# Parliamentary election outcomes in the Netherlands during 1981-2010: Have they become more determined by regional than national (economic) performance?

Peeters, Marga

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## Have they become more determined by regional than national (economic) performance?

**Marga Peeters[1]**

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## Summary

Parliamentary election outcomes have recently shifted significantly in some small open economies with high living standards. As regional differences widened, this study goes down to the regional level and investigates whether or not regional factors have been driving the election outcomes. An econometric model is designed explaining the election outcomes of the left-wing, middle and right-wing parties per municipality by latent variables at the country and regional levels. A panel of ten Parliamentary election outcomes of municipalities in the Netherlands during the period 1981-2010 is used to calculate the sizes of the national and regional factors' impact in three steps. First, principal component analyses are applied to measure the latent variables. Second, the econometric model is estimated by Seemingly Unrelated Regressions. Third, the responses of the election outcomes per party in reaction to country and regional shocks are simulated. The results indicate that regional factors have indeed determined election outcomes more than national factors in the period 2002-2010 in comparison with the period 1982-1994 for the left-wing, the middle and also the right-wing parties. Part of the explanation comes from regional differences in unemployment, demographic developments (greenness and greyness) and committed crimes.

## 1. Background

Election outcomes are hard to explain. In particular at the national level, voting behaviour is influenced by so many different factors (economic/non-economic, political/non-political, personal, short/long-term policies/promises by politicians) that a straightforward explanation is almost never available.

Peculiarly, the election outcomes in some small open economies with high living standards, such as Denmark, Austria and the Netherlands, have shown lately a significant shift from more left-wing and traditional political parties to right-wing parties. While these countries highly depend on international developments due to their open character and gained a large share of their welfare state in economic and political terms to this high degree of openness, there seem to be forces inside the country[2] that push for (more) protection of national habits and traditional values. Anecdotal evidence exists that this push goes deep down at the *regional* level, towards the municipalities.

This seems to be a "paradox" with on the one hand the country openness (free movement of goods, services, capital and persons across national borders) that has delivered the high living standards and on the other the voting behaviour in favour of issues relevant to the region, features that one could refer to as anti-globalism or even "regional protectionism". This does not necessarily imply a cry for less international trade in goods or services, or restrictions to the free movement of capital across borders, but it may refer to the movement of people in that there is, for example, more competition at the regional labour markets among domestic and foreign labourers. Moreover, the *perception* of bad influences from abroad can feed the fear for job losses and/or property losses or the feeling of insecurity and lack of safety in general ("unheimisch"-ness, the augmentation of physical violence).

Voting behaviour at national elections will always to some extent have been influenced by factors that are close at the heart of the voter, emerging from the developments in the direct (and sometimes small) vicinity of the voter. But, in case these "regional" factors have become more important than national factors for a majority of voters that serve the whole nations'

interests, the policy makers of democracies at the national level will need to apply more regional approaches to solve the regional problems. The regional dimension is the core of this paper.

To the best of my knowledge, hard evidence for the shifts in voting behaviour and regional factors is not yet available in the scientific literature. This study can fill this gap and seeks to answer the question to what extent *regional* factors have mattered in Parliamentary elections. In order to do this, an econometric model is designed explaining voting behaviour by unobserved factors at three different levels: the country, the provincial and the municipal level. This methodology is similar to the one used in the business cycle convergence studies (see Kose *et al.* (2003)). Unobserved components capture the explanatory power at different aggregation levels. First, these components are determined by principal components analyses for each aggregation level. Second, the model is estimated. Third, a simulation exercise on the basis of the estimated model is used to quantify the size of the explanatory power of the country and regional (provincial and municipal) for the observed election outcomes. Outcomes for different time periods are compared with each other. Thereafter, this study makes one step further and tries to explain the country factor and the provincial factor by means of economic performance indicators such as economic growth, unemployment, inflation, fiscal stance, demographic indicators such as greening and greying and security indicators such as the number of crimes and feeling of safety.

The model is applied to data from the Netherlands, a country with around 17 million inhabitants that has 12 provinces and more than 400 municipalities. Governments are formed by a coalition of political parties. All Dutch nationals above the age of 18 have the right to vote. Citizens of other countries of the European Union residing in the Netherlands can vote in municipal elections, as can residents of other countries who have resided legally in the Netherlands for at least five years. For more information on the Netherlands electoral procedures, see among others Allers *et al.* (2009). As the Netherlands has a multitude of political parties and parties arise and disappear, a broad grouping of parties is made into left-, middle and right-wing. Nonetheless, stylized facts and estimation results for the individual political parties is presented in Appendix A. It is further to be stressed that this paper takes the point of view of the municipalities; the share of votes *within a municipality* for either left-

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[2] An obvious sign in the Netherlands seemed to have been the vote against the European Constitution in 2005. See the analyses in the Appendix on this issue.

wing, or middle, or right-wing parties is being explained. Therefore, the fact that some municipalities are big and others are small is irrelevant in this analysis.[3]

This paper is structured as follows. Section 2 presents some stylized facts. Section 3 describes the methodology. Section 4 specifies the econometric model and factors obtained by the factor analyses. Section 5 illustrates the principal components and presents the estimation results. Section 6 summarizes, concludes, elaborates on the policy inferences and gives avenues for future research.

## 2. Stylized facts

During the three decades, from 1981 to 2010, ten parliamentary elections took place in the Netherlands: in 1981, 1982, 1986, 1989, 1994, 1998, 2002, 2003, 2006 and 2010. During this period, 21 different political parties gained at least one seat of the available 150 seats in Parliament. As the spectrum of parties has been broad, parties arise and disappear, and as parties have at some times not been so distinct in their party programmes, three main groups are distinguished here: the left-wing parties, the middle parties and the right-wing parties (referred to here as *left*, *middle* and *right*).[4]

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[3] For example: We are not interested in the question why so many people in Amsterdam (a big municipality) voted for certain political parties in the course of time, but we study the share of votes in this municipality over time in comparison with *any* other municipality (of whatever population size).
[4] Appendix A1 contains an overview of all parties elected during each election in the three decades and the distribution of the parties over the three main groups.

**Graph 1  Election outcomes left, middle and right parties 1981-2010**
*% of total number of votes, median across municipalities*
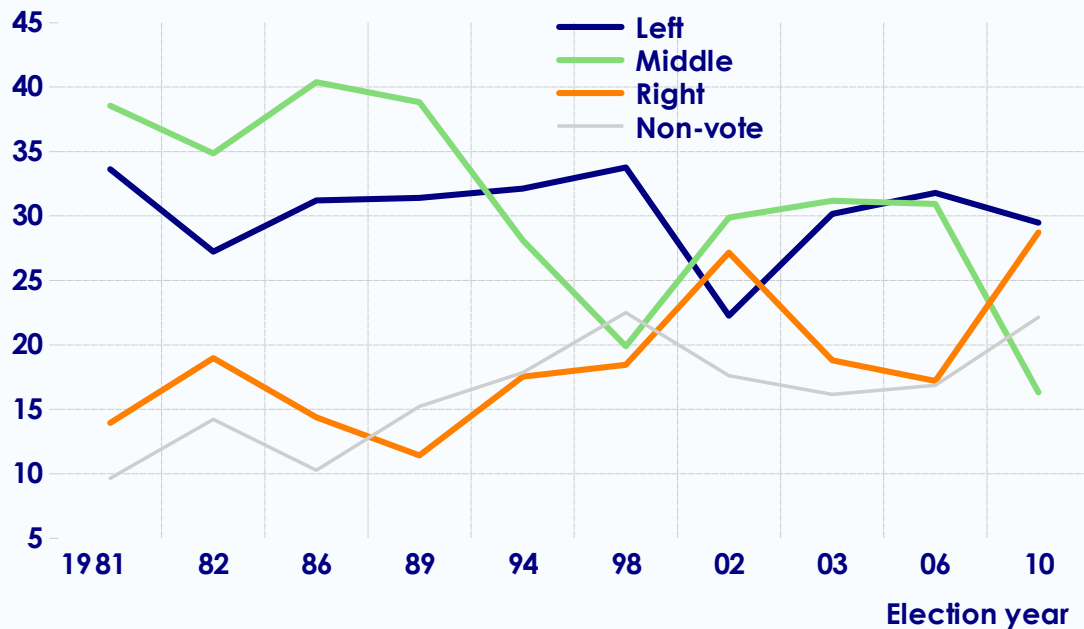


*Source: Own calculations on the basis of www.verkiezingsuitslagen.nl.*

Note: Each data point gives the median over all municipalities in the particular year of the number of votes for a party (left, middle, right and other) divided by the total number of votes. The category "other" contains the number of voters that did not go to the polls, the blank or wrongly filled in votes, and the votes on parties other than those elected for Parliament. In this category the non-votes have the biggest share.

In the elections of 1981 the left parties gained almost 35% of the votes (see Graph 1).  In that year the right-wing parties obtained little less than 15%. Apart from the elections in 1998, the left-wing parties kept this share of votes and settled in 2010 at 30%. The right stabilized its share during the eighties but gained remarkably at the beginning of this century, peaked in 2002 at more than 25% and therewith overtook the left, and accelerated further to reach 30% of the votes in 2010. So, in 2010, the left and right equalized. During the three decades the middle parties were at a steep declining trend, more than halving from its high of 40% in 1981 to 15% in 2010. Meanwhile, the number of people that did not vote at the Parliamentary elections doubled in the nineties in comparison with the eighties to 20%. It peaked at 23% at the elections of 1998 and 2010.

