[4.16]	[1.37]	[1.3]
LA(t-1)	0.04	-0.13	-0.07	0.40***
	[0.08]	[0.17]	[0.14]	[0.11]
GD9599	-0.15			
	[0.19]			
GD99-	1.08***			
	[0.21]			
Trend	0.13***	0.17***		
	[0.01]	[0.04]		
U(t-1)	0.16***	-0.76	0.15**	0.02
	[0.04]	[0.74]	[0.06]	[0.07]
I (t-1)	0.13*	-0.19	-0.07	0.19
	[0.07]	[0.33]	[0.18]	[0.13]
R <sup>2</sup>	0.75	0.78	0.38	0.27
LM <sup>a</sup>	0.23	0.07	0.41	1.25
Normal <sup>b</sup>	4.08	1.37	3.02	0.01
White <sup>c</sup>	0.88	1.25	0.78	0.91
RESET <sup>d</sup>	9.94***	1.68	0.16	0.22

Residual tests: <sup>a</sup> autocorrelation (LM-test), <sup>b</sup> normality, <sup>c</sup> heteroskedasticity, <sup>d</sup> functional form. Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

Table 5. Results of popularity function for the Social Democratic Party.

SDP	1987-2001	1987-90	1990-95	1995-2001
cons	6.85*** [1.37]	20.75*** [7.89]	1.38 [2.05]	12.54*** [2.62]
SDP(t-1)	0.52*** [0.07]	0.40* [0.18]	0.72*** [0.07]	0.38*** [0.11]
GD8791	2.08*** [0.60]			
GD9599	-1.44*** [0.37]			
GD99-	-0.29 [0.36]			
CPLSDP	2.07 [1.26]		1.76 [1.30]	
EUAPPL	-2.17* [1.26]		-1.65 [1.26]	
U(t-1)	0.48*** [0.1]	-0.94 [0.81]	0.38*** [0.13]	0.22 [0.13]
I (t-1)	0.07 [0.14]	-0.59 [0.53]	0.54* [0.32]	-0.09 [0.22]
R <sup>2</sup>	0.87	0.21	0.93	0.44
LM <sup>a</sup>	1.33	0.08	0.21	0.5
Normal <sup>b</sup>	1.99	0.57	5.18*	1.57
White <sup>c</sup>	0.24	0.34	0.29	0.97
RESET <sup>d</sup>	11.73***	0.09	3.15	0.05

Residual tests: <sup>a</sup> autocorrelation (LM-test), <sup>b</sup> normality, <sup>c</sup> heteroskedasticity, <sup>d</sup> functional form. Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

Table 6. Results of popularity function for the Center Party.

CENT	1987-2001	1987-90	1990-95	1995-2001
cons	5.62*** [1.39]	25.00*** [7.17]	14.98*** [3.96]	13.01*** [2.91]
CENT(t-1)	0.76*** [0.05]	0.19 [0.19]	0.41*** [0.13]	0.51*** [0.11]
GD9195	-0.73*** [0.27]			
10/96	2.8** [1.11]			2.70*** [0.99]
WREF	-1.81* [1.11]			-2.14** [0.99]
U(t-1)	-0.04 [0.05]	-1.98** [0.77]	-0.28** [0.11]	-0.20** [0.09]
I (t-1)	-0.01 [0.11]	-0.08 [0.44]	-0.05 [0.25]	0.18 [0.18]
R <sup>2</sup>	0.81	0.79	0.82	0.67
LM <sup>a</sup>	6.09***	0.71	0.88	2.84*
Normal <sup>b</sup>	0.63	2.09	3.46	0.74
White <sup>c</sup>	0.64	1.51	0.30	1.13
RESET <sup>d</sup>	0.06	0.29	1.34	0.17

Table 7. Results of popularity function for the National Coalition.

NC	1987-2001	1987-90	1990-95	1995-2001
cons	10.09*** [1.92]	18.69*** [5.30]	10.32*** [2.52]	22.82*** [4.42]
NC(t-1)	0.63*** [0.06]	0.13 [0.18]	0.37*** [0.12]	0.31** [0.12]
10/96	3.47*** [1.01]			3.53 [1.05]
U(t-1)	-0.20*** [0.05]	0.45 [0.58]	0.00 [0.06]	-0.65*** [0.16]
I (t-1)	-0.37*** [0.11]	-0.48 [0.37]	0.29 [0.18]	-0.88*** [0.25]
R <sup>2</sup>	0.72	0.67	0.51	0.64
LM <sup>a</sup>	6.38***	1.12	0.60	4.06**
Normal <sup>b</sup>	1.15	3.66	4.36	2.06
White <sup>c</sup>	1.16	0.27	0.36	0.91
RESET <sup>d</sup>	2.14	1.1	0.59	0.00

Residual tests: <sup>a</sup> autocorrelation (LM-test), <sup>b</sup> normality, <sup>c</sup> heteroskedasticity, <sup>d</sup> functional form. Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

SWEDISH RESULTS

Table 8. Results of popularity function for the Left Party.

LP	1987-2001	1987-90	1990-95	1995-2001
cons	0.85** [0.41]	0.28 [1.55]	-0.12 [0.82]	2.99** [1.24]
LP(t-1)	0.94*** [0.02]	0.74*** [0.14]	0.98*** [0.05]	0.81*** [0.07]
U(t-1)	-0.02 [0.04]	0.08* [0.59]	0.06 [0.09]	-0.09 [0.09]
I (t-1)	-0.06* [0.03]	0.17 [0.11]	-0.01 [0.06]	-0.11 [0.11]
R <sup>2</sup>	0.94	0.74	0.88	0.71
LM <sup>a</sup>	2.14	2.96*	5.19***	0.21
Normal <sup>b</sup>	27.23***	2.79	30.25***	2.82
White <sup>c</sup>	1.84*	0.20	2.33**	0.62
RESET <sup>d</sup>	8.41***	2.83	8.61***	3.02*

Table 9. Results of popularity function for the Social Democratic Party.

SDP	1987-2001	1987-90	1990-95	1995-2001
cons	7.77*** [1.75]	10.41* [5.54]	2.00 [2.47]	7.28*** [2.73]
SDP(t-1)	0.86*** [0.03]	0.79*** [0.10]	1.01*** [0.06]	0.79*** [0.07]
GD8791	-1.35** [0.69]			
GD9498	-2.36*** [0.60]			
GD98-	-2.54*** [0.66]			
CPMSDP	4.53*** [1.59]			4.27*** [1.47]
MONA	-3.31** [1.59]			-3.74** [1.49]
U(t-1)	-0.08 [0.13]	0.61 [0.98]	-0.28 [0.18]	-0.03 [0.13]
I (t-1)	-0.15* [0.08]	-0.51* [0.24]	-0.10 [0.11]	0.17 [0.17]
R <sup>2</sup>	0.94	0.91	0.94	0.70
LM <sup>a</sup>	1.67	0.84	0.17	0.65
Normal <sup>b</sup>	4.75*	0.67	1.17	3.04
White <sup>c</sup>	0.78	0.31	1.93	0.92
RESET <sup>d</sup>	0.58	0.16	0.91	0.00

Residual tests: <sup>a</sup> autocorrelation (LM-test), <sup>b</sup> normality, <sup>c</sup> heteroskedasticity, <sup>d</sup> functional form. Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

Table 10. Results of popularity function for the Center Party.

CENT	1987-2001	1987-90	1990-95	1995-2001
cons	1.31*** [0.41]	4.71** [2.31]	3.43*** [0.94]	1.03** [0.42]
CENT(t-1)	0.83*** [0.05]	0.65*** [0.13]	0.45*** [0.11]	0.72*** [0.11]
GD9194	-0.00 [0.18]			
U(t-1)	-0.05 [0.04]	-0.75 [0.68]	0.03 [0.07]	0.07 [0.07]
I (t-1)	0.05 [0.04]	-0.03 [0.11]	0.12** [0.05]	0.12 [0.09]
R <sup>2</sup>	0.86	0.59	0.58	0.69
LM <sup>a</sup>	3.12**	0.20	1.39	0.51
Normal <sup>b</sup>	45.40***	10.79***	4.48	4.65
White <sup>c</sup>	1.75**	0.47	1.11	1.60
RESET <sup>d</sup>	2.30	0.13	0.66	0.00

Table 11. Results of popularity function for the Moderate Party.

MP	1987-2001	1987-90	1990-95	1995-2001
cons	2.46*** [0.81]	2.46 [2.94]	1.19 [1.79]	3.73** [1.51]
MP(t-1)	0.86*** [0.04]	0.74*** [0.15]	0.91*** [0.07]	0.77*** [0.07]
GD9194	-0.96*** [0.34]			
U(t-1)	0.19** [0.07]	0.33 [0.89]	0.1 [0.11]	0.38*** [0.14]
I (t-1)	0.04 [0.04]	0.38 [0.24]	0.05 [0.07]	0.12 [0.14]
R <sup>2</sup>	0.90	0.78	0.81	0.83
LM <sup>a</sup>	0.91	0.67	2.36	0.44
Normal <sup>b</sup>	0.43	0.95	1.68	2.09
White <sup>c</sup>	1.21	1.56	0.61	4.08***
RESET <sup>d</sup>	0.02	0.05	0.25	4.96**

Residual tests: <sup>a</sup> autocorrelation (LM-test), <sup>b</sup> normality, <sup>c</sup> heteroskedasticity, <sup>d</sup> functional form. Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

## THRESHOLD MODEL RESULTS

Table 12. P-values for threshold existence under different assumptions on residuals ( $H_0$  no threshold).

FIN	LM het. errors	F hom. errors
NC	0.17	0.1
CENT	0.18	0.12
SDP	0.00	0.00
LA	0.00	0.00

Table 13. P-values for threshold existence under different assumptions on residuals ( $H_0$  no threshold).

SWE	LM het. errors	F hom. errors
MP	0.29	0.06
CENT	0.00	0.00
SDP	0.27	0.42
LP	0.1	0.1

## FINNISH RESULTS

Table 14. Results of the threshold model for the Left Alliance.

