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Explaining Coalition Types: an analysis of government formation at the Dutch local level

ABSTRACT: In the last 50 years, several theories have been developed to explain the occurrence of several governmental coalition compositions. These theories have been extensively tested in cross-country comparisons, which often suffer from the difficulties of a limited number of cases and a large number of varying institutional factors. This study tries to bypass these difficulties by studying a large number of governments formed at the Dutch local level. Two expectations from existing coalition literature are tested: one concerning the influence of the value political parties place on being in government, the other concerning the insecurity political parties experience in assessing the preferences of potential coalition partners. Several institutional and situational developments at the Dutch local level have created variation which allow these expectations to be tested empirically. Support is found concerning expectations on insecurity of preferences of coalition partners, whereas support concerning the value political parties place on governmental participation is mixed.

A large number of diverging theories on the formation of government coalitions have been formed over the past 50 years. These theories have often been put to the test, mostly by studying Western parliamentary systems. However, these theories can also be used to explain coalitions on lower levels of government, such as regional governments (Stefuriuc 2013) or municipalities (Bäck 2003; Denters 1985; Steunenberg 1992).

This study aims to apply coalition theory to the Dutch municipal level, by focusing on the types of government coalitions that are formed. A number of hypothesis are derived from literature on coalition formation, mainly hypotheses concerning the value political parties place on being in government, and the insecurity parties have in assessing the preferences of potential coalition partners. A number of changes have occurred at the Dutch local level, which allow for testing these hypotheses. These changes include a switch from a monistic system (in which aldermen have a seat both in the local government and in the municipal council) to a dualistic system, with a clear separation between the local executive and the municipal council. Furthermore, electoral volatility has increased significantly since the 1980ties, which might affect the value of government, and thus the desire for a party to be in government (Mitchell and Nyblade 2008). Lastly, the number of municipalities has decreased considerably due to mergers over the past decades: from 714 in 1986 to the current number of 403. This has resulted in larger municipalities on average, which is reflected in the maximum number of (full-time) aldermen which can possibly be appointed by the municipal council. This might positively affect the pay-off of being in government if parties are assumed to be office-seeking. Furthermore, political parties operating in a new party system because of a merger between municipalities might operate under an increased insecurity about the behavior of other possible government partners, thereby influencing their preferences for specific types of government coalitions.

In this study, the changes in coalition formation on the Dutch municipal level are assessed longitudinally, whereby the effects of the institutional/situational changes can be gauged. This might provide for new input in the theory that focuses on the question why specific types of coalitions form under specific circumstances. An advantage of studying coalition formation at the sub-national level is that most institutional variables will be held constant. These conditions will enhance the strength with which causal claims can be made regarding other variables.

Theoretical perspective

Coalition theory has focused on a large number of diverging questions regarding coalitions, for example: who plays the coalition game, what are the stakes, how do you win, who gets in, who gets what (Laver and Schofield 1990) and what coalitions do form (Mitchell and Nyblade 2008). Classical coalition literature was mainly concerned with the question "who gets in?", for which several models were developed which could make coalition predictions on the basis of (1) office-seeking motives for actors (Riker 1962), and (2) policy-seeking motives for actors (Axelrod 1970; de Swaan 1973). The former assumes that parties will primarily pursue the goal of getting as many positions in government, the latter assumes parties primarily want to see their policies enacted. However, what both theories have in common is that they expect coalitions to be winning and thus enjoy the support of a majority, and the expectation that parties will aim to be part of the winning coalition (Tops 1990, 13, following de Swaan 1973 and Luebbert 1983).

Office seeking theories are solely concerned with the size of coalitions. Riker (1962, 62), using game theory, describes an ideal-type of political coalition formation as follows: "In *n*-person zero-sum games, where side-payments are allowed, where players are rational, and where they have perfect information, only minimum winning coalitions occur". Riker's "minimum winning coalitions" have two characteristics: first, a coalition which does not have more members than necessary in order to create a majority. Coalitions fulfilling this criterion are also called minimum winning coalitions (MWC). The second characteristic refers to the size of the minimum winning coalition: the coalition with the smallest majority is chosen, which is also called a minimal size coalition (MSC). The rationale for forming a MWC is that when surplus members are added to the coalition, and thus an oversized coalition is formed, the pay-off (governmental offices) has to be distributed over more actors than necessary, thus lowering the gains of the parties relatively to if they had chosen not to include a surplus member. Furthermore, by forming an MSC, coalition partners will maximize their payoff when coalition parties expect a number of governmental positions proportional to their size (Gamson 1961). This can be explained with to the following example: when party A has 40% of the parliamentary seats, and they can choose to govern in a coalition with either party B (20% of the seats) or party C (35% of the seats), they will prefer the coalition with party B, since this would give them a higher number of government positions if these positions are distributed according to the relative proportion of the size of the coalition members (e.g.: if A governs with B in a