**Graph 2  Election outcomes in the periods 1981-94 and 1998-2010**
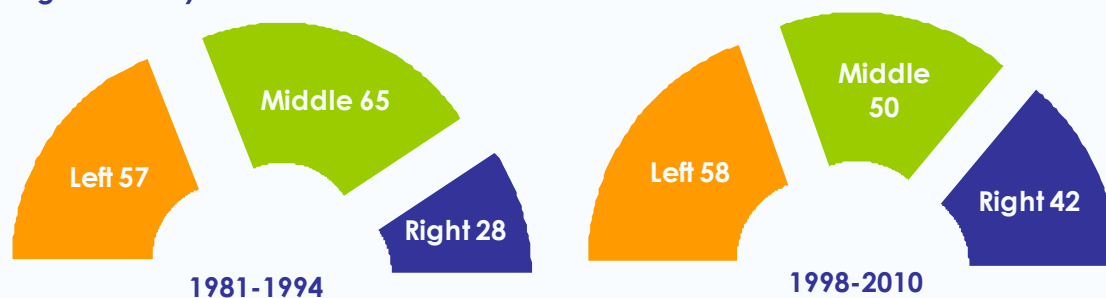*averages across years scaled to 150 seats*

Middle 65

Left 57

Right 28

**1981-1994**

Middle 50

Left 58

Right 42

**1998-2010**

**Table 1.  Election outcomes per region and party group during 1981-2010**

|          | North | East | South | West |
|----------|-------|------|-------|------|
| Left     | **41** | 31 | 29 | 29 |
| Middle   | 26 | **35** | **35** | 29 |
| Right    | 14 | 16 | 15 | **18** |
| Non-vote | 18 | 18 | 21 | 23 |
| *Total*  | *100* | *100* | *100* | *100* |

*Note: Median of the percentage of number of votes per municipality.*
*Source: Own calculations on the basis of www.verkiezingsuitslagen.nl.*

Important for our analyses is the *shift* in election outcomes. In order to underline this, the sample is split into two periods of each five elections (Graph 2). In the first period, from 1981 to 1994 with five election years, the elections outcomes showed a victory for the middle parties; they obtained on average 65 seats of the 150. In the subsequent period from 1998 to 2010 with also five election years, they lost 15 seats. As the left-wing stabilized, these seats went to the right-wing parties. Along with this victory of the right in the last period in comparison with 1981-1994, differences across regions widened.

In order to analyse this widening, the distribution of the Parliamentary election outcomes across regions is given in Table 1, splitting the country into North-East-South-West.[5] During these three decades even more than 40% of the municipalities in the North voted on average left-wing, while middle parties were most popular in the East and the South. The right was less popular than the left and middle in each region. Of the four regions, the West voted most right-wing. Keeping this in mind, the widening in differences follows from Graph 3 that shows the shift in election outcomes from 1981-1994 to 1998-2010 per region.

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[5] See the Appendix A2 for the division of the twelve provinces into the four regions.

**Graph 3 Regional election outcomes in two periods**

### Left



45%

1981-1994

35%

1998-2010

25%

North    East    South    West

### Middle



40%

1981-1994

30%

1998-2010

20%

North    East    South    West

### Right



27%

1998-2010

22%

17%

1981-1994

12%

North    East    South    West
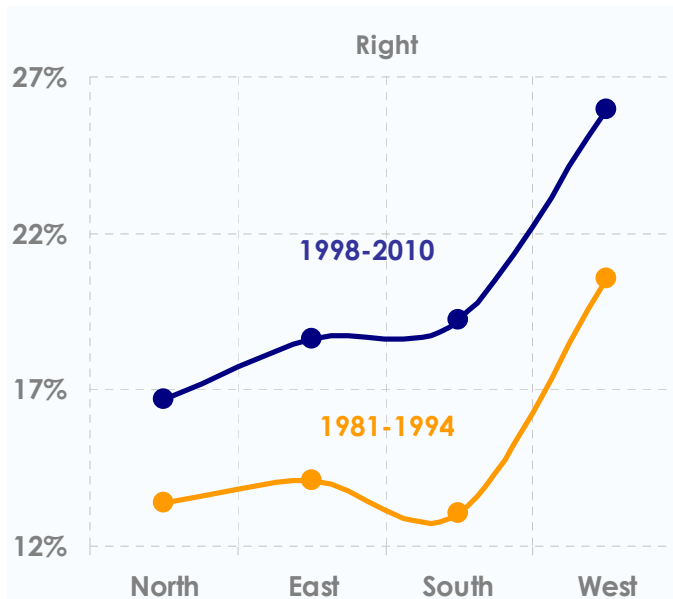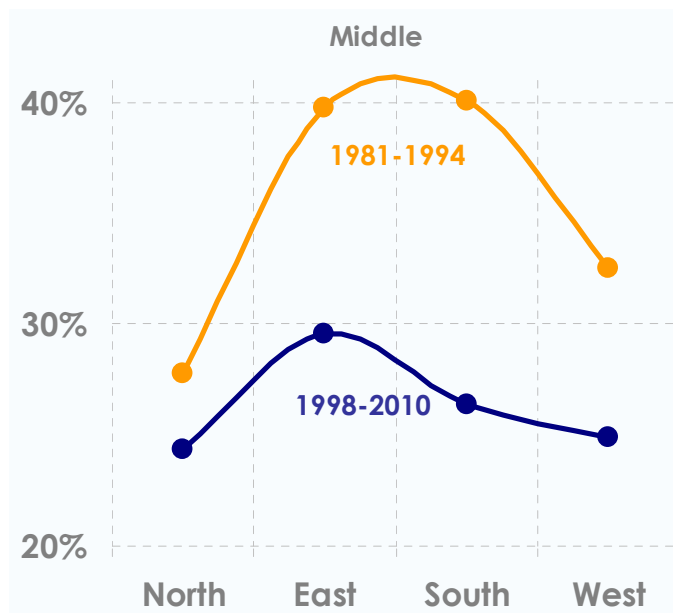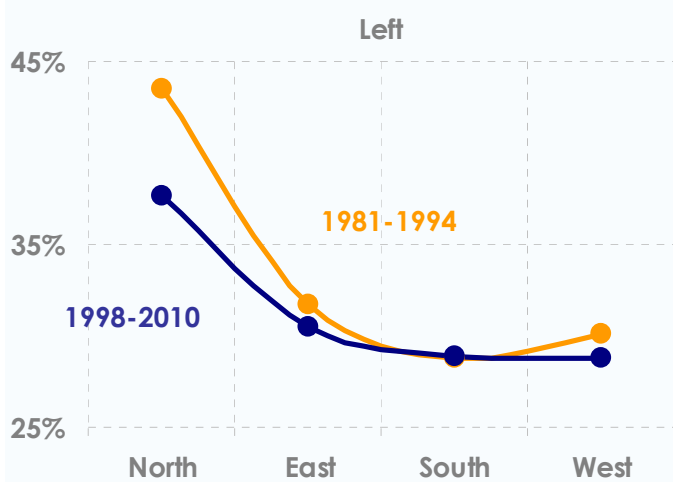
The different shifts at the regional levels are the core of this paper. The South shifted most to the right. This move took place *only* at the cost of the middle parties. In contrast, the North shifted much more modestly to the right, mainly at the cost of the left. The East and West shifted each about 5%-points to the right, mainly at the cost of the middle but far more in the East than in the West.

While these four regions moved in the same direction from the period 1981-1994 to 1998-2010 (more right, less left and far less middle), the figures mask significant shifts deeper down at the regional level. At the provincial level further widening is evident. One province did not make the move to the right. Among others, one other province moved more towards the left (see Table A4 in the Appendix for provincial details).

Given the existence of significant differences across regions, this underlines the further widening during the major shifts during the first decade after the millennium. Hence, there is a need for *regional* analyses to find out what factors drive these results.

## 3. Methodology

Similar to the analyses in the literature on international economics, and international business cycles in particular (see Kose *et al.* 2003)[6], we distinguish here different aggregation levels: country, provincial and municipal. Our endogenous variable is the election outcome of a particular party at the municipal level. This is explained by a country, a provincial and a municipal factor that we measure by three principal component analyses: one at the country level, one at the provincial level and one at the municipal level. In order to measure the municipal factor, a principal component analysis is performed on the election outcomes for the different party outcomes *per municipality*. In order to measure the provincial factor, a principal component analysis is performed on the election outcomes for the different party outcomes *per province*. In order to measure the country factor, a principal component analysis is performed on the election outcomes for the different party outcomes *for the whole country*. The calculated principal components are assumed to capture any of the elements that have influenced the votes for the parties per municipality, at the three different aggregation levels (country, province and municipality).

The empirical analyses take place in several steps. First, the three principal components are obtained by principal components (as described above). Second, an econometric estimation method is used to obtain the reaction coefficients of the factors on the municipal outcomes per party by means of Seemingly Unrelated Regressions on a system of municipal election outcomes per party (see next section for the specification) for two periods: 1981-1994 and 1998-2010. Thereafter, the estimated reaction coefficients and principal components are used to calculate the impact of the country principal component in comparison with the provincial and municipal components on the municipal election outcomes for each of the two periods.

We thereafter make one step in addition to this. Keeping in mind that the principal components will capture many elements relevant to voting that we cannot measure, we make a first attempt to explain them by economic, demographic and security variables at the country, provincial and municipal level.

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[6] One of the similarities with Kose *et al.* (2003) and Kose *et al.* (2008) is that they also use three levels: the global, within country groups (emerging and developed countries) and the country level. The endogenous variable in their model is also at the lowest level; the country level in their case, the municipal in our case.