LA	1987-2001	$U \leq 10.7$	$U > 10.7$
cons	2.79***	3.01***	5.57***
	[0.75]	[1.23]	[0.99]
LA(t-1)	0.71***	0.82***	-0.07
	[0.06]	[0.06]	[0.13]
U(t-1)	-0.01	-0.09	0.26***
	[0.03]	[0.07]	[0.06]
I (t-1)	0.02	-0.14	0.08
	[0.07]	[0.11]	[0.12]
R <sup>2</sup>	0.59	0.73	0.33
N	150	80	70
P	0.58		

Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

Table 15. Results of the threshold model for the SDP.

SDP	1987-2001	$U \leq 12.8$	$U > 12.8$
cons	2.61*** [0.99]	13.51*** [2.39]	-1.89 [2.14]
SDP(t-1)	0.74*** [0.05]	0.44*** [0.09]	0.47*** [0.12]
U(t-1)	0.27*** [0.07]	-0.02 [0.09]	1.03*** [0.29]
I (t-1)	0.38*** [0.13]	-0.09 [0.15]	0.86*** [0.24]
R <sup>2</sup>	0.85	0.22	0.88
N	150	101	49
P	0.99		

Table 16. Results of the threshold model for the Center Party.

CENT	1987-2001	$U \leq 12.2$	$U > 12.2$
cons	5.47*** [1.45]	3.9*** [1.48]	21.4*** [4.91]
CENT(t-1)	0.81*** [0.04]	0.79*** [0.06]	0.36 [0.14]
U(t-1)	-0.1*** [0.04]	0.05 [0.09]	-0.55*** [0.16]
I (t-1)	-0.12 [0.1]	0.11 [0.16]	-0.73*** [0.25]
R <sup>2</sup>	0.78	0.66	0.69
N	150	98	52
P	0.72		

Table 17. Results of the threshold model for the National Coalition.

NC	1987-2001	$U \leq 15.1$	$U > 15.1$
cons	10.57*** [1.98]	13.08*** [2.34]	7.34* [4.29]
NC(t-1)	0.61*** [0.06]	0.54*** [0.07]	0.25 [0.24]
U(t-1)	-0.21*** [0.05]	-0.26*** [0.07]	0.31 [0.22]
I (t-1)	-0.4*** [0.11]	-0.54*** [0.14]	0.24 [0.24]
R <sup>2</sup>	0.69	0.61	0.273
N	150	123	27
P	0.72		

Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

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Table 18. Results of the threshold model for the Left Party.

LP	1987-2001	$U \leq 7.6$	$U > 7.6$
cons	0.81*	0.04	2.39***
	[0.41]	[0.44]	[3.55]
LP(t-1)	0.95***	0.97***	0.84***
	[0.02]	[0.02]	[0.05]
U(t-1)	-0.02	0.09***	-0.1
	[0.04]	[0.02]	[0.39]
I (t-1)	-0.06*	-0.01	-0.22
	[0.03]	[0.03]	[0.14]
R <sup>2</sup>	0.94	0.95	0.96
N	155	123	32
P	0.54		

Table 19. Results of the threshold model for the SDP.

SDP	1987-2001	$U \leq 3.4$	$U > 3.4$
cons	1.48	10.73**	2.28**
	[0.95]	[5.27]	[1.11]
SDP(t-1)	0.96***	0.77***	0.95***
	[0.02]	[0.09]	[0.03]
U(t-1)	0.003	0.74	-0.07
	[0.07]	[0.49]	[0.1]
I (t-1)	0.005	-0.48**	0.15
	[0.05]	[0.22]	[0.11]
R <sup>2</sup>	0.93	0.93	0.93
N	155	47	108
P	0.84		

Table 20. Results of the threshold model for the Center Party.

CENT	1987-2001	$U \leq 2.0$	$U > 2.0$
cons	1.33***	3.44*	1.35***
	[0.35]	[2.06]	[0.36]
CENT(t-1)	0.83***	0.66***	0.63***
	[0.045]	[0.12]	[0.07]
U(t-1)	-0.05	0.13	0.1***
	[0.03]	[0.77]	[0.04]
I (t-1)	0.05	0.006	0.13***
	[0.03]	[0.07]	[0.04]
R <sup>2</sup>	0.86	0.49	0.77
N	155	35	120
P	0.03		

Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

Table 21. Results of the threshold model for the Moderate Party.

MP	1987-2001	$U \leq 8.3$	$U > 8.3$
cons	1.56** [0.75]	2.46*** [0.77]	-23.52* [12.66]
MP(t-1)	0.92*** [0.02]	0.87*** [0.03]	1.19*** [0.12]
U(t-1)	0.06 [0.06]	0.09 [0.07]	2.15* [1.27]
I (t-1)	-0.002 [0.04]	0.01 [0.04]	0.18 [0.31]
R <sup>2</sup>	0.89	0.88	0.98
N	155	139	16
P	0.93		

Standard errors in parentheses. \*/\*\*/\*\* = statistically significant at 10%/5%/1% risk level.

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## IV

# Local Unemployment and Other Factors Influencing Individual Government Approval in Finland

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### Abstract

We document the influence of local unemployment, political orientation and socio-economic background on individual citizen's government support in the 1990's. It seems that the influence of the local unemployment on the respondent's government approval likelihood is somewhat confusing. During the right government the high local unemployment does not decrease respondent's approval likelihood, but during the multi-party government it does. An obvious explanation is derived from the Centre Party's dominant position in the rural, high unemployment regions. Otherwise, our results support the class dealignment, the importance of political orientation on the government support, the increased likelihood of non-support if facing a risk of being less-well-off, and the positive attitude towards the government of the youngs amidst all the turbulence in the society.

Keywords: individual government approval, local unemployment

JEL Classification: D72

# 1 Introduction

Monthly publication of the government's and parties' popularity ratings receives more and more attention in the media. Speculation arises on the factors and events altering the ratings. Research on the factors changing the political actor's popularity has been part of economics and political science over three decades. A widely acknowledged fact is that the economy to a remarkable degree drives the government popularity. Unsurprisingly, unemployment is the most common economic variable to explain the government popularity, other influential variables being inflation and incomes. Also in the Finnish evidence so far, the national unemployment has been connected to the decline of the incumbent popularity as well as to the increase of the popularity of the left parties.

Generally, the media report the overall, or aggregate, approval ratings. Only lately, there has been a tendency towards a more detailed reporting. However, any survey bears in itself almost innumerable aggregation possibilities since in order to fulfill the required representativeness, the pollster has to record various individual qualities regarding the respondent. These qualities allow the survey result to be presented either as an aggregate figure or as a group-wise result where the responses are aggregated according to the desired background variable. Availability of the individual-level data for research purposes has increased over the years allowing new aspects of the political behavior to be explored.

Individual-level data caters for the possibility of appending the data with additional variables. For example, when the respondent's residential area can be traced, then it is possible to connect the respondent to any local economic indicator. This is one of the latest trends in the popularity research. Behind the increased interest lies the diverging economic development within countries. In this matter Finland has not been an exception. From 1991 to 1995, Finland experienced the deepest peace-time depression ever. It created differences in the economic conditions between individuals, socio-economic groups and provinces. According to several measures there seems to have happened diverging economic development not only between groups, but within groups, too. Hence, we wish to find out whether these differences are visible in the groupwise evaluations of the government. In addition, we explore whether there exists within these groups some subgroups which tend to approve differently. Particularly, the diverging

local unemployment rates lead us to assume diverging approval behavior among citizens from different provinces. Basically, we assume that living in a province with high unemployment lowers one's likelihood to approve of the government. As the first Finnish individual-level study, we wish to gain basic knowledge on whether and how different socio-economic and demographic qualities are linked to one's approval decision.

In theory, the incumbents have been held accountable for the economic development in the incumbency period since the publication of *The Economic Theory of Democracy* by Downs (1957). The incumbent parties are punished (rewarded) for bad (good) economic outcomes by voting against (for) them. The Downsian responsibility theory assumes similar policy preferences for each party, whereas the partisan approach (Hibbs, 1977) replaces that assumption with one that allows different economic policy preferences for the leftist and rightist parties. The left parties are assumed to be more concerned about the unemployment, the right parties about the inflation and growth. On the background lies the assumption of different preferences between the parties' core voters. The assumed direction of influence is derived either from the traditional class hypothesis or the connection goes via the voter's preferences on income redistribution, i.e. level of government's share in the economy. One's propensity to adverse economic shocks, like unemployment, leads one to favor redistributive politics and this propensity varies according to individual qualities. People likely to experience the adversities are assumed to vote and approve similarly. In the circumstances of the left (right) incumbent and increasing unemployment (inflation), the voters and poll respondents have two response possibilities: 1) to support the leftist (rightist) parties, since they are believed to be the only able parties to tackle the unemployment (inflation) (Swank, 1993), 2) to punish the left (right) incumbent, since it has not been able to tackle the unemployment (inflation) considered to be its top priority in the economy (salient goal approach, Powell and Whitten, 1993).

Empirical testing of the incumbent's responsibility started in the beginning of the 1970's with the studies by Kramer (1971), Mueller (1970) and Goodhart and Bhansali (1970). The basic idea in the operationalization of the responsibility hypothesis is to explain the incumbent's popularity rating by various

economic indicators and political events. This relationship is called the popularity function. Majority of the empirical popularity function studies applies either the national aggregates or the individual indicators. In the latter, the economic explanatory variables are based on the poll respondent's own perceptions and reporting, whereas in the former, the objective economic indicators are employed. Naturally, the subjective evaluation of one's own and the nation's economy may be biased due to the favorite party's incumbency (see e.g. Zaller, 2001).

Choice of the explanatory variables into the popularity function has brought up interesting debates into the field. The following questions have received the most attention: What is the poll respondent's economic reference group when (s)he evaluates the incumbent, i.e. is the approval decision based on her/his own pocketbook (egotropic approval) or does (s)he take the success of the national economy into account (sociotropic approval)? Does (s)he judge the incumbent by its performance so far (retrospective evaluation) or by what (s)he expects of it (prospective evaluation)?<sup>1</sup> The egotropic and sociotropic aspects of approval were introduced by Kinder and Kiewiet (1979). To be able to detect the two basis of approval from each other, one needs survey data with questions on the respondent's own economy and her/his perceptions on the national economy. However, Kramer (1983) questioned the suitability of the survey data for distinguishing the changes in the economy in general and the changes caused by the government. In addition, he suggested an intermediate aggregation between the individual and the aggregate level. For along time there wasn't many to follow his suggestion. Nowadays, there is a slightly increasing amount of studies concentrating on the local economic conditions, regional political and social differences and their influence on the political outcomes. In several studies on the British elections, it is concluded either that the better the local economy is doing, the higher the government support (Pattie and Johnston, 1995b), or more exactly, the higher the regional unemployment, the lower the support for the government (Pattie and Johnston, 1995a, Johnston et al., 2000). There is also discussion whether controlling all the relevant individual qualities removes the inter-regional variation in party or government support (Johnston and Pattie,

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<sup>1</sup>For quite recent a review on the topics see Lewis-Beck and Stegmaier (2000).