coalition, the distribution of seats would be according to the ratio of 40:20, whereas if A would govern with C it would be 40:35, thereby making the former coalition the preferred one for party A). Of course, several deviations from this ideal model of coalition formation can be thought of, but this model nevertheless portrays a clear rationale behind the formation of a coalition.

The second type of coalition theories assume that actors are policy seeking: parties will adopt strategies which make the fulfillment of their policy preferences the most likely. Therefore, these theories predict that coalitions will be formed with parties that are ideologically close to each other. This will make it most likely that the policies the coalition will adopt are in line with the preferences of the coalition members.

Although most of the theories could make some correct predictions, a large number of coalitions is still unexplained. The theories have difficulties in explaining the formation of minority coalitions and oversized coalitions especially. Further refinements of the theories were proposed, for example by considering the role of dominant actors (Peleg, 1981). Another suggestion was to take previous historical coalition experiences of parties together in a coalition into account (Franklin and Mackie 1983), which could positively or negatively affect the likelihood of these parties entering a coalition together in the future.

All theories have been tested extensively, mainly on a limited number of cases encompassing most coalition governments in Western parliamentary systems, with mixed results. Especially the track record of the stringent MSC-criterion is weak (Taylor and Laver 1973), and as such it will not be used for the analyses in this study. Nevertheless, Mitchell and Nyblade (2008, 211) argue that taking a slightly modified version of Riker's principle (similar to the one cited above, but this time leaving out the expectation of minimal size and only keeping the minimum winning requirement) – is a good starting point to arrive at expectations concerning the size of governments. By making concrete in what ways government formation games differ from the previously mentioned *n*-person game, it becomes possible to identify factors that might raise the possibility of outcomes such as oversized governments and minority governments, which diverge from the MWC. This approach is taken in this article: theoretical expectations will be presented which make the formation of MWC, minority, and oversized coalitions more likely, which are subsequently tested empirically. This focus on explaining deviant cases is also suggested by Dumont, de Winter, and Andeweg (2011).

Most discussions of coalition theories focus on government formation at the national level. However, coalitions in lower-level governments can also be assessed using coalition theory. Of course, this is somewhat different than coalition formation on the national level: the stakes are generally lower. Nevertheless, when governing coalitions are formed, no matter at which level, coalition theories can be applied since they are universal theories (Tops 1990, 19). Laver and Schofield (1990, 8-9) especially recommend applying coalition studies to the local level, since "its potential is clearly enormous". One of the strongest arguments for studying coalition formation at the sub-national level is that institutional variables are held constant. When a cross-national approach is taken, there are often a large number of variables which vary across countries, and which can serve as possible rivaling explanations of the type of coalition formed. Furthermore, the limited amount of cases available for analysis makes it difficult to rule out these rivaling explanations with certainty. This problem is reduced considerably when a sub-national level is taken: the number of variables which should be controlled for decreases, while the number of cases (at least when the focus lies on the local level) increases.

The choice to study coalition formation at the Dutch local level was made for the practical reason of the availability of data. However, the Netherlands represents an appropriate candidate for this study since the institutional framework for local government is uniform across the country, with the only exception being the number of positions available on the local executive board. Furthermore, it bears resemblance to the national level to the extent that there also is a popularly elected legislative (municipal council), which is responsible for electing aldermen to the executive board (the government). The latter is dependent on the trust of the majority of the council for their survival. The similarities with many national governments make the findings of this study salient for coalition studies at all levels.