## 4. An econometric model with national and regional factors

The econometric model explains the municipal election outcomes by the national, provincial and municipal factors. The factor determining the voting outcomes in municipalities at the country level is represented by $f^{country}$. The factors that matter for the voting behaviour at the provincial and municipal level are represented by $f^{province}$ and $f^{municipality}$, respectively. The model then takes the specification

$$y_{p,m,t} = \alpha_p + \beta_p{}^{country} f_t{}^{country} + \beta_p{}^{province} f_{province,t}{}^{province} + \beta_p{}^{municipality} f_{p,m,t}{}^{municipality}$$
$$+ \gamma_p y_{p,m,t-1} + \varepsilon_{p,m,t}$$

where $y_{p,m,t}$ is the share of votes for political party $p$ in municipality $m$ at time $t$ ($t=$ *1981, 1982, 1986, 1989, 1994, 1998, 2002, 2003, 2006 and 2010*), $\alpha_p$ a constant, and the $\beta$'s and $\gamma_p$ are reaction coefficients to be estimated. A lagged dependent variable is included, as traditional political parties tend to have a core group of loyal voters. The persistence in their voting behaviour is expected to be reflected in the votes for their party at the municipal level. In this respect it is relevant to note that the lag *t-1* refers to the previous election year instead of the more traditional modelling of calendar years; a statistically significant and high (low) $\gamma_p$ signifies that municipalities vote to a high (low) degree for the same party $p$ from one election to the other.

The disturbance term is represented by $\varepsilon$ and assumed to be normally distributed, with mean zero and a constant variance. Due to the inclusion of the lagged dependent variable which is assumed to account for the dynamics (in time), while the disturbance term is assumed to be serially uncorrelated, that is *Covariance{$\varepsilon_{p,m,t}$ $\varepsilon_{p,m,t-i}$}$= 0$ for $i>1$*.[7]

As we have grouped the political parties "left", "middle" and "right" in the previous section, subscript $p$ refers to "left", "middle" or "right", or to the group that is called "non-vote".[8] All votes in one municipality go to either one of these four groups. So, the econometric model is a system of four equations, that is subscript *p=left,middle,right,non-vote* and $y_{left,m,t} + y_{middle,m,t} +$

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[7] This is different from other studies with similar models, see for example Kose *et al.* (2003), where the disturbance term is assumed to be a moving average process with rather long lags.

[8] This is the group that did not exercise its voting right, or voted blank or wrongly, or gave its vote to a political party that did not obtain a seat in Parliament. See also Graph 1.

$y_{right,m,t} + y_{non-vote,m,t} = 1$ for each municipality *m*. From this restriction follows that, in addition to the assumptions of the disturbance terms mentioned earlier, the assumption that disturbances are correlated contemporaneously across the left/middle/right/non-vote groups holds: *Covariance{$\varepsilon_{p,m,t}$ $\varepsilon_{q,m,t}$}≠ 0 for p≠q.*

The model used is a multinomial logit, which boils down to estimating three of the four equations of this system (see Baltagi, 2005). We choose to estimate the system of equations for the left, middle and right-groups simultaneously by Seeming Unrelated Regressions (SUR), to allow for contemporaneous correlation of the disturbance terms of the equations on the left-votes, middle and right-wing votes.

Our data set is a panel where the time span is rather long, from 1981 to 2010, but with only ten (election) years observed. The cross-sections are rather large, from 809 municipalities in 1981 to 430 in 2010 (see Table A2 in the appendix). As a dynamic panel is estimated only municipalities with three election years in a row are taken into account.[9] All in all, the number of observations in the panel regressions remains large, and the variability of the country factor is high, so that consistent estimates are obtained.

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[9] Some municipalities were dropped from the data set as they contained errors; in 1981, 1986 and 1989 the number of votes across parties exceeded the maximum number of votes and in several other municipalities contained zero votes for all parties.

## 5. Estimation results

**Graph 4  Unobserved factors at the municipal, provincial and country level**
*On te basis of factor analyses with the left, middle and right votes as percentage of the total number of votes per municipality*
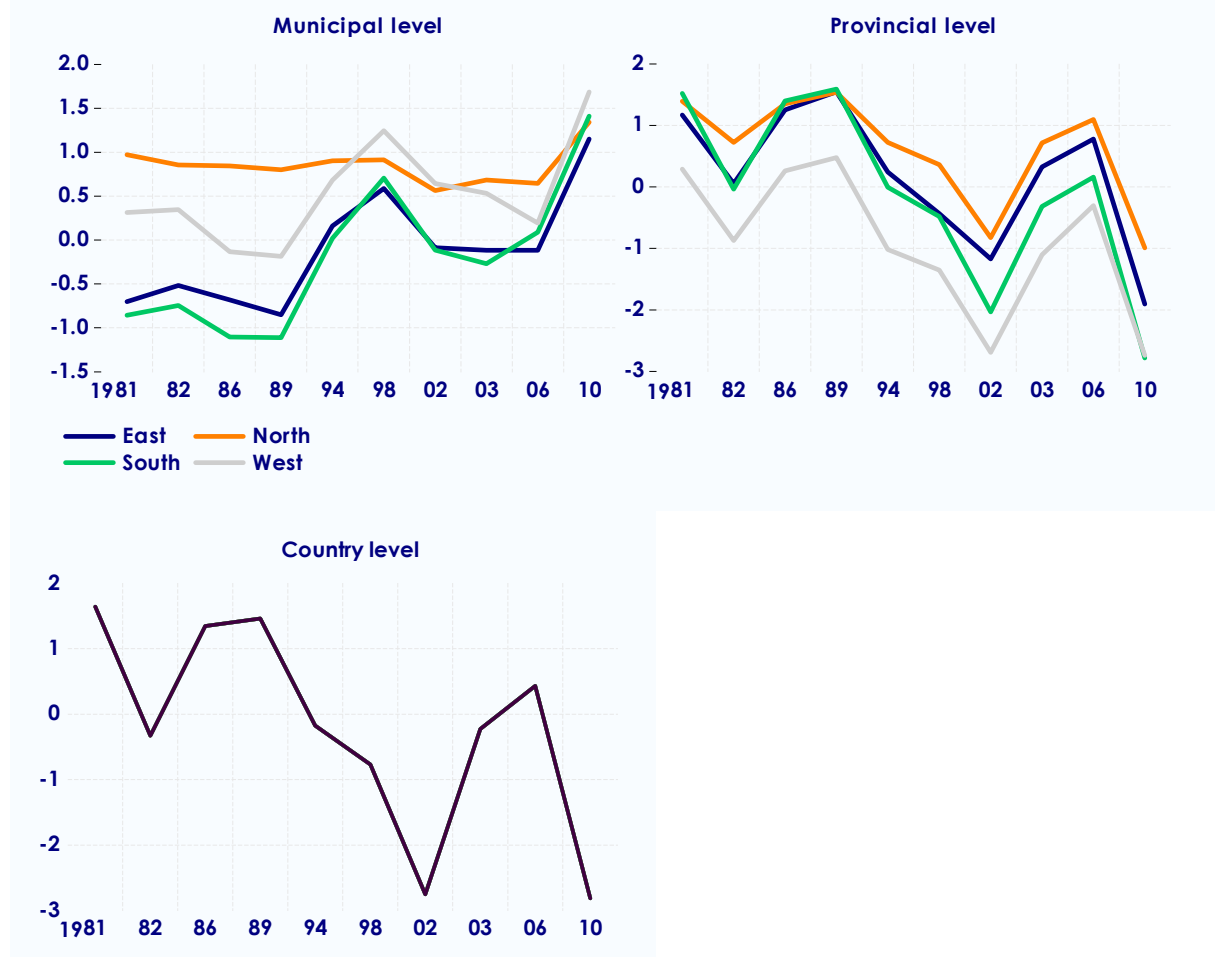


The unobservable factors on the municipal, provincial and country level are calculated on the basis of the left, middle and right votes per municipality by means of principal component analyses. The first factors are illustrated in Graph 4[10], where the median across municipalities per country region (North, East, South and West) is shown for the municipal factor (first graph) and the median across provinces per country region for the provincial factor (second graph). Although the factor analyses do not give information on the signs, the conclusion can be drawn that the municipal factor is very different from the provincial and country factors. Moreover, differences across the country regions are significant, also for the provincial factor.

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[10] The first factor for the principal component analyses at the country level explains 65% of the variability, the first factor at the provincial level 57% and the first factor at the municipal level 54%.

## Table 2.  Econometric estimation results of the election outcomes by SUR[11]

|  | Left | Middle | Right | Left | Middle | Right |
|---|---|---|---|---|---|---|
| *Constant* | 0.19 | 0.25 | 0.07 | 0.26 | 0.33 | 0.12 |
|  | (55.0) | (55.5) | (65.0) | (85.6) | (136.4) | (56.4) |
| $f^{country}$ | 0.01 | 0.02 | -0.04 | 0.01 | 0.002 | -0.01 |
|  | (9.7) | (15.0) | (-55.7) | (10.6) | (3.26) | (-16.2) |
| $f^{province}$ | 0.03 | 0.00 | -0.01 | 0.03 | 0.00 | -0.03 |
|  | (28.7) | (0.41) | (-17.5) | (30.5) | (1.59) | (-31.7) |
| $f^{municipality}$ | 0.05 | -0.07 | 0.005 | 0.06 | -0.10 | 0.01 |
|  | (52.4) | (-60.6) | (15.0) | (62.2) | (-127.3) | (21.8) |
| $y_{t-1}$ | 0.36 | 0.22 | 0.78 | 0.19 | -0.01 | 0.30 |
|  | (35.2) | (18.7) | (121.4) | (17.9) | (-1.6) | (36.5) |
|  |  |  |  |  |  |  |
| *Adjusted-R²* | *0.88* | *0.93* | *0.92* | *0.86* | *0.95* | *0.83* |
| Sample period | 1982-1994 | | | 2002-2010 | | |
| Number of obs. | 8316 (=3*2772) | | | 5493 (=3*1831) | | |

Note: The system of equations is estimated by Seemingly Unrelated Regressions. The dependent variables are the left, middle or right election outcomes divided by the total number of votes per municipality (in fractions). For each estimated parameter *t*-value are reported in brackets.