1998). In Britain, it does not seem to be so but the regional differences remain inexplicable.

Not only local but also other disaggregate unemployment rates have been linked to approval and vote choice. Overall, the results are mixed. For example it is found that the group-specific unemployment rates do not perform better than the aggregate unemployment rate, when the popularity of the Swedish Social Democratic Party is studied (Jonung and Wadensjö, 1987). Another aspect to the groupwise differences is to test whether different groups react differently to the changes in the economy. There is empirical support for the partisan divide in issues related to unemployment, real incomes and inflation in the US (Hibbs et al. 1982a), whereas in Britain the voters' sensitivity towards unemployment and real incomes in evaluating the government follows the occupational divide between blue-collar and white-collar (Hibbs et al. 1982b). On Irish data, it is concluded that voters in lower social classes are concerned about unemployment, whereas in higher social classes they are concerned about interest rates and changes in disposable incomes (Borooah and Borooah, 1990). In the older age groups and in the lowest income group the popularity of the Swedish Social Democratic Party is not affected by economic variables but unemployment has the biggest influence on party popularity in the middle-income group (Jonung and Wadesjö, 1987). Thus, the international studies encourage us to apply the local unemployment rates and estimate the differences between groups.

The previous Finnish studies concentrate on the aggregate level party and government popularities. A connection between the national unemployment and the aggregate approval rates of the Finnish government (Mattila, 1994, Nyberg 2000) and parties (Nyberg, 2000, Asikainen, 2002) is a common finding. In addition, both the responsibility and the partisan hypothesis are supported. The right incumbent parties are punished for increasing unemployment, whereas the left parties gain support at the same time. Especially, the incumbents of 1991-95 (the Centre Party, the National Coalition) are severely punished for bad economic development when aggregated unemployment is used as an indicator. (Asikainen, 2002) Finland has been included in several Scandinavian multi-country studies, where the results are either weak and inconsistent or that only the left parties whether incumbent or not are affected by the economy. (Mattila,

1996, Pacek and Radcliff, 1999)

The above mentioned results - the international evidence on the regional and groupwise differences and the previous Finnish results - lead us to question whether the regional divide exists in Finland and whether groups differ from each other in evaluating the government. The data used in looking for the answers includes 15 surveys on the Finnish government popularity from 1992 to 2001. More specifically, our research questions are the following.

1. **Unemployment and approval.** We apply local unemployment to test whether the local circumstances matter, when it comes to approving of the national government. Here we rely on the responsibility hypothesis; no matter which government coalition reigns, it is expected to be punished for the unemployment. In other words, we assume that the likelihood of approving of the government is lower in the provinces with a high unemployment rate. In addition, from 1995 to 2001, the surveys have included a question of one's own labour market status. Our interest is to see whether the behavior among the unemployed differs crucially from others, i.e. do they punish stronger the incumbents.
2. **Groups and approval.** All the socio-economic groups do not benefit equally of the economic growth, just as not all the groups suffer similarly in the recession. In Finland, we have comprehensive evidence on the differences in the economic and social well-being between groups and regions in the 1990's. But there is not yet evidence on the differences in the government support between groups and regions. Our interest lies in exploring whether there is a group or groups that very strongly disapprove of the government and whether that is related to their experiences during the crisis. To complete our hypotheses, we apply the traditional class voting hypothesis and preferences for income redistribution. Overall, we expect that those in a less-well-off or weakening position would view the government more critically than others. In addition, we test our hypotheses within groups divided by age, sex, education, income class, occupational class, residential province, labor market status and vote intention. Naturally, we do not expect all the groups to have significantly divergent behavior.

In the following, we first present different ways in which the regional divide can come up and then outline the economic differences between groups in the 1990's. Our data is described in the Chapter 3. Chapter 4 begins with the method and is followed by the results.

## 2 The Potential Role of the Economy

### 2.1 Regional Distinctiveness

In the following, we present features of the regional and groupwise economic development that gives us a cause to assume divergent government approval patterns both between and within regions and groups.

Generally, we agree with the well-known phrase "the changes in the economy are experienced locally rather than nationally". However, the relationship between the national and the local economies in explaining the popularity ratings should not be seen as rival, but more as complementary to each other. The local economy may go to different direction as the national economy. The same applies of course to one's personal economy with respect to the national and the local economies. Yet, they do not exclude each other in outlining the country's economic development. Overall, the regional economic divergence has gained attention in the economics research and, thus, the importance of connecting a person to her/his locality has been notified also in the popularity research (see e.g. Marsh, 2002). It is admitted that controlling on the decision-making context is essential as the contexts (be it regions or other kind of groups) differ from each other with respect to the dependent and independent variables. Marsh (2002) also reminds of the general, but in many cases misleading, assumption of the universal equivalence of phenomena, events and issues<sup>2</sup>. In other words, we often hold comparable things that are it only on the surface.

Regions differ from each other due to the disparities in the production structure, which creates different kind of skill structures and skill distributions to the regions. Differences in the production structure lead to differences in the economic development, not only in a crisis but in normal times, too. The share

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<sup>2</sup>He refers to a situation of being a small farmers in the western Ireland and being it near the capital.

of industrial manufacturing and agriculture in the employment, the unemployment rate and the regional gross domestic product are structural factors that emphasize regional distinctiveness and are further reflected for example in the regional political atmosphere. Furthermore, the possible restructuring of the production leads to concentration of different sectorial employment in different areas. This again causes changes in the local socio-economic composition, and selective migration from a region to another still strengthens this effect. (Curtice and Steed, 1982)

In the Finnish case, the usual statistical measures confirm the variation between regions. The length of the depression varied from region to region from 4 to 8-9 years (Kuntaliitto, 1999). As Table 1 shows, the highest unemployment rates in the crisis years occurred in Eastern and Northern Finland. Those rates also remained high as there was a regional mismatch in the job creation process: employment opportunities increased in the Western and Southern Finland, but unemployment increasingly concentrated in the Eastern and Northern Finland (Koskela and Uusitalo, 2002). Overall, convergence in the regional employment rates began in 1997 (Kangasharju et al., 2002). Another general measure for the differences is incomes. When the country is divided into four areas, it seems that from 1990 to 1998, the relative income differences between regions did not grow. Taxation and transfers had a role in smoothing the differences. Within the regions the picture is, though, different. For each area separately calculated Gini-coefficients, both on the basis of disposable and gross incomes per capita, show that in the 1990's the income inequality within the regions started to increase. It began first in the capital area and then spread throughout the country. Nevertheless, this divergence did not occur in the factor incomes. (Kangasharju et al., 2002)

Obviously, there are many objective economic indicators to outline the regional economic distinctiveness. We have chosen the local unemployment. There are several reasons that favour the use of the local unemployment as the local economic indicator. First, there is a lot of variation in the local unemployment rates (see Table 1.). Nevertheless, the diverging unemployment development is not fully mediated to disposable income differences since the social transfers had high coverage percentage (Kangasharju et al., 2002). Second, the impact of

unemployment is not restricted to the person unemployed but affects the whole family. Persons living in high unemployment regions have more likely either themselves or via a family member or a friend been touched by unemployment. Besides, the respondents living in low unemployment regions are likely to have different perceptions of the aggregate economy than those living in high unemployment regions. Third, the local unemployment receives attention in the local media. Hence, it is a well-known economic indicator. Finnish studies show that, especially from 1991 to 1993, the media's interest in the economy increased. From 1988 to 1997, approximately 20% of all the news stories were about the economy. In other words, along the unemployment rose also the number of articles on the topic. Specifically, in the local newspapers the local economic aspect was emphasized in the crisis period. (Aslama et al., 2002) These findings give a reason to assume that citizens were aware of their region's economy as well as the whole country's economy.

Table 1. Average unemployment in different regions and in different periods calculated as weighted averages of municipal monthly rates.

	Region	1992-95	1996-01
Southern	Uusimaa	14.8	10.9
	Vars.-Suomi	16.8	13.1
	Häme	19.6	16.3
	Kymi	18.8	17.1
Eastern	Etelä-Savo	19.8	18.3
	Pohj.-Savo	19.3	17.8
	P-Karjala	20.9	21.2
	Kainuu	23.0	22.5
Western	K-Suomi	21.0	18.4
	Pirkanmaa	19.5	16.0
	Satakunta	19.9	17.4
	E-Pohjanmaa	17.1	13.9
	Pohjanmaa	10.7	12.6
Northern	P-Pohjanmaa	20.1	16.8
	Lappi	23.7	22.7

Besides the economic development, there are other factors that can promote the regional distinctiveness. A concept related to the non-economic regional influence is so-called neighborhood effect (Miller, 1977), which includes the strengthening of the traditional party affiliations in the region. The voters whose class-based vote choice would be something else voted for the party, which had the strongest position in that region. In addition, in the different local environments political events are understood and interpreted differently. The local media has a role in building the local atmosphere which affects attitudes and behavior (Johnston and Pattie, 1998).

In Table 2, we list the government approval rates in the Finnish provinces. The first period covers the years of the right government, the second the years of the wider coalition government. The approval rates follow closely the results of the parliamentary elections. The Centre Party was the largest party in all the three parliamentary elections held in the 1990's in Pohjois-Savo, Vaasa (Pohjanmaa), Oulu (includes Kainuu), Lappi; in addition, in 1991 and 1999 in Etelä-Savo and Keski-Suomi. The Social Democratic Party was the biggest party in all three elections in Satakunta, Häme and Kymi. Helsinki and Uusimaa are the strongholds of the National Coalition Party. Concrete issues in which the regions diverge are for example preferences on industry specific subsidies and the attitudes towards the EU.