The formation of the local government in the Netherlands

The Dutch municipalities are officially governed by the municipal council, the executive board of mayor and aldermen, and the mayor. The council is directly elected every four years from party lists. After the elections, the parties elected to the council join together to make agreements in order to form the municipal executive: the executive board. The council holds the exclusive right to recruit and elect the aldermen (Tops and Korsten 1998, 184). The total number of aldermen varies per municipality: the municipal law requires a municipality to have at least 2

aldermen, and a maximum of 20% of the total number of seats in the council (Gemeentewet 2015). During the first official meeting of the council, the aldermen are all individually elected by the council with absolute majority. During their period in office, it is important for aldermen to keep the support of a majority of the council, since the council has the right to withdraw its support for an alderman and make him/her resign.

The mayor is formally appointed by the Crown, which means he/she is appointed by the government after being nominated by the Interior Minister upon recommendation by the municipal council. The term length for mayors is six years (without a maximum number of terms), two years longer than the term for the council. Hence, the appointment of the mayor takes place at a different time than the time at which the executive board is elected. In the formation of the municipal executive, the council thus only bargains over the aldermen positions since their influence on the appointment of the mayor is almost non-existent.

Until 2002 the clear separation of tasks between the council and the executive board and aldermen was in some respects absent. Aldermen were elected from within the council, and kept their seat in the council after being elected as aldermen. In practice, both the council and the executive board assumed a governing function (Raad voor het Openbaar Bestuur 2001). This formally monistic system was replaced in 2002 by a dualistic system in which the roles of the council and the executive board were disentangled. Whereas previously the council and the executive board were assigned executive roles, respectively "general governance" and "day-to-day governance", the executive role is now placed in the hands of the executive board (Raad voor het Openbaar Bestuur 2001, 12). This created room for the council to focus more on its role as a body of oversight, and as a body of popular representation (Raad voor het Openbaar Bestuur 2001, 8-12). In order to execute this first function more effectively, municipalities are required to set up a local Court of Auditors. Further evidence of the separate roles of the council and the executive board can be found in the requirement that aldermen have to abandon their seat in the council. Furthermore, aldermen can be recruited from outside the council, increasing chances of a more professionalized executive board.

Applications of coalition theory on Dutch municipalities

Tops (1990) has made a comprehensive study of government formation at the municipal level in the Netherlands in the period between 1946-1986. He finds a high number of oversized

government coalitions, especially *afspiegelingscoalities* (mirror coalitions), which proportionally reflect the distribution of seats on the council. However, the number of coalitions of this type was declining at the time. Furthermore, a significant number of minority governmental coalitions are observed. Denters (1985) finds that these municipal coalitions are hard to explain by using classical coalition theories, although Steunenberg (1992) does find support, especially for the size-oriented theories. The difficulties of policy-seeking theories to explain local coalition formation may follow from the limited influence that ideology has on local politics. Boogers and Voerman (2010) state that a possible explanation for this is that the sharp political cleavages that play a role at the national level are almost absent at the local level, and that ideology-laden issues (for example income distribution) bypass the local level. This can also be observed in the governmental coalitions formed at the local level: whereas a coalition between the right-wing liberal party VVD and the socialist party SP would be unthinkable at the national level, at the local level these parties are actually coalition partners in several municipalities. Because of this limited role of ideology, and the resulting difficulties of policy-seeking theories to explain local coalition formation, this study focuses solely on office-seeking (thus, size-oriented) coalition theory. Yet, since policy-seeking coalition theories are also concerned with the size of coalitions, this study is also relevant for these theories.

This study focuses on data from 1986-2010 on local governments, and on expected changes in governmental[1] types that have formed in municipalities over the course of these years. Six hypotheses are tested, which all refer to developments at the local level which either influence the value parties place on being in government, or the insecurity about the preferences and the credibility of the commitment of possible coalition partners. As such, testing these hypotheses thus directly feeds back into size-oriented coalition theory.