As follows from the SUR-regressions, the computed three factors from the principal component analysis – country, provincial and municipality – provide highly significant estimates as explanatory variables for the municipal election outcomes per party. For the two sample periods, from 1982 to 1994 (left in Table 2) and 2002-2010 (right) only the provincial factor has a low *t*-value for the middle party regression, indicating that the provincial factor's effect on the middle votes in not-significantly different from zero. The country and municipal factors influenced the outcomes of the left, middle and right parties during both periods. Striking is further that the significance of the country factors declines in 2002-2010 in comparison with 1982-1994, for each party, while the regional factors' significance increases.

Much information comes also from the estimated reaction coefficients of the lagged dependent variable, the so-called "loyalty" factor. In the period 1982-1994 78% of the right-wing election outcomes can be explained by the outcomes in the previous election. This was 36% for the left-wing parties and 22% for the middle parties. In the 15 years thereafter, loyalty went down significantly: to 30% and 19% for the right and left-wingers respectively. So, both right and left lost previous voters. The middle party lost even almost all its previous voters; the loyalty factor became non-significantly different from zero. However, the loss for the right parties was the biggest (with 48 percentage points). Estimation results for the individual parties are presented in Table A5 of the appendix.

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[11] The endogenous variable is censored. Neither estimation of the univariate models by Tobit, nor the outcomes of the system of SUR regressions after testing, show any observation out of the range of 0 to 1.

On the basis of these estimation results we wish to calculate the impact of the different factors on the municipal election outcomes in order to investigate to what extent regional factors have become important over time, in relation to national factors. For this purpose simulations with the model are carried out and presented in Graph 5.[12]

Permanent shocks are given to the country, provincial and municipal factors of each 10% in comparison to the base. This implies that the country factor is simulated to be 10% higher than it actually was, for the whole sample period of 1981-2010. Similar shocks for the provincial and municipal factors are given. On the basis of these newly simulated factor values the election outcomes per municipality are calculated, on the basis of our econometric model and the reaction coefficients as presented in Table 2. These calculated election outcomes per municipality are presented in percentage deviations from the base. It is the size of the effects of the factors, as presented in the graph that is of our interest as the sign is non-informative.

As follows, for the period 1982-1994 (graphs to the left) the municipal factors mattered most for the left and middle party election outcomes. On the contrary, in this period the country factor had most effect on the right party election outcomes.

For the subsequent period, that is 2002-2010, the impact of the municipal factor grew considerably for the left-wing and middle parties. This holds in absolute terms but also in comparison with the country factor, in particular for 2010. The effect of the municipal factor on the left-wing and middle parties' election outcomes was much higher than the effects from the provincial and country factors. Also for the right-wing election outcomes the order of the determinants' impact has changed in 2002-2010 in comparison with 1982-1994. The country factor, that influenced the right votes so significantly in the period 1982-1994, was completely overtaken by the impact of the provincial factor in 2002-2010. In 2010, a 10% increase in the provincial factor in comparison with the base would even have increased the share of right-wing votes in 2002-2010 by 1 percentage point. This response is high as follows from the actual size (see Table 1).

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[12] In contrast to the studies of Kose *et al.* (2003, 2008) simulation results and not variance decompositions are presented in order to compare the size of the impact of the different factors on the endogenous variable. Variance decompositions require that the exogenous variables are orthogonal (or, alternatively, all covariances need to be computed). Moreover, the simulation results do not conceal the time pattern which provides us with interesting information here.

**Graph 5  Responses to the party election outcomes per municipality to a 10% shock in the country, provincial and municipal factor**
*in % deviation from the base (medians)*

Note: The blue lines present the responses to the shock of the country factor *ceteris paribus*, and similarly, the orange (green) lines the responses to the shock in the provincial (municipal) factor *ceteris paribus*. Responses are measured in percentage points. For example, in case the municipal factor would have been 10% higher in comparison with the base, the median of the election outcomes of the middle parties (as a percentage of the total votes) per municipality in the period 2002-2010 would have been 1.5 percentage points lower in comparison with the base.

14

## Table 3.  Econometric estimation results of the principal components by OLS

| | $f^{country}$ | $f^{province}$ |
|---|---|---|
| Constant | -2.37 | |
| | (-48.9) | |
| GDP-growth | -0.23 | -0.01 |
| | (-17.3) | (-1.21) |
| Unemployment | 0.77 | 0.91 |
| | (60.2) | (60.6) |
| Government balance | 0.62 | |
| | (51.0) | |
| Consumer price inflation | -0.53 | |
| | (-40.6) | |
| Green population | | 0.89 |
| | | (16.1) |
| Grey population | | 0.24 |
| | | (10.6) |
| Crime | | -0.45 |
| | | (-26.1) |
| 12 province dummies | | significant |
| Adjusted-$R^2$ | 0.82 | 0.90 |
| Sample period | 1994-2010 | 1998-2006 |
| Number of obs. | 3051 (6 years) | 1987 (4 years) |

Note: GDP-growth and inflation are annual growth rates in percentages. Also the unemployment rate is in percentages. The government balance is in percentages of the nominal GDP. Green and gray population is the percentage of people in the province that are below the age of 21 and above 65, respectively. Crime is the number of registered crimes per capita in the province. Data for the explanatory variables come from the Central Bureau of Statistics www.cbs.nl. For the year 2010 forecasts from the Central Planning Bureau are used, if available. The sample periods are relatively short due to the lack of data.

Part of the explanation of the country and provincial factors is found in economic, fiscal, demographic and security developments. This follows from Table 3 where the estimation results are presented of univariate regressions of the factors $f^{country}$ and $f^{province}$ on GDP-growth and unemployment at the country and provincial level, and consumer price inflation and the government balance at the country level. As a higher GDP-growth has a negative impact on the country factor, the sign of other explanatory variables is according to expectations: a higher unemployment rate should have positive effect on the country factor, as may have a higher government balance (due to the fact that this goes at the expense of the private sector). More difficult to interpret is the sign of inflation, unless higher (lower) inflation indicates higher (lower) wages and therefore higher (instead of lower) purchasing power. The size of the reaction coefficients and *t*-values indicate that unemployment is most important explanatory variable for the country factor.  For the province factor (right column in Table 3) GDP-growth is no longer significant, in contrast to the level of unemployment and the greenness or greyness of the population in the province. Also crime – measured here as the number of registered crimes per head of the province population is highly significant.

## 6. Summary, inference and policy recommendations

Traditionally, the North of the Netherlands gave their vote to left-wing political parties at Parliamentary elections and the South and East favoured mainly middle parties. The right-wing parties were not dominant, but the West voted most right-wing. During the period 2002-2010 voting behaviour shifted strongly towards the right at the cost of the middle (for the South and East) and the left (for the North). While this shift pushed the four regions in the same direction from the eighties-nineties to the decade thereafter, in that each region shifted more to the right at the cost of either left and/or middle, differences in voting across regions did certainly not diminish. On the contrary, they widened at the provincial level and this triggered this study on national election outcomes at the provincial and even municipal level.

In our analyses an econometric model explains voting for the left-, middle and right-wing parties at the municipal level by previous voting for the same party, and by an unobserved country factor, as well as unobserved provincial and municipal factors. Estimation of the model takes place in two steps. First, the three unobserved factors are determined by the principal component analyses, carried out at the three different levels (country, provincial, municipal). Second, the econometric model is estimated by Seeming Unrelated Regressions for the periods 1982-1994 and 2002-2010; the tree equations for the left, middle and right outcomes per municipality are explained by the three principal components (country, provincial, municipal) and the lagged endogenous variable.

The election outcomes that we analyze for the Netherlands over three decades boils down to 10 election years and the sample is split into two sub-periods of each 5 election years. The split is well-chosen in that the first sample covers the eighties and the beginning of the nineties when left-wing and middle parties were popular and the second sub-period from 1998 to 2010 covers fully a big shift away from the middle and left.

The econometric results indicate that country, provincial and municipal factors are highly significant. For each of the party groups, loyalty with the party strongly declined over time. Despite this loss of loyalty, or persistence, the estimation results point at a high explanatory value. The main reason is that the significance of the *provincial and municipal* factors increased in 2002-2010 in comparison with 1982-1994.

This bigger impact of the regional factors follows also from the simulation results that are obtained on the basis of the estimation results. In the period 2002-2010 the municipal effect is bigger for the left and middle parties while the provincial effect is bigger for the right. The regional effects are not only having a bigger impact on the election outcomes in 2002-2010 in comparison with 1982-1994, they also have partly overtaken the impact of the country factor. From preliminary analyses further follows that the provincial factor can be well-explained by provincial differences in economic factors such as the level of unemployment, demographic factors such as greening and greying, but also by security and safety measures such as the number of registered crimes.

The outcomes of our findings are relevant to national and local policy makers. National election outcomes that according to our analyses are driven by regional factors, more than by national factors, call for differential policy approaches by (national and local) policy makers.

For a small open economy, such as the Netherlands, (inter)national policies such as the free movement of goods, services, capital and persons across national borders have brought much welfare. The welfare level of the Dutch has over time been elevated in each of the Dutch provinces, even down to each of the Dutch municipalities (in contrast to the developments in many other European countries). This great value of these (inter)national policies is at risk in case *national* policy makers are elected on the basis of *mainly regional* instead of *national* considerations.

Apart from the broad political groups, all analyses are also done for the individual parties and presented in the appendix. From these results it follows, among others, that some small middle parties have gained over the years a huge loyal core of municipalities and that these voters consistently voted "No" in the Referendum in 2005 for the European Constitution.

For future research, the idiosyncratic factors at the municipal level need further investigation. A crucial determinant seems to be the perceived lack of attention from national policy makers at the regional level. It would further be interesting to have a cross country comparison among those countries that show similar shifts in election outcomes, in order to see to what extent regional factors gained influence in national elections outcomes. In particular, the cases of Denmark and Austria would be good candidates for comparison with the Dutch case.

# Appendix

## A1. Grouping left-, middle and right-wing

Although the grouping of the parties in left, middle and right is debatable for some parties, most people will agree with grouping the Labour Party as "left", the Christen Democratic Appeal "middle" and the People's Party for Freedom and Democracy as "right". As far as I have carried out the analyses in this study and with the different grouping experiments that I made, it seems most important to have these parties mentioned in the groupings due to their relative size.