Table 2. Regional government approval rates.

	Region	1992-2001	1992-95	1995-01
	National	40.1	19.1	51.9
Southern	Uusimaa	46.6	17.2	63.7
	Vars.-Suomi	40.3	16.5	54.8
	Häme	41	20.4	52.8
Eastern	Kymi	38.3	15.9	52.0
	Etelä-Savo	37.7	18.9	48.5
	Pohj.-Savo	39.9	19.7	49.9
	P-Karjala	34.5	15.8	49.0
Western	Kainuu	27.1	10.8	31.8
	K-Suomi	39.9	32.2	43.4
	Pirkanmaa	40.0	16.1	53.3
	Satakunta	35.6	15.9	49.8
	E-Pohjanmaa	34.1	23.9	39.9
Northern	Pohjanmaa	45.6	31.5	51.0
	P-Pohjanmaa	37.3	23.2	44.9
	Lappi	33.6	20.6	40.7

## 2.2 Some Other Aspects of the Economic Development<sup>3</sup>

The recession of the 1990's does not fit into the frames of a usual economic downturn. Typical of the depression was the huge increase in the unemployment rate, from 3 % in 1990 to almost 20% in 1994. Annual average growth rate from 1991 to 1993 was -3.8%. Even if the depression left almost everyone worse off compared to the prior situation, or as Lehtinen (1998) puts it "everyone lost", not all the groups benefitted equally of the subsequent economic growth and the increase of the employment opportunities.

### Unemployment

The nature of the unemployment changes in the observation period. In the beginning, it is cyclical unemployment due to the sudden and unforeseeable changes in the economy. Then it becomes structural unemployment as a more

<sup>3</sup>Based on Vartia and Kiander 2000, unless otherwise indicated.

profound change takes place in the society. In the crisis, jobs were lost mostly in the construction and manufacturing industries, in the recovery period new jobs were created mainly in the service sector. This mismatch between the unemployed and the new jobs gave rise to the structural unemployment. (Koskela and Uusitalo, 2003) The relative position of the unemployed worsened as their average disposable incomes declined in the 1990's. In the latter half of the 1990's the unemployed were more often long-term unemployed who receive the means-tested minimum unemployment security benefit. Therefore since 1994 the unemployed have lived more often in poverty (less than 50% national average income) than in 1994. (Riihelä et al., 2002)

Groupwise investigation of the unemployment development tells the following. Women's unemployment never reached the level of men's unemployment (both peaked in 1994). But there was also a difference in the declining process: men's unemployment declined faster than women's unemployment and in 1997 men's unemployment was lower than women's. Unemployment rose in every educational group but in the crisis the gap widened between the highest and the lowest educational group. Those having polytechnic degrees experienced the fastest increase in employment opportunities after the crisis.

Decline of employment hurt most the youngest (18-25 years) age group. When the unemployment is disaggregated by age, then the elderly (45-59 years) have overrepresentation. Elderly with low education have the weakest job market position but unemployment has remained high among the lowest educated young people, too. In the end of 1990's, the lowest educational group made up the largest group when unemployment is disaggregated by education.

### Incomes

In the crisis, the highest educated experienced the smallest decline in income. In the first recovery years the wages of all educational groups grew similarly, only the lowest educational group had a little lower wage growth. Since 1996 the highest educated have had also the highest wage increases. Depression influenced most the wage incomes of the age group under 40 (in 2001). The average wage incomes in the group under 40 in the end of 1990's was lower than the same age group's in the beginning of 1990's. Only the highest educated under 40 have experienced average income increases. Pensioners' relative position in

income distribution even improved (Lehtinen, 1998).

### Income distribution

In the depression period from 1990 to 1993 the increase in the unemployment caused significant changes in the relative distribution of the factor incomes but these changes were not transmitted to the relative distribution of the disposable incomes. Contribution of the income transfers to the tranquility of the disposable incomes was larger than that of the progressive income taxation. (Lehtinen 1998)

Income inequality between individuals has increased in the 1990's. First, the reason was piling unemployment in the crisis years (1990-94), afterwards the capital incomes, as their share in earnings has increased. In addition, income redistribution has declined in the 1990's. Gini coefficients calculated separately for different socio-economic groups (farmers, entrepreneurs, white collars, blue collars, workers, unemployed, pensioners) show increased inequality within these groups. From 1994 to 1998 the biggest increases in inequality occurred in the households headed by pensioners, farmers, entrepreneurs and white collars. (Riihelä et al., 2002)

According to Ritakallio (2002) poverty is increasingly likely to be connected to one's socio-economic position (labour market status, education, social position). In addition, social assistance and over-indebtedness are linked to low education and blue-collar status. Further, from 1995 to 2000 the relative position of single-parent families worsened but feminization of the poverty did not occur in Finland.

### Values

Divergence occurred also at the mental level. The decline of conformity of the Finnish values strengthened in the crisis, solidarity towards the less-well-off decreased among the middle-aged, educated and Southerners. Furthermore, the rural-urban divide was born. (Aslama et al., 2002) On one hand, the well-off people were not sympathetic, on the other hand, the less-well-off did not themselves unite and bring up their cause and constitute a political force (Häkkinen and Peltola, 2002).

## 3 Data and Specification of the Popularity Function

### 3.1 Data

Our data is gathered by Gallup Finland for Kaleva-newspaper. The data consist of 15 biannual random samples of the Finnish voting age (over 18 years) population. The first poll employed is Spring 1992 and the last is Autumn 2001<sup>4</sup>. On average there are 950 respondents in each poll (ranging from 914 to 1428). There are on average 300 respondents per survey excluded from the data due to no answer to the government approval question, that leaves us with approximately 650 respondents in each survey. The exclusion may slightly affect the representativeness of the sample since those excluded may have different response patterns also otherwise. The average respondent is 46 years old and 48% of the respondents are women. Different respondents have been interviewed every time and, hence, the distributions of variables are likely to differ from poll to poll. Consequently, the observations are independent, but not identically distributed. This type of data is called pooled cross sections over time (Wooldridge, 2002). The inoccurrence of repeated individual observations distinguishes it from panel data.

The questionnaire is designed by Gallup Finland, the survey questions differ from time to time as well as the answer categories. In telephone interviews the respondents have been asked of their government, prime ministerial and presidential approval. Further, their vote intention and voting in the last election held (either parliamentary or local) is asked. Of the socio-economic and demographic variables the following are recorded: age, sex, education, income class, occupational class, region of residence (municipal) and labor market status. The exact coding of the variables is reported in Appendix 1. Since the original survey data includes the municipal of residence of each respondent, it provides an easy way to append the data set with the local unemployment rates. We add the NUTS3-level unemployment rates. As geographical units, the NUTS3-regions are very close to the well-known provinces.

As the surveys cover several years and three electoral periods, it is meaningful

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<sup>4</sup>Unfortunately, not all the surveys of the period were available from Gallup Finland.

to divide the data into two subperiods according to the government coalition (Table 3). The first period covers the years from 1992 to 1995, and the latter from 1996 to 2001. This division is practical also from the point of view of our hypotheses. From 1992 to 2001, Finland was governed by three multiparty coalitions. Party combination in the last two coalitions was essentially the same. The first coalition was a pure right government but after that the country was governed by a combination of parties from the left to the right. (See Table 4) The latter coalition is usually called the rainbow coalition.

Table 3. Periods and observations.

Period	Polls	Month/year	Average obs.	Total N
1992-95	5	4/92, 9/92, 4/93, 12/93, 5/94	690	3454
1996-01	10	4/96, 4/97, 11/97, 11/98, 5/99, 11/99, 4/00, 11/00, 3/01, 11/01	610	6100
Sum	15		637	9554

As Table 4 shows, there is a huge increase in the government average popularity from the first period to the latter. This difference can not be explained just by the increased number of parties in the coalition. The first period coincides quite exactly with the deepest phase of the depression and the first signs of recovery. The government's popularity level during the crisis signals a widely felt discontent with the government's policies and actions. In Table 5, the government popularities are listed by socio-economic groups (See Appendix 1 for the abbreviations and classifications).

Table 4. Government popularity (%) and incumbents in different periods.

	Mean	Std	Max	Min	Incumbent parties
1992-95	19.1	39.3	23.2	15.3	NC, CENT, SSPP, CD
1996-01	51.9	49.9	65.8	31.9	NC, SDP, LA, GL, SSPP

Abbreviations: NC (National Coalition), SSPP (Swedish Speaking People's Party), SDP (Social Democratic Party), CENT (Finnish Centre Party), LA (Left Alliance), GL (Green League), CD (Christian Democratic Party).

Table 5. Government popularity by groups and time periods.

		1992-2001 <sup>a</sup>	1992-95	1996-01
	All	40.1	19.1	51.9
Gender	Men	40.6	18.5	52.7
	Women	39.6	19.8	51.2
Age	18-25	40.4	20.0	63.1
	25-34	34.9	14.9	51.4
	35-49	35.7	16.2	47.3
	50-64	44.0	19.5	53.4
	64+	47.7	32.4	53.6
Education	No-training	26.5	15.6	33.3
	Vocational	41.9	20.9	53.7
	Polytechnic	37.8	17.5	52.3
	Academic	39.8	17.7	48.7
Income	Below mid	43.4	20.1	53.4
	Mid	36.9	19.4	48.8
	Above mid	39.9	15.9	49.1
Socio	Farmer	35.1	46.8	29.9
	Entrepreneur	41.6	19.6	51.2
	White collar	43.4	19.6	56.3
	Blue collar	33.1	10.4	49.6
Labour market	Employed			51.6
	Unemployed			44.4
Voted for	SDP	46.8	8.1	80.3
	CENT	38.1	64	28.9
	NC	62.1	36.3	71.7
	LA	23.1	5.3	42.7

<sup>a</sup>The whole period average popularities within groups depends on the size of each group in each period. The sizes may vary somewhat, due to the different number of surveys available in each period.