### Table A1  Grouping of political parties

| Election year | Left-wing parties | Middle parties | Right-wing parties |
|---|---|---|---|
| 1981 | PvdA(44),D66(17),PSP(3),CPN(3),PR(3) | CDA(48), SGP(3), RPF(2), GPV(1) | VVD(26) |
| 1982 | PvdA(47), D66(6), PSP(3), CPN(3), PR(2) | CDA(45), SGP(3), RPF(2), GPV(1),EV(1) | VVD(22), CP(1) |
| 1986 | PvdA(52), D66(9), PPR(2), PSP(1) | CDA(54), SGP(3), GPV(1), RPF(1) | VVD(27) |
| 1989 | PvdA(49), D66(12), GL(6), SP(1) | CDA(54), SGP(3), GPV(2), RPF(1) | VVD(22), CD(1) |
| 1994 | PvdA(37), D66(24), GL(5), SP(2) | CDA(34),AOV(7),RPF(3),SGP(2),GPV(2) | VVD(31), CD(3) |
| 1998 | PvdA(45), D66(14), GL(11), SP(5) | CDA(29), RPF(3), SGP(3), GPV(2) | VVD(38) |
| 2002 | PvdA(23), GL(10), SP(9), D66(7) | CDA(43), CU(4), SGP(2) | LPF(26),VVD(24),LN(2) |
| 2003 | PvdA(42), SP(9), GL(8), D66(6) | CDA(44), CU(3), SGP(2) | VVD(28), LPF(8) |
| 2006 | PvdA(33), SP(25), GL(7), D66(3) | CDA(41), CU(6), PvdD(2), SGP(2) | VVD(22), PVV(9) |
| 2010 | PvdA(30), SP(15), D66(10), GL(10) | CDA(21), CU(5), SGP(2), PvdD(2) | VVD(31), PVV(24) |

Note:
AOV = General Elderly Alliance (Dutch: *Algemeen Ouderen Verbond*)
CD = Centre Democrats (Dutch: *Centrum Democraten*)
CDA = Christen Democratic Appeal (Dutch: *Christen Democratisch Appèl*)
CP = Centre Party (Dutch: *Centrumpartij*)
CPN = Communist Party of the Netherlands (Dutch: *Communistische Partij Nederland*)
CU = ChristenUnion (Dutch: *ChristenUnie*)
D66 = Democrats 1966 (Dutch: *Democraten 1966*)
EV = Evangelistic People's Party (Dutch: *Evangelische Volkspartij*)
GL = GreenLeft (Dutch: *GroenLinks*)
GPV = Reformed Political League (Dutch: *Gereformeerd Politiek Verbond*)
PvdA = Labour Party (Dutch: *Partij van de Arbeid*)
PvdD = Party for the Animals (Dutch: *Partij voor de Dieren*)
PVV = Party for Freedom (Dutch: *Partij voor de Vrijheid*)
LPF = Pim Fortuyn List (Dutch: *Lijst Pim Fortuyn*)
LN = Livable Netherlands (Dutch: *Leefbaar Nederland*)
PPR = Political Party of Radicals (Dutch: *Politieke Partij Radikalen*)
PSP = Pacifist Socialist Party (Dutch: *Pacifistisch Socialistische Partij*)
RPF = Reformatory Political Federation (Dutch: *Reformatorische Poltieke Federatie*)
SGP = Politically Reformed Party (Dutch: *Staatkundig Gereformeerde Partij*)
SP = Socialist Party (Dutch: *Socialistische Partij*)
VVD = People's Party for Freedom and Democracy (Dutch: *Volkspartij voor Vrijheid en Democratie*)

The figures in brackets in the table indicate the seats in Parliament that parties obtained. The total number of seats in Parliament is 150.

## A2. Data

Data on the election outcomes come from the official Dutch election results website: www.verkiezingsuitslagen.nl. This databank reports per election year the votes per municipality per party. It provides also the total number of potential votes and the total number of effective votes per municipality.

In order to obtain the votes per province, I summed for each province the votes across all cities in that particular province. The number of provinces remained the same during the sample period. But, many cities changed their name, e.g. due to mergers. Therefore, the number of cities changes over the 10 election years in the sample. For this reason, a considerable amount of observations got lost in the *dynamic* regression analyses in this paper.

For the year 2010 the votes are also available per candidate and *their municipality* (per party) quoted at the election candidate list. I merged this list with the main data base of election outcomes *by municipality*. Some results with this information are listed in Table A7.

For the European Constitution Referendum in 2005 votes per municipality "against/in-favour/non-vote" are available from the same website. I merged this dataset with the election outcomes dataset by municipality.

Only the parliamentary (Dutch: *Tweede Kamer*) election outcomes and the outcomes of the referendum for the European Constitution of 2005 are used in the analyses here.

All the data on economic growth, inflation, unemployment and crime come from the Central Bureau of Statistics, see www.cbs.nl.

## Table A2  Some sample statistics

| Election year | Number of municipalities | Actual votes | Potential votes |
|---|---|---|---|
| 1981 | 809 | 8,738,238 | 10,040,121 |
| 1982 | 775 | 8,273,631 | 10,216,627 |
| 1986 | 715 | 9,199,621 | 10,727,701 |
| 1989 | 702 | 8,902,903 | 11,091,070 |
| 1994 | 636 | 9,027,887 | 11,455,924 |
| 1998 | 548 | 8,622,222 | 11,755,132 |
| 2002 | 496 | 9,515,226 | 12,035,935 |
| 2003 | 489 | 9,666,602 | 12,076,711 |
| 2006 | 459 | 9,854,998 | 12,264,503 |
| 2010 | 430 | 9,442,977 | 12,524,152 |
| *Total* | *6059* | | |

In the regional analysis the country is split in North, East, South and West. These regions comprise the twelve provinces of the Netherlands and are defined as:
North: Groningen, Friesland and Drenthe;
East: Overijssel, Gelderland and Flevoland;
South: Limburg, Brabant and Zeeland;
West: Noord-Holland, Zuid-Holland and Utrecht.

## A3. Summary statistics

## Table A3  Parliamentary outcomes per party per province per election year

| CDA | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.42 | 0.37 | 0.45 | 0.41 | 0.24 | 0.17 | 0.29 | 0.31 | 0.29 | 0.14 | 0.33 |
|  | 129 | 129 | 129 | 129 | 117 | 70 | 70 | 69 | 68 | 68 | 978 |
| Drenthe | 0.2 | 0.18 | 0.22 | 0.23 | 0.15 | 0.12 | 0.2 | 0.2 | 0.19 | 0.1 | 0.19 |
|  | 34 | 34 | 34 | 34 | 34 | 12 | 12 | 12 | 12 | 12 | 230 |
| Flevoland | 0.32 | 0.3 | 0.38 | 0.32 | 0.2 | 0.16 | 0.27 | 0.29 | 0.27 | 0.13 | 0.24 |
|  | 4 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 56 |
| Friesland | 0.35 | 0.31 | 0.35 | 0.35 | 0.27 | 0.23 | 0.3 | 0.29 | 0.25 | 0.17 | 0.28 |
|  | 44 | 44 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 31 | 336 |
| Gelderland | 0.35 | 0.3 | 0.36 | 0.34 | 0.22 | 0.16 | 0.27 | 0.3 | 0.27 | 0.13 | 0.27 |
|  | 93 | 93 | 86 | 86 | 86 | 86 | 71 | 71 | 56 | 56 | 784 |
| Groningen | 0.24 | 0.22 | 0.25 | 0.25 | 0.18 | 0.15 | 0.21 | 0.21 | 0.18 | 0.11 | 0.2 |
|  | 50 | 50 | 50 | 50 | 25 | 25 | 25 | 25 | 25 | 23 | 348 |
| Limburg | 0.41 | 0.38 | 0.45 | 0.42 | 0.25 | 0.19 | 0.32 | 0.34 | 0.27 | 0.13 | 0.35 |
|  | 106 | 72 | 72 | 71 | 58 | 55 | 48 | 47 | 47 | 34 | 610 |
| NoordHolland | 0.25 | 0.24 | 0.3 | 0.3 | 0.18 | 0.13 | 0.22 | 0.23 | 0.23 | 0.1 | 0.22 |
|  | 81 | 81 | 81 | 81 | 70 | 70 | 65 | 65 | 64 | 60 | 718 |
| Overijssel | 0.4 | 0.37 | 0.43 | 0.42 | 0.28 | 0.26 | 0.35 | 0.35 | 0.33 | 0.18 | 0.33 |
|  | 45 | 45 | 45 | 45 | 45 | 45 | 26 | 26 | 25 | 25 | 372 |
| Utrecht | 0.3 | 0.28 | 0.37 | 0.32 | 0.2 | 0.15 | 0.24 | 0.27 | 0.27 | 0.11 | 0.26 |
|  | 50 | 50 | 50 | 39 | 39 | 37 | 33 | 33 | 29 | 29 | 389 |
| Zeeland | 0.27 | 0.24 | 0.28 | 0.28 | 0.17 | 0.13 | 0.24 | 0.25 | 0.24 | 0.13 | 0.24 |
|  | 30 | 30 | 30 | 30 | 30 | 17 | 17 | 13 | 13 | 13 | 223 |
| ZuidHolland | 0.26 | 0.23 | 0.3 | 0.29 | 0.18 | 0.13 | 0.23 | 0.25 | 0.23 | 0.11 | 0.23 |
|  | 142 | 142 | 101 | 100 | 94 | 94 | 92 | 91 | 82 | 73 | 1011 |
| All | 0.33 | 0.29 | 0.36 | 0.34 | 0.21 | 0.16 | 0.26 | 0.27 | 0.25 | 0.12 | 0.26 |
|  | 808 | 774 | 715 | 702 | 635 | 548 | 496 | 489 | 458 | 430 | 6055 |

Note: Election years are given in the columns (from 1981 to 2010) and the provinces in the rows (from Brabant to Zuid-Holland). First rows give the median across municipalities of the percentage CDA votes per total number of votes. The second row gives the number of municipalities. The outcomes for other nine parties are listed in the tables below. Only the political parties that still exist are presented here.

| CU | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|
| Brabant | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| Drenthe | 0.02 | 0.02 | 0.04 | 0.03 | 0.02 |
| Flevoland | 0.05 | 0.04 | 0.07 | 0.06 | 0.05 |
| Friesland | 0.02 | 0.02 | 0.04 | 0.03 | 0.03 |
| Gelderland | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |
| Groningen | 0.04 | 0.03 | 0.06 | 0.05 | 0.05 |
| Limburg | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 |
| NoordHolland | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 |
| Overijssel | 0.02 | 0.02 | 0.04 | 0.03 | 0.03 |
| Utrecht | 0.02 | 0.02 | 0.04 | 0.03 | 0.03 |
| Zeeland | 0.03 | 0.02 | 0.04 | 0.04 | 0.03 |
| ZuidHolland | 0.02 | 0.02 | 0.04 | 0.03 | 0.03 |
| All | 0.01 | 0.01 | 0.02 | 0.02 | 0.01 |

| D66 | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.09 | 0.03 | 0.04 | 0.05 | 0.12 | 0.05 | 0.03 | 0.02 | 0.01 | 0.04 | 0.04 |
| Drenthe | 0.09 | 0.04 | 0.05 | 0.06 | 0.11 | 0.07 | 0.04 | 0.03 | 0.01 | 0.05 | 0.05 |
| Flevoland | 0.09 | 0.04 | 0.06 | 0.07 | 0.12 | 0.06 | 0.04 | 0.03 | 0.01 | 0.04 | 0.04 |
| Friesland | 0.09 | 0.03 | 0.05 | 0.06 | 0.10 | 0.05 | 0.03 | 0.02 | 0.01 | 0.03 | 0.04 |
| Gelderland | 0.09 | 0.04 | 0.04 | 0.05 | 0.11 | 0.05 | 0.03 | 0.03 | 0.01 | 0.04 | 0.04 |
| Groningen | 0.07 | 0.02 | 0.04 | 0.05 | 0.09 | 0.05 | 0.03 | 0.02 | 0.01 | 0.03 | 0.04 |
| Limburg | 0.09 | 0.04 | 0.04 | 0.04 | 0.11 | 0.05 | 0.03 | 0.02 | 0.01 | 0.03 | 0.04 |
| NoordHolland | 0.11 | 0.04 | 0.06 | 0.07 | 0.13 | 0.08 | 0.05 | 0.04 | 0.01 | 0.06 | 0.06 |
| Overijssel | 0.08 | 0.03 | 0.04 | 0.05 | 0.10 | 0.04 | 0.03 | 0.02 | 0.01 | 0.04 | 0.04 |
| Utrecht | 0.10 | 0.04 | 0.05 | 0.07 | 0.13 | 0.08 | 0.05 | 0.04 | 0.02 | 0.06 | 0.06 |
| Zeeland | 0.08 | 0.03 | 0.04 | 0.04 | 0.10 | 0.05 | 0.03 | 0.02 | 0.01 | 0.03 | 0.04 |
| ZuidHolland | 0.10 | 0.03 | 0.05 | 0.07 | 0.12 | 0.06 | 0.04 | 0.03 | 0.01 | 0.04 | 0.05 |
| All | 0.09 | 0.03 | 0.04 | 0.05 | 0.11 | 0.06 | 0.04 | 0.03 | 0.01 | 0.04 | 0.05 |

| Green Left | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|
| Brabant | 0.02 | 0.01 | 0.04 | 0.04 | 0.03 | 0.02 | 0.03 | *0.03* |
| Drenthe | 0.02 | 0.02 | 0.04 | 0.05 | 0.03 | 0.03 | 0.05 | 0.03 |
| Flevoland | 0.02 | 0.02 | 0.04 | 0.04 | 0.03 | 0.03 | 0.04 | *0.03* |
| Friesland | 0.03 | 0.02 | 0.05 | 0.05 | 0.04 | 0.03 | 0.05 | 0.04 |
| Gelderland | 0.02 | 0.02 | 0.04 | 0.04 | 0.03 | 0.03 | 0.04 | *0.03* |
| Groningen | 0.03 | 0.02 | 0.04 | 0.05 | 0.03 | 0.03 | 0.05 | 0.04 |
| Limburg | 0.02 | 0.02 | 0.05 | 0.04 | 0.03 | 0.02 | 0.04 | *0.03* |
| NoordHolland | 0.03 | 0.02 | 0.05 | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 |
| Overijssel | 0.02 | 0.01 | 0.03 | 0.03 | 0.03 | 0.02 | 0.03 | *0.02* |
| Utrecht | 0.03 | 0.02 | 0.05 | 0.05 | 0.04 | 0.04 | 0.05 | 0.04 |
| Zeeland | 0.02 | 0.01 | 0.04 | 0.04 | 0.03 | 0.02 | 0.04 | *0.02* |
| ZuidHolland | 0.02 | 0.01 | 0.04 | 0.03 | 0.03 | 0.02 | 0.04 | 0.03 |
| *All* | *0.02* | *0.02* | *0.04* | *0.04* | *0.03* | *0.03* | *0.04* | *0.03* |

| PvdA | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.16 | 0.17 | 0.22 | 0.21 | 0.16 | 0.21 | 0.09 | 0.17 | 0.13 | 0.11 | *0.17* |
| Drenthe | 0.34 | 0.35 | 0.38 | 0.37 | 0.29 | 0.29 | 0.19 | 0.31 | 0.25 | 0.21 | *0.32* |
| Flevoland | 0.18 | 0.20 | 0.22 | 0.21 | 0.15 | 0.17 | 0.09 | 0.17 | 0.13 | 0.11 | *0.16* |
| Friesland | 0.29 | 0.31 | 0.35 | 0.33 | 0.25 | 0.26 | 0.15 | 0.26 | 0.21 | 0.19 | *0.25* |
| Gelderland | 0.21 | 0.22 | 0.27 | 0.25 | 0.20 | 0.24 | 0.13 | 0.22 | 0.17 | 0.14 | *0.21* |
| Groningen | 0.33 | 0.35 | 0.40 | 0.37 | 0.27 | 0.28 | 0.18 | 0.31 | 0.25 | 0.21 | *0.30* |
| Limburg | 0.18 | 0.16 | 0.23 | 0.21 | 0.18 | 0.21 | 0.09 | 0.19 | 0.14 | 0.11 | *0.18* |
| NoordHolland | 0.20 | 0.21 | 0.23 | 0.21 | 0.17 | 0.20 | 0.11 | 0.20 | 0.15 | 0.14 | *0.18* |
| Overijssel | 0.20 | 0.21 | 0.24 | 0.24 | 0.19 | 0.22 | 0.11 | 0.20 | 0.15 | 0.12 | *0.19* |
| Utrecht | 0.14 | 0.16 | 0.17 | 0.16 | 0.14 | 0.17 | 0.10 | 0.17 | 0.13 | 0.13 | *0.15* |
| Zeeland | 0.22 | 0.22 | 0.24 | 0.24 | 0.17 | 0.21 | 0.11 | 0.19 | 0.14 | 0.13 | *0.20* |
| ZuidHolland | 0.19 | 0.20 | 0.21 | 0.19 | 0.15 | 0.19 | 0.10 | 0.17 | 0.13 | 0.11 | *0.16* |
| *All* | *0.20* | *0.20* | *0.24* | *0.23* | *0.17* | *0.21* | *0.10* | *0.20* | *0.15* | *0.13* | *0.19* |

| PvdD | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|
| Brabant | 0.00 | 0.01 | 0.01 | *0.01* |
| Drenthe | 0.00 | 0.01 | 0.01 | 0.01 |
| Flevoland | 0.00 | 0.01 | 0.01 | *0.01* |
| Friesland | 0.00 | 0.01 | 0.01 | 0.01 |
| Gelderland | 0.00 | 0.01 | 0.01 | *0.01* |
| Groningen | 0.00 | 0.01 | 0.01 | 0.01 |
| Limburg | 0.00 | 0.01 | 0.01 | *0.01* |
| NoordHolland | 0.00 | 0.02 | 0.01 | 0.01 |
| Overijssel | 0.00 | 0.01 | 0.01 | *0.01* |
| Utrecht | 0.00 | 0.01 | 0.01 | 0.01 |
| Zeeland | 0.00 | 0.02 | 0.01 | *0.01* |
| ZuidHolland | 0.00 | 0.01 | 0.01 | 0.01 |
| *All* | *0.00* | *0.01* | *0.01* | *0.01* |

| PVV | 2006 | 2010 | All |
|---|---|---|---|
| Brabant | 0.04 | 0.13 | *0.09* |
| Drenthe | 0.03 | 0.09 | 0.06 |
| Flevoland | 0.04 | 0.11 | *0.08* |
| Friesland | 0.03 | 0.09 | 0.05 |
| Gelderland | 0.04 | 0.10 | *0.06* |
| Groningen | 0.03 | 0.10 | 0.04 |
| Limburg | 0.09 | 0.20 | *0.11* |
| NoordHolland | 0.05 | 0.11 | 0.06 |
| Overijssel | 0.03 | 0.10 | *0.06* |
| Utrecht | 0.04 | 0.11 | 0.07 |
| Zeeland | 0.04 | 0.12 | *0.07* |
| ZuidHolland | 0.05 | 0.12 | 0.08 |
| *All* | *0.04* | *0.11* | *0.08* |