## 3.2 Specification of the Popularity Function

Nature and composition of the data determines the estimation method. In our data, the dependent variable is dichotomous; the respondent either approves the government (=1) or does it not (=0). The explanatory variables include both binary and continuous variables. There are several possibilities for estimating a binary response model. The repeated cross-sectional data leads to a static model. All the static methods for pure cross-sectional data are applicable to our data, too.

The essential difference in modeling panel data and repeated cross-sectional data is that in the repeated cross-sectional data controlling for the individual-specific effects is not possible, the only controllable effects are time-specific. Thus, one issue in picking the estimation method is how to correctly take the time-specific effects into account. There are two ways available for separating the time-specific effects, either use a fixed-effects model or to highlight the time-specific effects by dummies in a random effects model. The dummy approach can be applied to any random effects logit or probit model. According to several textbook sources the logit and probit estimations would yield similar results (Hsiao, 2003, Wooldridge, 2002). Considering our data and the aim of the study, it is easy to make a decision between the methods.

Our data consists of repeated random samples of voting age population, and every data combination applied in our study includes a few thousand observations. The aim in the polls is with the use of representative samples of the whole population to uncover the underlying public opinion on the matter at question. Hence, the method with which one studies the effects different individual-level characteristics have on one's opinion has to obey the original purpose of the polls. The fixed-effects method yields inferences conditional on the effects in the sample, whereas the basic idea in the random effects method is to make inferences with respect to the underlying population characteristics. The random effects method treats the values of the explanatory variables as representative draws from a larger population of values and thus yields inferences conditional on the underlying population. (Hsiao, 2003). Therefore, our starting point is the maximum likelihood random effects probit with the time-specific dummies. The estimated model is as follows,

$$(1) \quad G_{i,t}^* = \beta_0 + \lambda_t + \beta_1' W_{i,t} + \beta_2 I_{j,t} + \varepsilon_{i,t},$$

where  $G_{i,t} = 1$ , if  $G_{i,t}^* > 0$ ;  $G_{i,t} = 0$  otherwise.

$G_{i,t}^*$  is a latent continuous random variable and  $G_{i,t}$  is its observed binary counterpart which equals unity if a person approves of the government and zero otherwise.  $\beta_0$  is a common-to-all intercept,  $\lambda_t$  includes the time specific dummies (assumed random and estimated along with the other explanatory variables), vector  $W_{i,t}$  includes the individual-level characteristics (like education, sex, etc.) and  $I_{j,t}$  is the regional indicator, in this case either the local unemployment or the provincial dummy indicating respondent's home province. The error term,  $\varepsilon_{i,t}$ , is assumed identically independently distributed.

In adding the variables to the equation, attention is paid on the possible identification problems that weaken the estimated influence. For example, we can not include the socio-occupational group pensioners and the age group above 65 years into the same regression as there is strong correlation between these two variables. We face similar a situation with the local unemployment rate and the respondent's region of residence, since both of them are coded for the same geographical units and it would be difficult to identify the separate influences of each of the variables.<sup>5</sup> Thus, we estimate two separate popularity functions, one with the local unemployment rate and the other with the respondent's region of residence. For both popularity models our strategy is to hold as many factors fixed as possible. In other words, to include as many background variables in the regression as available. Our aim is to find out how various background variables affect person's approval behavior, not to find the best fitting model.

There are three practices to explore whether the poll respondents with different socio-economic backgrounds approve of the government differently. Firstly, to use these characteristics as explanators. This will tell which groups stand out in the whole data. The significance of each variable for the model as a whole is tested with LR-test. Secondly, to group the whole data according to a certain feature and estimate the popularity function in the subset of the data

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<sup>5</sup>We estimated a model having both the local unemployment and the region of residence in a regression. In this experiment the significancies of the region of residence dummies disappeared, their values and the signs of the coefficients changed. We consider this as a signal of identification problem.

(e.g. men/women). This way we may reach groups that are not recognizable in the whole data but come up within a smaller group. The second approach means running almost one hundred separate regressions. Not all the groupwise estimations are expected to yield meaningful results, since each socio-economic and demographic group consists of people with varied life-styles and values who are not likely to share common interests in policy issues. In the groupwise estimations only the local unemployment rate is included<sup>6</sup>. We have included in the Appendix 2 the results of the estimations by gender, the rest of the groupwise results are available from the author upon request. Thirdly, to apply interaction variables when estimating on the whole data to find out whether the interacted groups stand out in the whole data. Comparing and combining the results of the first two methods, we may get some idea which interacted variables would stand out in the whole data. There is one difficulty, though. According to Ai and Norton (2003) applying interaction in a probit is somewhat problematic, since the estimated marginal effects can be misleading what comes to size, sign and significance<sup>7</sup>. Nevertheless, that does not deter us testing the significance of the interactions with LR-test.

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<sup>6</sup>Inclusion of respondent's region of residence would in some groupwise estimations decrease the degrees of freedom too much.

<sup>7</sup>Norton, Wang and Ai (2004) introduces a command calculating the correct interaction effects in probit models in Stata. Its weakness is that it allows just one interaction variable into the model at a time.

## 4 Estimation Results

An important issue in the probit models is the interpretation of both discrete and continuous explanatory variables. Following the common practise, we report the marginal effects with respective significance levels in the text, while the actual parameter estimates and their standard errors are printed in Appendix 2. For a categorical variable, the marginal effect is the change from zero to one, holding all other variables fixed. For a continuous variable, it is the infinitesimal change evaluated at its mean level. Nevertheless, the marginal effect is exact only in the proximity of the mean, for other values it is just an approximation. In order to get the exact marginal effect for wider intervals, one has to calculate first the likelihood at each end of the interval and then subtract them as follows  $P(y|u = high) - P(y|u = low)$ . This subtraction yields an answer to the question how much does the approval likelihood change when we move from a low unemployment region to a high unemployment region, holding all other variables fixed. Reference categories for each variable are listed below the respective table. Although the coefficient signs and significances are more relevant in judging the fit of the model, we also report the values of the likelihood function, pseudo- $R^2$  and the percentage correctly predicted. The statistical package used in the estimation is Stata 8.0.

In the following, we report the results variable by variable first commenting the periodwise results, then making some remarks on the subgroup results. In interpreting and discussing the results we apply the evidence of the 1990's depression, the general knowledge of the Finnish political behavior and the results in international studies in our field.

In order to find out whether real and significant differences exist between the two government types, we estimated the model on the entire data and separated the different government types with dummies. The followed LR-test showed highly significant differences between the government types. In addition, we applied LR-test to see the significance of each variable in the model. The results are listed in the Appendix 2 in Table 4. Thus, we move on to estimate the model for the two government types separately. The estimated coefficients in the model with the region of residence and in the model with the local unemployment are essentially the same. Hence, we report only the ones including the

region of residence. Table 6 gives the complete result for the two government types. Overall, it seems that in the first period the local unemployment, political orientation, demographic variables, own economic situation and region of residence are not very helpful in predicting the government approval. Whereas exactly the same variables yield quite high a percentage of correctly predicted responses in the latter period. Reasons for this finding may lie in the very low government popularity in the first period (on average 19%), the extraordinary economic development and the ongoing fast and thorough transformation of the society. These factors are likely to shrink the explanatory power of the generally applied variables.

### Unemployment

The responsibility hypothesis leads us to assume wider discontent with the government among the respondents in the regions of high unemployment. The marginal effect of the local unemployment in the first period is 0.007 and in the latter period -0.01. In the first period it is not significant, but in the second period it is significant at 1% risk level. We have calculated the response probabilities for low and high unemployment regions separately, just as described above. The subsequent subtraction gives us some very interesting results. In the first period, the respondents living in Lappi (the highest local unemployment 25.6%) are approximately 11 percentage points more likely to support the government than the respondents in Uusimaa (the lowest local unemployment 9.9%). In the latter period, the respondents in Lappi (the local unemployment still 25.6%) are approximately 23 percentage points less likely to support the government than are the respondents in Uusimaa (the local unemployment 7.3%). In other words, in case of the rightist government the respondent's likelihood to support the government is positively affected by the high local unemployment: the higher the local unemployment, the higher the likelihood of supporting the government. To illustrate the differences between the government types we calculated the predicted government approval likelihood for each local unemployment percentage, i.e.  $P(y|u=11.9)$ ,  $P(y|u=12.9)$ , etc. The resulting points are depicted in the Figure 1 where the predicted government approval likelihood is plotted against the local unemployment. Reading the figure tells for example that in a region of 12% unemployment a person's likelihood to approve of the government in the

first government period is approximately 32%, whereas in the second period it is 45%.

This finding is in stark contrast with the responsibility hypothesis, the results in the international studies (Pattie and Johnston, 1995a, 1995b, Johnston et al., 2000) and the Finnish studies involving the aggregate-level variables, where it was found that especially in its government period the Centre Party and the National Coalition were punished for the unemployment (Asikainen, 2002). It seems that entering the regional level completely changes the picture. However, an apparent explanation for these opposite results lies to a great extent in the regional distinctiveness of the popularity of the Centre Party. The Centre Party has a historically dominant position in sparsely populated rural areas in Northern and Eastern Finland, where the unemployment rates are still high. In those areas the Centre Party has long been a catch-all party (Arter, 1999) and it seems that the poor local economic development won't change that.

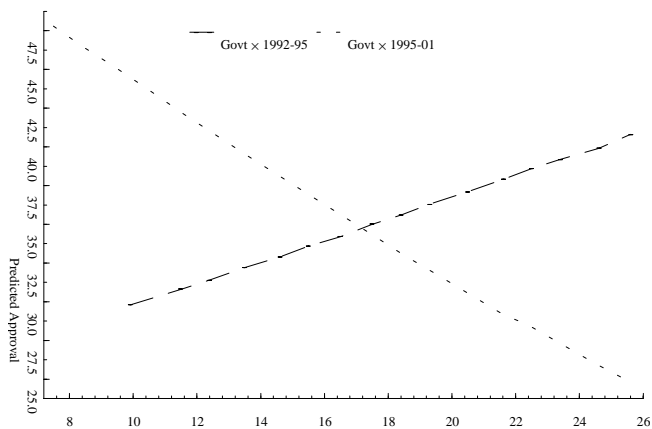


Figure 1. Local unemployment plotted against the predicted government approval.

Table 6. Estimation results (marginal effects) on the government popularity function for different periods with regional dummies.