| SGP | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Drenthe | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Flevoland | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Friesland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gelderland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Groningen | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Limburg | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| NoordHolland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Overijssel | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Utrecht | 0.03 | 0.03 | 0.03 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 |
| Zeeland | 0.06 | 0.06 | 0.05 | 0.05 | 0.04 | 0.04 | 0.04 | 0.06 | 0.06 | 0.06 | 0.05 |
| ZuidHolland | 0.05 | 0.04 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.03 |
| All | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| SP | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.04 | 0.06 | 0.15 | 0.10 | 0.01 |
| Drenthe | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.04 | 0.13 | 0.07 | 0.00 |
| Flevoland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.03 | 0.10 | 0.06 | 0.01 |
| Friesland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.05 | 0.14 | 0.09 | 0.00 |
| Gelderland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.04 | 0.13 | 0.07 | 0.01 |
| Groningen | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.04 | 0.05 | 0.14 | 0.08 | 0.00 |
| Limburg | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.02 | 0.03 | 0.04 | 0.14 | 0.09 | 0.00 |
| NoordHolland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.05 | 0.05 | 0.12 | 0.07 | 0.00 |
| Overijssel | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.03 | 0.11 | 0.07 | 0.00 |
| Utrecht | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.04 | 0.04 | 0.10 | 0.05 | 0.00 |
| Zeeland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.03 | 0.04 | 0.12 | 0.07 | 0.00 |
| ZuidHolland | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.01 | 0.03 | 0.03 | 0.10 | 0.06 | 0.01 |
| All | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.02 | 0.04 | 0.04 | 0.13 | 0.07 | 0.00 |

| VVD | 1981 | 1982 | 1986 | 1989 | 1994 | 1998 | 2002 | 2003 | 2006 | 2010 | All |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Brabant | 0.12 | 0.17 | 0.12 | 0.09 | 0.14 | 0.17 | 0.12 | 0.14 | 0.11 | 0.16 | 0.13 |
| Drenthe | 0.22 | 0.25 | 0.22 | 0.18 | 0.20 | 0.18 | 0.14 | 0.15 | 0.14 | 0.16 | 0.19 |
| Flevoland | 0.15 | 0.20 | 0.15 | 0.15 | 0.19 | 0.21 | 0.14 | 0.17 | 0.13 | 0.18 | 0.16 |
| Friesland | 0.12 | 0.16 | 0.12 | 0.10 | 0.12 | 0.14 | 0.11 | 0.11 | 0.10 | 0.13 | 0.12 |
| Gelderland | 0.14 | 0.18 | 0.14 | 0.11 | 0.15 | 0.18 | 0.12 | 0.14 | 0.11 | 0.16 | 0.14 |
| Groningen | 0.11 | 0.14 | 0.11 | 0.09 | 0.11 | 0.12 | 0.10 | 0.10 | 0.08 | 0.10 | 0.11 |
| Limburg | 0.10 | 0.15 | 0.09 | 0.07 | 0.12 | 0.15 | 0.09 | 0.11 | 0.09 | 0.12 | 0.11 |
| NoordHolland | 0.21 | 0.26 | 0.21 | 0.17 | 0.22 | 0.25 | 0.17 | 0.20 | 0.17 | 0.22 | 0.21 |
| Overijssel | 0.12 | 0.16 | 0.12 | 0.09 | 0.13 | 0.15 | 0.10 | 0.11 | 0.09 | 0.14 | 0.12 |
| Utrecht | 0.21 | 0.25 | 0.19 | 0.17 | 0.21 | 0.24 | 0.16 | 0.19 | 0.15 | 0.20 | 0.20 |
| Zeeland | 0.15 | 0.19 | 0.16 | 0.12 | 0.16 | 0.17 | 0.11 | 0.12 | 0.10 | 0.13 | 0.15 |
| ZuidHolland | 0.18 | 0.23 | 0.19 | 0.15 | 0.21 | 0.23 | 0.14 | 0.17 | 0.14 | 0.19 | 0.18 |
| All | 0.14 | 0.19 | 0.14 | 0.11 | 0.16 | 0.18 | 0.12 | 0.14 | 0.12 | 0.16 | 0.15 |

## A4. The shift in provincial election outcomes

### Table A4.  Difference provincial election outcomes of 1998-2010 and 1981-94

| | Left | Middle | Right |
|---|---|---|---|
| Drenthe | -3.8 | -2.6 | **0.1** |
| Flevoland | -2.3 | -8.9 | 6.4 |
| Friesland | -2.5 | -7.2 | 3.2 |
| Gelderland | -1.1 | -9.4 | 4.9 |
| Groningen | **-5.2** | -6.4 | 2.5 |
| Limburg | -0.3 | **-14.8** | **7.2** |
| Noord-Brabant | 1.2 | -13.4 | 6.3 |
| Noord-Holland | -1.0 | -7.1 | 5.4 |
| Overijssel | -1.2 | -10.7 | 3.3 |
| Utrecht | **3.0** | -8.4 | 3.7 |
| Zeeland | -2.7 | -6.0 | 2.8 |
| Zuid-Holland | -3.6 | -6.4 | 5.7 |

Note: The names in the first column are the 12 provinces of the Netherlands.  The figures give the difference in the median of the left-, middle and right-wing votes per municipality in percentage points for  the period 1998-2010 in comparison with the period 1981-1994 (similar to Graph 4 for the country regions North, East, South, West).

## A5. Econometric estimation results per political party

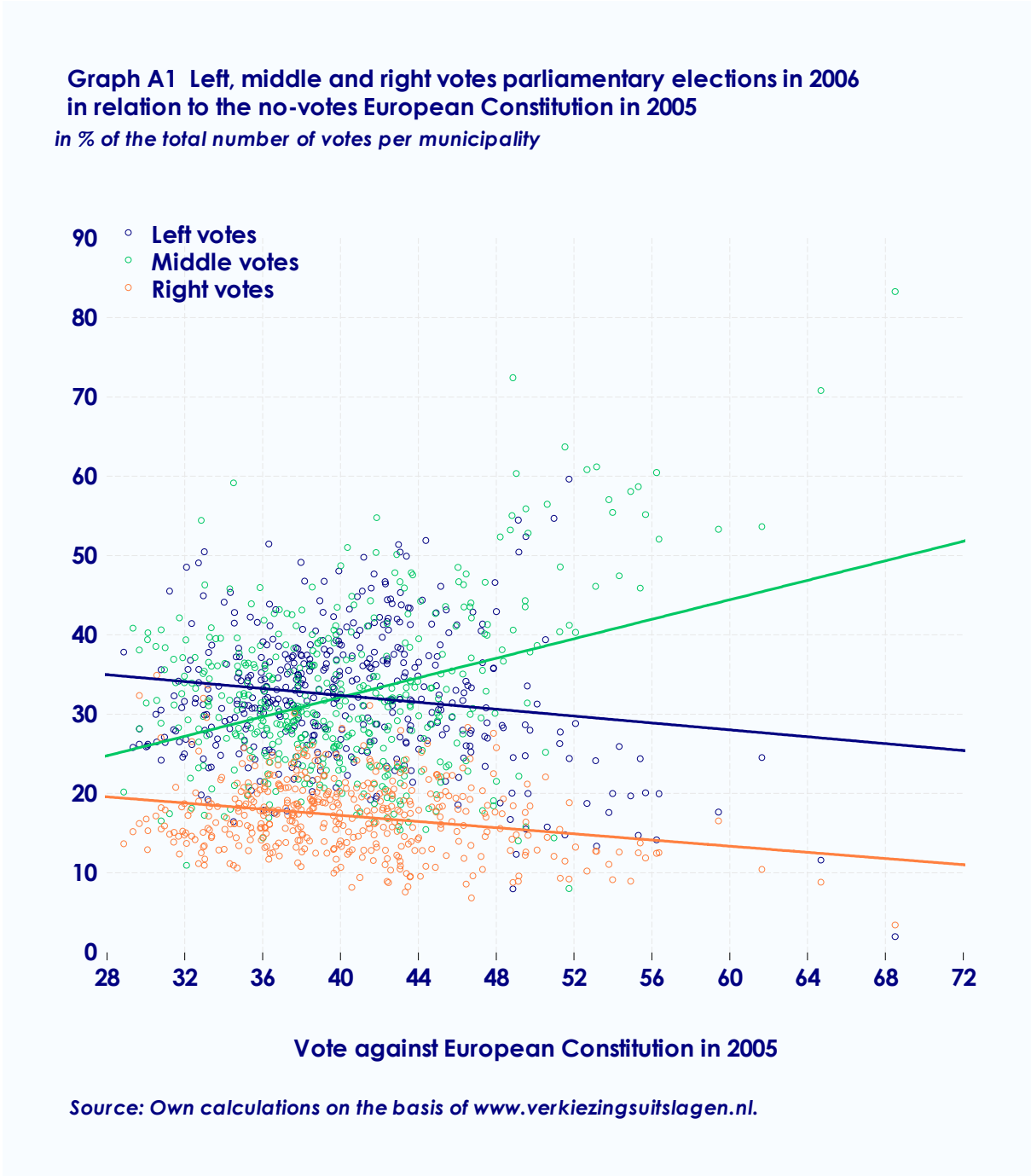### Table A5. Econometric estimation results of the election outcomes per party

| | CDA | D66 | GreenLeft | CDA | D66 | GreenLeft |
|---|---|---|---|---|---|---|
| *Constant* | 0.03 | 0.08 | -0.00 | 0.19 | 0.01 | 0.00 |
| | (10.6) | (49.2) | (-0.76) | (41.5) | (26.3) | (7.5) |
| $f^{country}$ | 0.05 | -0.00 | | -0.00 | -0.00 | -0.00 |
| | (33.2) | (-4.3) | | (-2.1) | (-13.1) | (-24.0) |
| $f^{province}$ | -0.00 | -0.01 | 0.01 | 0.01 | -0.00 | 0.001 |
| | (-0.09) | (-9.4) | (4.06) | (6.4) | (-7.3) | (3.3) |
| $f^{municipality}$ | -0.02 | 0.01 | 0.001 | -0.05 | 0.01 | 0.00 |
| | (-21.7) | (21.7) | (3.22) | (-40.1) | (28.4) | (20.2) |
| $y_{t-1}$ | **0.73** | -0.24 | 0.80 | **0.29** | 0.25 | 0.72 |
| | (82.7) | (-10.8) | (46.9) | (17.9) | (28.8) | (73.1) |
| | | | | | | |
| *Adjusted-R²* | 0.86 | 0.24 | 0.84 | 0.68 | 0.63 | 0.82 |
| Sample period | | 1982-1994 | | | 2002-2010 | |
| Number of obs. | | 17250 | | | 15455 | |
| | | (=6*2772+618 (GreenLeft)) | | | (=7*1831+1350(CU)+867(PvdD) | |
| | | | | | +421 (PVV)) | |

| | PvdA | SGP | SP | VVD | Pvda | SGP | SP | VVD |
|---|---|---|---|---|---|---|---|---|
| *Constant* | 0.06 | 0.001 | 0.005 | 0.05 | 0.16 | -0.00 | 006 | 0.06 |
| | (27.3) | (2.02) | (9.3) | (50.3) | (71.2) | (-0.97) | (57.9) | (34.5) |
| $f^{country}$ | 0.01 | 0.002 | 0.00 | -0.04 | 0.00 | -0.001 | 0.01 | 0.01 |
| | (9.8) | (3.46) | (0.61) | (-69.5) | (2.8) | (-6.13) | (18.6) | (12.9) |
| $f^{province}$ | 0.02 | -0.00 | 0.00 | -0.01 | 0.03 | 0.00 | 0.01 | -0.01 |
| | (15.7) | (-2.2) | (1.4) | (-10.5) | (26.1) | (1.18) | (5.4) | (-12.2) |
| $f^{municipality}$ | 0.01 | -0.00 | 0.00 | 0.00 | 0.03 | -0.00 | 0.00 | 0.01 |
| | (19.5) | (-6.7) | (4.6) | (7.5) | (37.6) | (-4.2) | (6.9) | (18.7) |
| $y_{t-1}$ | 0.68 | **0.86** | **0.03** | **0.89** | 0.10 | **0.97** | **0.54** | **0.51** |
| | (78.1) | (134.0) | (2.2) | (159.8) | (8.7) | (323.9) | (42.6) | (47.8) |
| | | | | | | | | |
| *Adjusted-R²* | 0.85 | 0.89 | 0.01 | 0.94 | 0.63 | 0.99 | 0.48 | 0.57 |

| | CU | PvdD | PVV |
|---|---|---|---|
| *Constant* | 0.01 | 0.01 | 0.05 |
| | (18.1) | (55.8) | (17.1) |
| $f^{country}$ | 0.00 | 0.00 | |
| | (12.1) | (26.5) | |
| $f^{province}$ | 0.00 | -0.00 | -0.01 |
| | (1.4) | (-5.4) | (-6.3) |
| $f^{municipality}$ | -0.00 | 0.00 | 0.00 |
| | (-1.2) | (13.5) | (1.23) |
| $y_{t-1}$ | **0.95** | 0.37 | **1.00** (imposed) |
| | (88.6) | (11.5) | |
| | | | |
| *Adjusted-R²* | 0.89 | 0.56 | 0.69 |

Note: This table contains the result of two SUR-system estimations: the first for the period 1982-1994 including the CDA, D66, GreenLeft, PvdA, SGP, SP and VVD (in the left columns) and the second for the period 2002-2010 for the CDA, D66, GreenLeft, PvdA, SGP, SP, VVD, CU and PvdD. For GreenLeft (in the first period) and the PVV the country factor is not included as only two years of observations are available (2006 and 2010) in which case the country factor is multicollineair with the constant.

## A6. Election outcomes in relation to Referendum on the Constitution for Europe

**Graph A1  Left, middle and right votes parliamentary elections in 2006
in relation to the no-votes European Constitution in 2005**
*in % of the total number of votes per municipality*



**Vote against European Constitution in 2005**

*Source: Own calculations on the basis of www.verkiezingsuitslagen.nl.*

Note: A blue dot represents a municipality of which y% voted left in the Parliamentary elections in 2006 (read this from the y-axis) and of which x% voted "no" to the Constitution for Europe in 2005 (read this from the x-axis). Similarly, this holds for the green dots (middle votes) and for the orange dots (right votes).

In 2005 the Treaty for establishing a Constitution for Europe that was ratified by 18 of the 25 EU member states, was rejected by the Dutch (and French) in a Referendum. In the Netherlands 62% of the votes expressed voted "no" to this Treaty and 38% voted "yes".[13]

The Parliamentary election outcomes of 2006 relate negatively with these Referendum "no"-outcomes as far as it concerns left- and right-wing voters, while the middle votes correlate positively (see Graph A1). Although the correlations are not high, they are significantly different from zero (-0.2 for the *left* with *t*-value -3.4, 0.2 for the *middle* with *t*-value 8.0 and -0.1 for the *right* with *t*-value -5.4).

From these results we can infer that left- and right-wing parties were in majority in favour of this European Treaty (or more strongly: "pro-European"); the more a municipality voted left or right in 2006 the less it had given a no-vote to the establishment of a Treaty for Europe in 2005. Our conclusion from the positive slope for the middle group indicates, oppositely, that the more right-wing municipalities in the polls of 2006 coincided with the municipalities with a high majority of no-voters to the Treaty.

This latter result originates from the smaller centre right parties (ChristenUnion and SGP, see table A6) and not the main centre right party (CDA).

### Table A6. Correlation coefficients of the election outcomes per party with outcome of the Referendum on the European Constitution in 2005

| 2006 | "No to the Constitution" | "Yes to the Constitution" | Not voted |
|---|---|---|---|
| CDA | -0.21 (-4.5) | 0.30 (6.7) | -0.09 (-1.8) |
| CU | **0.65 (18.5)** | -0.30 (-6.6) | -0.43 (-10.0) |
| D66 | -0.35 (-7.9) | 0.56 (14.3) | -0.20 (-4.3) |
| Green Left | -0.29 (-6.5) | 0.55 (14.2) | -0.26 (-5.7) |
| PvdA | 0.09 (1.8) | -0.18 (-4.0) | 0.10 (2.1) |
| PvdD | -0.07 (-1.5) | 0.40 (-8.4) | -0.31 (-6.9) |
| PVV | -0.13 (-2.7) | -0.19 (-4.1) | 0.34 (7.7) |
| SGP | **0.71 (21.5)** | 0.40 (9.3) | -0.38 (-8.6) |
| SP | -0.31 (-7.0) | -0.16 (-3.5) | 0.53 (13.2) |
| VVD | -0.20 (-4.4) | 0.64 (17.6) | -0.44 (-10.6) |
| 2010 | "No to the Constitution" | "Yes to the Constitution" | Not voted |
| CDA | -0.02 (-0.41) | 0.13 (2.6) | -0.11 (-2.3) |
| CU | **0.67 (18.5)** | -0.32 (-6.8) | -0.42 (-9.4) |
| D66 | -0.46 (-10.7) | 0.76 (24.1) | -0.28 (-6.0) |
| Green Left | -0.29(-6.3) | 0.58 (14.5) | -0.28 (-5.9) |
| PvdA | -0.03 (-0.6) | 0.15 (3.1) | -0.12 (-2.5) |
| PvdD | -0.09 (-1.8) | 0.28 (5.9) | -0.19 (-4.0) |
| PVV | -0.04 (-0.9) | -0.36 (-7.8) | -0.42 (9.5) |
| SGP | **0.73 (21.7)** | -0.42 (-9.3) | -0.38 (-8.4) |
| SP | -0.37 (-8.2) | -0.06 (-1.3) | 0.49 (11.4) |
| VVD | -0.22 (-4.5) | 0.65 (17.6) | -0.44 (-10.12) |

Note: The first panel reports the correlation coefficients of the Parliamentary election outcomes per municipality of 2006 with the outcomes of the Referendum on the European Constitution in 2005 (vote not in favour or vote in favour or not voted). The lower panel reports the same, but using the Parliamentary election outcomes of 2010. The values between brackets are *t*-values for the hypothesis that the correlation coefficient is equal to zero; in case the *t*-value is in absolute values higher than 1.96, this hypothesis is not accepted.

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[13] The no-votes on the x-axis in the graph are expressed as a percentage of the total eligible voters, instead of the total number of actual voters. 37% of the eligible voters did not vote.

## A7. Election outcomes in relation to the election candidates' origin

### Table A7.  Election outcomes in 2010

| | constant | candidate in the city | $R^2$-adjusted |
|---|---|---|---|
| CDA | 0.14 (51.4) | **-0.03 (-6.1)** | 0.08 |
| CU | 0.03 (15.7) | 0.00 (0.3) | 0.00 |
| D66 | 0.04 (39.9) | **0.01 (4.9)** | 0.05 |
| Green Left | 0.05 (86.4) | 0.00 (-0.0) | 0.00 |
| PvdA | 0.13 (56.0) | 0.00 (0.9) | 0.00 |
| PvdD | 0.01 (60.9) | 0.00 (1.3) | 0.00 |
| PVV | 0.12 (60.1) | -0.01 (-1.6) | 0.00 |
| SGP | 0.02 (8.1) | 0.00 (0.1) | 0.00 |
| SP | 0.08 (52.5) | -0.00 (-0.6) | 0.00 |
| VVD | 0.17 (55.5) | -0.00 (-0.8) | 0.00 |

Note: The election outcome per party (left column) per municipality of the Parliamentary elections of 2010 is regressed by means of OLS on a constant and a dummy that equals one in case there is at least one election candidate of the respective municipality at the election candidate list and that equals zero otherwise. The *t*-values are listed in brackets. The number of observations is 430.

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