		1995-95	1995-01
Poll	Au92	-0.06	
	Au93	-0.04	
	Sp93	-0.05	
	Sp94	-0.02	
	Sp97		0.08*
	Au97		0.07*
	Au98		0.1**
	Sp99		0.01
	Au99		0.06*
	Sp00		0.07*
	Sp01		0.01
	Au01		0.09**
	Govt1		
	Govt2		
	Govt3		0.29**
Region <sup>a</sup>	Vars.Suomi (S)	-0.05	-0.06*
	Satakunta (W)	-0.03	-0.08*
	Häme (S)	0.07	-0.08**
	Pirkanmaa (W)	-0.007	-0.08**
	Kymi (S)	-0.001	-0.11**
	Etelä-Savo (E)	0.07	-0.09*
	Pohj.-Savo (E)	0.05	-0.07*
	P-Karjala (E)	-0.03	-0.13**
	K-Suomi (W)	0.19**	-0.14**
	E-Pohjanmaa (W)	-0.07	-0.14**
	Pohjanmaa (W)	0.15*	-0.09**
	P-Pohjanmaa (N)	-0.01	-0.1**
	Kainuu (E)	-0.1	-0.24**
Lappi (N)	0.06	-0.14**	
Gender <sup>b</sup>	Woman	0.003	0.01

Table 6 continues. Results for different periods with regional dummies.

		1992-95	1995-01
Age <sup>c</sup>	18-24	-0.06	0.17**
	25-34	-0.12**	0.02
	35-49	-0.12**	-0.02
	50-64	-0.1**	0.02
Education <sup>d</sup>	Notraining	-0.07	-0.18*
	Vocational	-0.07	-0.04
	Polytechnic	-0.06	-0.06*
	Academic	-0.09*	-0.06*
Socio <sup>e</sup>	Farmer	0.11	-0.15**
	Entrepreneur	-0.06	0.001
	White-collar	-0.04	0.02
	Blue-collar	-0.12**	-0.02
	Pensioner	0.01	0.01
Income <sup>f</sup>	Below-mid	0.002	-0.06**
	Mid	0.01	-0.06**
	Above-mid	-0.007	-0.07**
Voted for <sup>g</sup>	SDP	-0.1**	0.36**
	NC	0.3**	0.25**
	CENT	0.5**	-0.15**
	LEFT	-0.15**	-0.02
	GREEN	-0.11**	0.03
Labour market <sup>h</sup>	Employed		-0.01
	Unemployed		-0.03
N		3453	6100
pseudo R <sup>2</sup>		0.23	0.16
log likelihood		-1296.9	-3530.1
% corr. pred		12.4	53.6

Notes: Baseline categories for <sup>a</sup> Uusimaa, <sup>b</sup> men, <sup>c</sup> 65+, <sup>d</sup> other, <sup>e</sup> student, other, <sup>f</sup> don't tell, <sup>g</sup> other parties, <sup>h</sup> outside labour force and others.. (S) Southern, (E) Eastern, (W) Western, (N) Northern. \*(\*\*) = statistically significant at 5% (1%) risk level.

On average the unemployment rate in the Centre Party's core areas does not essentially change from the first period to the latter. Nonetheless, the attitude towards the local unemployment changes as the government coalition changes. In the first period - interpretation according to the responsibility hypothesis - it is not the government's fault, but in the latter period the government is punished for the high local unemployment. Besides, in its opposition period the Centre Party has strongly forwarded the message of government's inaction in smoothing the regional disparities. Obviously, the message has hit home at the target audiences, namely, Northern and Eastern provinces.

Another unexpected feature is that being unemployed oneself does not have a significant influence on the approval likelihood. Let us bear in mind that the respondent's labour market status is recorded only in the surveys of the two last electoral periods. After the mid-1990's the nature of the unemployment began to transform into structural unemployment, which includes persons with dated skills and education. With this data it is impossible to separate the long-term unemployment from seasonal and cyclical unemployment. It is very likely that the reason for being unemployed as well as age, education etc. affects one's expectations of the future and thus makes this group quite heterogenous. To get a more educated opinion on the topic whether the unemployed approve of the government differently, we estimate the model in the group of unemployed. There are altogether 396 unemployed respondents in the surveys. The results show two dissimilarities compared to the results in Table 6. First, the unemployed entrepreneurs' increased likelihood to disapprove of the government. Compared to the other groups of unemployed, the entrepreneurs have low unemployment benefits and that may drive their criticism toward the government. Second, the unemployed National Coalition's voters are more likely to approve of the government than for example the Social Democratic Party's (unemployed) voters. The unemployed National Coalition voters do not blame the government for their unemployment, as they are even more likely to approve of the government than the other National Coalition's voters.<sup>8</sup>

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<sup>8</sup>92% of the unemployed National Coalition voters approve of the government, whereas 67% of the unemployed Social Democratic Party's voters do so.

## Region

We included the home province dummy for each respondent as we wished to capture the non-economic effects that living in a certain province may have. Since it is not possible to include all the regions in one regression at the same time, we dropped Uusimaa. It seems to be a natural comparison group because Uusimaa features as the forerunner in the economic development among the provinces. Correlation makes it impossible to add local unemployment or any kinds of interactions with it to the same regression with the province dummies. Thus, it is difficult to exclude the possible influence of the economy.

In the first subperiod, we find expectably the dominant position of the Centre Party in certain regions. The respondents living Keski-Suomi and Pohjanmaa were 19% and 15% more likely to approve of the government than the respondents in Uusimaa. For the other regions the coefficients were not significant. In the latter period, the differences between regions are more pronounced. It is difficult to say whether it is caused by the change of the government coalition, or by the change of times generally. The highest likelihood of not approving of the government is in Kainuu, second comes Lappi, third Etelä-Pohjanmaa and fourth Keski-Suomi. The result is not surprising as the first two are Northern regions of low incomes, high unemployment and high vote share of the Centre Party. In addition, the latter two regions belong to the Centre Party's core areas and, thus, it is natural to see the low government approval there.

## Political orientation

We assume that the party the respondent voted for in the last election reflects his/her political orientation. Therefore, we expect that the incumbency of one's latest electoral choice increases one's likelihood to approve of the government. That is also the case. The coalition change is visible as those who voted for the Social Democratic Party become more likely to approve of the government in the latter period and, respectively, the voters of the Centre Party become less likely to approve of it. These results indicate that the Centre Party voters are more inclined than the other parties' voters to approve or disapprove of the government according to their favorite party's parliamentary position. The voters of the Left Alliance are less likely to approve of the right government, but in the second period the party's incumbency leaves them indifferent towards the

government.

The National Coalition's incumbency stretches over the entire research period, and its voters are from 25 to 30% more likely to approve of the both government types than others. Maybe due to its long incumbency, the voters of the National Coalition's main coalition partner are more likely to approve of the government. The stronger adherence may be due to the prime minister's position held by the Centre Party and later by the Social Democratic Party. Often the government is personified in good and in bad to the prime minister.

Estimations among the party supporters show that in the first period the blue-collar Centre Party voters are 22 % less likely to approve of the government, this finding is naturally explained by the group's aversion of the National Coalition. In addition, the Centre Party voters with less than 49 years of age or with high incomes are from 22 to 28 % less likely to approve of the right government. Maybe these groups include the so-called swing voters who just happened to vote for the Centre Party in the latest election but do not belong to its core supporters.

In addition, here we document clear evidence that not all the incumbent party voters approve of the government. Thus, the summing up of the party popularities to get the government coalition popularity leads to biased numbers. If this approach is applied in the aggregate popularity function research, the results will be undoubtedly unreliable.

### Socio-occupational group

Finland has a history of strongly class-based party support. Growing class dealignment on the voters' side and the parties' transformation from class-based parties to catch-all parties have obviously weakened the ties. In addition, new parties have emerged to catch the voters. Yet, it still is common knowledge that the Social Democratic Party basis its support on blue-collar workers, the Centre Party on farmers and rural residents, and the National Coalition on white-collar workers.

Our results indicate that the farmers and the blue-collar workers have class-based approval behavior. The blue-collar workers are more likely than any other group to disapprove of the right government, whereas the farmers are several times more likely to disapprove of the rainbow coalition which excludes the

Centre Party. These results suggest that the class-based support comes actually up as 'non-support'. This inverse influence may reflect the dealignment process as these voter groups - the farmers and the blue-collars - know what they oppose (the SDP led government, the rightist government) but are no longer strongly for their traditional party.

Besides, among the farmers the discontent felt with the government in the latter period may be mixed with their disapproval of the European Union. From 1995 to 1999, the issues related to the EU received a lot of attention in the media (Aslama et al., 2002) and it was a topic heavily promoted by the government.

## Gender

There is international evidence showing emergence of a gender gap in voting and party support. Hence, we expect to discover some gender differences also here. We find that gender does not make one more likely to approve or disapprove of the government and this holds for both government types. Nevertheless, differences arise when we estimate the same model for both genders separately. It is the education that makes the difference. One difference comes from the effect of having no training. In the latter period, it decreases 21% men's likelihood to approve of the government whereas it does not significantly change women's approval likelihood. Here we probably have the phenomena which the being unemployed oneself -variable did not catch. The men without any training have a weak job market position, thus, facing higher risks of economic misfortunes. In addition, this group of men faces social risks of becoming estranged from the society. In the latter half of the 1990's social assistance and over-indebtedness is linked to low education (Ritakallio, 2002) Thus, this is a less-well-off group, or at the risk of becoming one, which might oppose the government's reductive policies directed at the welfare services and transfers.

At least as fascinating a finding concerns the highly educated women. In the first government period, we find that the academic women are 14% less likely to approve of the government, in the latter period, the percentage drops to 10%. In the latter period, the discontent has spread as the women having polytechnic degrees are 8% more likely to disapprove of the government. All in all, the academic women are more unsatisfied with the outcomes delivered by any government type.

Obviously, critical thinking increases along with education and the target of the criticism can justifiably be the government as well as any other instance. Strikingly, the same increase in the criticism towards the government does not happen to men. In the following, we try to reason an explanation. Firstly, international evidence shows that women increasingly tend to favour the left parties. This is assumed to be connected to the increasing number of divorces which lead to the increasing number of single-parent households, where the parent most likely is the mother. The left parties favour redistributive policies, part of which are targeted to children and low-income households. (Edlund and Pande, 2002, Edlund et al., 2003) Secondly, Finnish studies show that in the 1990's the redistributive efforts by the government have declined (Riihelä et al., 2001), in the recovery from the depression the government put heavier weight on cutbacks in the public expenditures than on the increases of taxes (Kautto, 2001), not only the level of the social benefits has lowered but also eligibility to the transfers has become more difficult in the 1990's (Lehtonen et al., 2002) and the single-parent households' relative position has worsened (Ritakallio, 2002). Connecting the first and the second point, we suggest that the academic (and polytechnic) women might oppose the government's policies that lead to decline in the welfare services. These women may see the transfers and services as insurances against being less-well-off themselves if they end up as single-parents. Our reasoning needs clarification on the part that why it is just the highly educated women who are more likely to disapprove of the government since also the less educated women must concretely face the problems of the single parenthood. The highly educated women are likely to be married to the highly educated and high earning men. The gender wage gap is the wider the higher is the educational level. Thus, in case of a divorce the highly educated women lose more in relative terms than their less educated sisters who are likely to be married to men with lower education and lower incomes. The public transfers replace a lower percentage of the lost incomes in high income families and further declines in the transfers may increase the highly educated women's discontent with the policymaking.

Another explanation for the finding might come from somewhat different

direction<sup>9</sup>. The discontent felt by the highly educated women might be directed at the societywide attitudes and often invisible structures that end up limiting their possibilities to make use of their skills and capacities at full. As young (18-25 years), they do not realize this but rather have an optimistic view on policymaking supporting the government<sup>10</sup>. With age and education the disillusionment is associated with increasing criticism towards the decisionmaking bodies.

In addition, we interacted first sex and education and then sex and age. We included the interaction variables in the regression on the whole data. Unfortunately, the LR-test found the influence of all the interactions not significant<sup>11</sup>.

## Age

The oldest age group (over 65 years) had to be excluded due to strong correlation with the socio-occupational group 'pensioners'. Each age group consists of people with varied life-styles and values. Actually, it would be surprising to find coherent opinions towards the government within age groups. But there are those, as we will learn. In the first period's results we notice that young people (18-25 years) have more positive views of the government compared to other age groups. In the latter period, the young are several times more likely to approve of the government than others are. More precisely, the results show that belonging to the youngest age group increases one's likelihood of approving of the government by 17 %. An interesting finding is also that in the latter period the women in the youngest age group are more likely to approve of the government than the men in the respective age group. This result might reflect the overall optimism of the young. This view is supported by the survey results reported by Aslama et al. (2002). They conclude that young people regarded the crisis as some sort of "survival training", ie. did not see it as an end of an era or in very negative terms. Further, estimation within the age groups tells that socialization to one's socio-occupational group begins early since already in the youngest age group the blue-collar workers are 16 % less likely to approve of the rightist government than others.

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<sup>9</sup>The following reasoning has arisen in discussions with Professor Mikkola.

<sup>10</sup>See the results for Age.

<sup>11</sup>The method presented in Ai-Norton-Wang (2004) yielded the same result. The results are available from the author upon request.

## Education

We expect the educational differences to be seen in the opinions of those having no-training. As reported above, the overall position of the no-trained has weakened in the 1990's. Our results show that in the first period, the only educational group significantly more likely than others to disapprove of the government is the academic. In the latter period, the no-training group is 18% more likely to disapprove of the government. In addition, having either academic or polytechnic education increases one's likelihood to disapprove but not as largely. The differences in the magnitudes of the marginal effects between educational groups are large, and they may reflect worsening labour market position and income development of those having no training.

## Income

In the first period there is 22 % and in the latter period 24.7 % of respondents who do not tell their incomes. In the first period, belonging to any of the income groups does not influence one's opinion on the government. In the latter period, the effects are significant but about the same size in each of the income groups.

# 5 Conclusion

This is the first study on Finnish individual-level government approval data. Our specific aim is to complement the Finnish vote and approval literature with information that can be acquired only by applying individual-level data. We analyze the influence of local unemployment, political orientation and socio-economic background on the individual citizen's government approval in the 1990's. Diverging economic development between and within regions and groups led us to assume divergent behavior also with respect to the government. The period under study covers years of the rightist coalition from 1991 to 1995 and the years of the almost-all-inclusive rainbow coalition from 1995 to 2001. Thus, the models are estimated for each of the government type separately.

Several aspects of our findings complement the existing evidence on both the depression and the Finnish voting and approval behavior. We find that during the incumbency of the right government (1991-95), a high local unemployment decreases one's likelihood of approving of the government. For the latter part of

the 1990's, the era of the multi-party coalition, the result is just the opposite. All in all, from 1992 to 1995 the responsibility hypothesis does not get support, but from 1996 to 2001 it does. In addition, we document the inter-regional approval differences without a direct connection to the local unemployment. Overall, the government approval in different provinces reflects the long-standing regional divide in the party support. These results are clearly affected by the dominant position of the Centre Party in the Northern and Eastern provinces.

Expectably, one's political orientation drives the government approval decision. Incumbency of the respondent's last voted for party expectably increases the likelihood of government support. Class dealignment is obvious in our results, since only the farmers' and the blue-collar workers' approval pattern slightly resembles the class-based support. Remarkable though is that the class-based behavior occurs as 'non-support', i.e. as disapproval of the right government (blue-collars) or of the SDP lead government (farmers). From 1996 to 2001, the male respondent's likelihood of approval is significantly lower for those having no-training, whereas, among the female respondents the lower approval likelihood is connected to high education. In the whole period the academic women, and from 1996 to 2001 also the polytechnic women are less likely to approve of the government. These men and women groups are definitely not similar, although they have the higher likelihood of disapproval in common. We suggests that these groups either concretely face or are conscious of their risks of being less-well-off. For the man group the risks consist of weak job market position, unemployment, poverty and becoming estranged from the society. The women group is probably aware of the challenges related to single-parenthood and the relatively weakened position of single-parent families in the 1990's. Our suggestion is in line with the international evidence of women's increased likelihood of disapproving the social transfer cutbacks.

In a country where the regional differences in party support are strong one should expect controversial results while applying aggregate popularity and national unemployment and individual level approvals and local unemployment.

# Appendix 1

## Survey Variables

These opinion polls by Gallup Finland are originally not designed for academic purposes. Although they are conducted biannually starting in 1985, I was not able to get all the material collected so far. Thus, this study includes 15 surveys from Spring 1992 to Autumn 2001, excluding polls of Spring 1995 and Autumns 1994, 1995, 1996 and 1998. Not all the surveys include all the questions which limits the setting of the research questions. Nevertheless, this is a valuable source when we are interested in the factors affecting the government support on the individual-level. The recorded background variables offer much information on the respondent's living circumstances. The interviews were done over the phone and each poll includes 900-1500 respondents. Below is the listing and definitions of the variables used in this study. Usually, Gallup Finland's original answer scaling has several options. For the purpose of this study the scaling is in many cases simplified. Details on the variables drawn from the Gallup Finland surveys are as follows.

1. GENDER male=0, female=1.
2. AGE The respondents are asked their age in years. Then the answer is classified to a 7-point scale. This is changed into an increasing scale of 5 points: under 25, 25-34, 35-49, 50-64, over 65.
3. EDUCATION Due to the changes in the education system over the years, the pollster has used different coding conventions. Original coding has been slightly changed. The basic idea in re-coding is as follows: 1 = no professional training (elementary school), 2 = vocational school or apprenticeship training, 3 = matriculation exam or polytechnic degrees, 4 = academic degrees, 0 = other.
5. INCOME Both in the polls and in the official statistics information on gross incomes is collected by households. Gallup asks the respondent his/her household's gross income class. The original scales that Gallup uses differ a lot from poll to poll. For that reason it is impossible to construct any other than the following division: less than middle income, middle income, more than middle income. First, the reported income classes are converted into 2001 prices. Second, the middle income for each year is checked in the yearly income statistics by Statistics Finland. The category including the middle income is entitled to middle income (2), all observations below it to below average (1) and the rest to above average (3) or no answer (0).
6. SOCIO-OCCUPATIONAL GROUP This variable is a result of combining several questions. The aim is to categorize the occupational status of the household in which the respondent is living. We apply the following Gallup's questions: 1. What is your occupation? 2. Are you yourself the primary breadwinner in your household? 3. What is the occupation of the primary breadwinner in your household? We classify the occupational status of the household according to its main breadwinner. Alternatives

for the occupational status are: farmer, entrepreneur, leading position or white collar, blue collar, pensioner, student, other (includes stay-at-home moms and dads).

7. LSTATUS This variable tells the respondent's labor market status. Original codes employed, unemployed, for other reasons outside the labor force, no answer.
8. LCYCLE What is the phase of the life cycle you are living at the moment? live with your parents, live alone/single, with a spouse, with spouse and kids, single parent, other, no answer. Recorded only for the last few years.
9. REGION Gallup asks in which municipal the respondent is living. Gallup codes municipals using the Finnish municipal coding practice. When those codes are known it is easy to construct different regional units. Here we have applied NUTS3 division, which is close to the Finnish provinces (Åland excluded): Uusimaa, Varsinais-Suomi, Satakunta, Häme, Pirkanmaa, Kaakkois-Suomi, Etelä-Savo, Pohjois-Savo, Pohjois-Karjala, Keski-Suomi, Etelä-Pohjanmaa, Pohjanmaa, Pohjois-Pohjanmaa, Kainuu, Lappi.
10. GOVERNMENT APPROVAL How content you are with the government lead by Prime Minister N.N.? Very, quite, both and, not quite, not at all, no answer. These answer options are combined to result a digital scale for positive and negative answers. Don't know and no answer -answers are deleted.
11. PRIME MINISTER'S APPROVAL RATE Do you approve the way N.N. is handling his job as the Prime Minister? Very much, quite much, both and, not quite, not at all, no answer. These answer options are combined to result a digital scale for positive and negative answers.
12. PRESIDENT'S APPROVAL RATE Do you approve the way N.N. is handling his/her job as the President? Very much, quite much, both and, not quite, not at all, no answer. These answer options are combined to result a digital scale for positive and negative answers.
13. VOTE INTENTION If parliamentary elections were held tomorrow, which party's or other group's candidate would you voter for? Socialdemocratic party (SDP), Centre Party (CENT), National Coalition Party (NC), Left Alliance (LA), Green League (GL), Swedish Speaking People's Party (SSPP), Christdemocratic Party (CD), Other, No answer or don't know.

#### Other Variables

In addition to the variable above, the following variable were added to the data set.

1. TIME To be able to identify separately each poll, the time variable is included. It is a dummy variable. Its abbreviation is a combination of the polling time (2 letters) and polling year (2 digits), for example a poll conducted in the Spring 1992 is coded as Sp92 where Sp= Spring and 92=1992. For Autumn 2000 the code is Au00.

2. GOVT2 is a dummy variable applied in the latter period's regressions to separate the second government period (starting in 1999) from the first.
3. LOCAL UNEMPLOYMENT (LU) Monthly municipal unemployment rates are collected by Ministry of Labour. Provincial unemployment rates are calculated as the weighted average of municipal rates. Applied weight is the number of labor force in municipal. There are two lags used for the variable, one month and two months. One month lag applied, unless otherwise indicated.

## Appendix 2

Table 1. Parameter coefficients behind the marginal effects in Table 6 in the text.

		1992-95	[std]	1995-01	[std]
Poll	Au92/Sp97	-0.17*	[0.09]	0.2*	[0.08]
	Au93/Au97	-0.1	[0.09]	0.17*	[0.08]
	Sp93/Au98	-0.16	[0.09]	0.25**	[0.08]
	Sp94/Sp99	-0.06	[0.09]	0.03	[0.08]
	Au99			0.16*	[0.08]
	Sp00			0.17*	[0.08]
	Sp01			0.04	[0.08]
	Au01			0.23**	[0.08]
	Govt2			0.75**	[0.08]
	Region <sup>a</sup>	Vars.Suomi	-0.13	[0.11]	-0.15*
Satakunta		-0.09	[0.13]	-0.22*	[0.09]
Häme		0.17	[0.12]	-0.22**	[0.07]
Pirkanmaa		-0.02	[0.12]	-0.22**	[0.07]
Kymi		-0.004	[0.13]	-0.28**	[0.08]
E-Savo		0.18	[0.15]	-0.25**	[0.10]
P-Savo		0.13	[0.14]	-0.18*	[0.08]
P-Karjala		-0.09	[0.15]	-0.34**	[0.10]
K-Suomi		0.48**	[0.13]	-0.39**	[0.08]
E-Pohjanmaa		-0.19	[0.13]	-0.39**	[0.09]
Pohjanmaa		0.39**	[0.16]	-0.25**	[0.10]
Oulu		-0.03	[0.12]	-0.27**	[0.08]
Kainuu		-0.29	[0.34]	-0.74**	[0.14]
Lappi		0.15	[0.14]	-0.40**	[0.09]
Gender <sup>b</sup>	Female	0.01	[0.05]	0.03	[0.04]
Age <sup>c</sup>	18-24	-0.17	[0.12]	0.43**	[0.10]
	25-34	-0.33**	[0.11]	0.05	[0.08]
	35-49	-0.36**	[0.09]	-0.06	[0.07]
	50-64	-0.29**	[0.09]	0.05	[0.06]

Notes: Baseline categories for <sup>a</sup> Uusimaa, <sup>b</sup> men, <sup>c</sup> 65+, <sup>d</sup> other, <sup>e</sup> student, other, <sup>f</sup> don't tell, <sup>g</sup> other parties. \*(\*\*)= statistically significant at 5% (1%) risk level.

Table 1 continues. Parameter coefficients behind the marginal effects in Table 6 in the text..

		1992-95	[std]	1995-01	[std]
Education <sup>d</sup>	Notraining	-0.19	[0.30]	-0.49*	[0.20]
	Vocational	-0.19	[0.11]	-0.11	[0.07]
	Polytechnic	-0.16	[0.10]	-0.15*	[0.07]
	Academic	-0.26**	[0.12]	-0.17*	[0.07]
Socio <sup>e</sup>	Farmer	0.29	[0.16]	-0.43**	[0.11]
	Entrepreneur	-0.18	[0.14]	0.003	[0.09]
	White-collar	-0.1	[0.11]	0.05	[0.08]
	Blue-collar	-0.36**	[0.11]	-0.04	[0.07]
	Pensioner	0.03	[0.12]	0.03	[0.09]
Income <sup>f</sup>	Below-mid	0.007	[0.11]	-0.16*	[0.06]
	Mid	0.03	[0.07]	-0.16**	[0.05]
	Above-mid	-0.02	[0.11]	-0.19**	[0.06]
Voted for <sup>g</sup>	SDP	-0.28**	[0.08]	0.97**	[0.05]
	NC	0.77**	[0.09]	0.63**	[0.05]
	CENT	1.46**	[0.08]	-0.42**	[0.05]
	LEFT	-0.46**	[0.15]	-0.05	[0.09]
	GREEN	-0.32**	[0.12]	0.07	[0.08]
Labour market <sup>h</sup>	Employed			-0.03	[0.67]
	Unemployed			-0.07	[0.42]

Notes: Baseline categories for <sup>a</sup> Uusimaa, <sup>b</sup> men, <sup>c</sup> 65+, <sup>d</sup> other, <sup>e</sup> student, other, <sup>f</sup> don't tell, <sup>g</sup> other parties, <sup>h</sup> outside labour force. NC (National Coalition), SDP (Social Democratic Party), CENT (Finnish Centre Party), LA (Left Alliance), GREEN (Green League). \*(\*\*)= statistically significant at 5% (1%) risk level.

Table 2. Marginal effects within gender groups.

		1992-95	1992-95
		Male	Female
Poll	Au92/Sp96	-0.06	-0.11*
	Au93/Sp97	-0.07	-0.15*
	Sp93/Au97	-0.1*	-0.11*
	Sp94/Au98	-0.06	-0.03
Age <sup>a</sup>	18-24	-0.05	-0.09
	25-34	-0.14**	-0.1*
	35-49	-0.12**	-0.13**
	50-64	-0.1*	-0.11*
Education <sup>b</sup>	Notraining	-0.2	0.04
	Vocational	-0.04	-0.1
	Polytechnic	-0.03	-0.08
	Academic	-0.03	-0.14**
Socio <sup>c</sup>	Farmer	0.06	0.13
	Entrepreneur	-0.08	-0.05
	White-collar	-0.05	-0.02
	Blue-collar	-0.11*	-0.12*
Income <sup>d</sup>	Pensioner	0.04	0.07
	Below-mid	-0.00	0.01
	Mid	0.01	0.03
Voted for <sup>e</sup>	Above-mid	0.02	-0.03
	SDP	-0.04	-0.13**
	NC	0.3**	0.34**
	CENT	0.55**	0.50**
	LA	-0.09	-0.19*
	LU	0.007	0.009

Notes: Baseline categories for <sup>a</sup> 65+, <sup>b</sup> other, <sup>c</sup> student, other, <sup>d</sup> don't tell, <sup>e</sup> other parties. NC (National Coalition), SDP (Social Democratic Party), CENT (Finnish Centre Party), LA (Left Alliance), GREEN (Green League). \*(\*\*)= statistically significant at 5% (1%) risk level.

Table 3. Marginal effects within gender groups.

		1995-01	1995-01
		Male	Female
Polls	Sp97	0.05	0.08
	Au97	-0.04	0.1*
	Au98	0.01	0.05
	Sp99	-0.04	0.02
	Au99	-0.02	0.1*
	Sp00		0.08
	Au00	-0.09*	
	Sp01	-0.04	-0.00
	Au01	-0.06	0.14**
	Govt2	0.27**	0.23**
Age <sup>a</sup>	18-24	0.13*	0.22**
	25-34	0.007	0.04
	35-49	-0.03	-0.01
	50-64	0.04	0.00
Education <sup>b</sup>	Notraining	-0.21*	-0.13
	Vocational	-0.02	-0.04
	Polytechnic	-0.02	-0.08*
	Academic	-0.03	-0.10**
Socio <sup>c</sup>	Farmer	-0.18**	-0.14**
	Entrepreneur	-0.006	-0.03
	White-collar	0.003	0.03
	Blue-collar	-0.04	-0.003
	Pensioner	-0.02	0.03
Income <sup>d</sup>	Below-mid	-0.03	-0.11**
	Mid	-0.04	-0.09**
	Above-mid	-0.02	-0.13**

Notes: Baseline categories for <sup>a</sup> 65+, <sup>b</sup> other, <sup>c</sup> student, other, <sup>d</sup> don't tell, <sup>e</sup> other parties. \*(\*\*) = statistically significant at 5% (1%) risk level.

Table 3 continues. Marginal effects within gender groups.

		1995-01	1995-01
Voted for <sup>e</sup>	SDP	0.37**	0.36**
	NC	0.24**	0.26**
	CENT	-0.17**	-0.15**
	LEFT	0.01	0.06
Local	LU	-0.02**	-0.01**
	N	3201	2899
		pseudo R <sup>2</sup>	0.17
		log likelihood	-1841.72
			-1684.22

Notes: Baseline categories for <sup>a</sup> 65+, <sup>b</sup> other, <sup>c</sup> student, other, <sup>d</sup> don't tell, <sup>e</sup> other parties. NC (National Coalition), SDP (Social Democratic Party), CENT (Finnish Centre Party), LA (Left Alliance), GREEN (Green League). \*(\*\*) = statistically significant at 5% (1%) risk level.

Table 4. LR-test results, the disclosed variable listed.

Variable	1992-95	1996-01
Gender	0.03	0.62
Age	18.09**	37.65**
Education	6.13	10.40*
Socio	32.54**	27.29**
Income	0.19	14.73**
Voted for	547.69**	694.05**
LU	2.79	40.89**
Region	33.47**	62.76**
Govt2		54.32**
Lstatus		0.65

One variable group at a time is disclosed from model (restricted model). The value of the likelihood function of the restricted model is then compared with the respective one from the unrestricted model. The test statistic follows  $\chi^2$  distribution. \*(\*\*) = statistically significant at 5% (1%) risk level.

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