As discussed above, a first change that has taken place is an institutional one: a system of dualism has been adopted in 2002, which formally excludes the aldermen from the municipal council, in which they previously held a seat. The adoption of dualism might have influenced coalition formation, since the municipal government is now formally assigned a position on par with the council, where it previously was subordinate to it. This might have led to a more autonomous role for the municipal government, thereby increasing its power, which might

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[1] Instead of coalition type, I will speak of government type since not all of the governments (yet the large majority) are coalitions. However, this does not necessarily pose a problem, since a single-party government can also be of the types "minority government" or "minimum winning government".

positively affect the value parties place on being in government. Furthermore, the pool of potential aldermen has increased considerably since they can be appointed from outside the municipal council. This might have increased external pressure on the party to make sure it becomes part of the local government, thereby securing an alderman position. Following Mitchell and Nyblade (2008), the higher the value parties place on being in government, the higher the likelihood of minimum winning coalitions to form: oversized governments will not be preferred since the benefits of being in office will be too thinly distributed, and minority governments will be too prone to be upset by parties excluded from the governing coalition. These effects will thus be stronger under a dualistic system. This leads to the first hypothesis being tested in this study:

H1: The probability of minimum winning coalitions to form – vis-a-vis both oversized and minority governments – has increased after the adoption of a dualistic system.

The increased value of being in government might be further enhanced by the mergers of a large number of municipalities into bigger municipalities. This has positively affected the number of aldermen who can be appointed in these larger municipalities, which could increase the desires of office-seeking parties to be in government, since there are more offices (and thus salaries) to distribute within a municipality. Furthermore, alderman positions in larger municipalities probably give more status to the person holding the office. The possible spoils for an office-seeking party of being in government will thus be higher, because of the increased number of local governmental positions which can be distributed and the increased status of those positions. Hence, the value of being in government increases. This would also increase the likelihood of minimum winning coalitions to form, relative to both surplus and minority coalitions, when following the logic discussed above. This leads to the second hypothesis for the proposed study:

H2: The probability of minimum winning coalitions to form – vis-a-vis both oversized and minority governments – is positively related to the size of the municipality.

On the other hand, a major trend of electoral volatility has taken place since the previous studies were conducted, at least at the national level (Mair 2008). Mitchell and Nyblade (2008) find support for the hypothesis that electoral volatility leads to parties choosing not to be in government since they are afraid for electoral punishment, thus leading to a relatively higher number of minority governments. This will be the third hypothesis which will be tested in this study:

> *H3: Increased electoral volatility positively affects the likelihood of minority governments to form, vis-a-vis both surplus and minimum winning coalitions.*

However, Denters (1985) and Bäck (2003) argue that not all parties might be equally affected by the threat of electoral punishment because of participation in government. They argue that local politics are inseparably linked to national politics, and that trends in voting at the local level will – to a certain extent – follow trends at the national level. When this is the case, and there is a low 'localization' of the election (as Bäck calls it), parties will not be afraid that they will be punished for participating in local government, since voters will make a decision to vote for a party based on the national performance of that party. Only when local politics are really localized, and voters base their votes on the performance of the parties at the local level, electoral volatility can be expected to increase the fear of punishment for being co-responsible for local policies. This leads to the fourth hypothesis, which adds a condition to the effect of electoral volatility on the type of government formed:

> *H4: Minority governments are more likely to form, when high electoral volatility is combined with high localization of politics.*

Even though Mitchell and Nyblade (2008) find support for their hypothesis that the fear of being punished for being in government in electorally volatile systems creates an incentive for parties to decide not to be in government, an opposite incentive can be expected when one considers the position of parties actually willing to form a government under the high uncertainty of an electorally volatile system. Bäck (2003), following Jungar (2000), argues that parties negotiating about the government which is to be formed may have the incentive to include

surplus parties in government when electoral volatility is high. This way the costs of being in government will be carried by more parties, thereby possibly limiting the effects of electoral punishment in future elections. Bäck (2003, 120) finds support for this expectation. This leads to the fifth hypothesis, which expects an opposite effect of electoral volatility than the one hypothesized in hypothesis three.

> *H5:   Increased electoral volatility will positively affect the number of oversized governments that are formed*

Finally, uncertainty about the preferences of possible coalition parties, or the credibility of their commitments might affect the type of government that is formed. Riker (1962, 47) suggests that the more a bargaining situation approaches an *n*-person, fixed-sum game with side-payments, the more likely it is that the participants form a minimal winning coalition. Mitchell and Nyblade (2008, 213) state that this ideal-type of a bargaining situation rests on the assumption of perfect information. Actors will thus be completely and correctly be informed about the preferences of the other actors, and actors will behave exactly according to these preferences. In a real-life formation of a government this information assumption will to a certain extent be violated. Mitchell and Nyblade argue that the greater the uncertainty about the preferences or the credibility of the commitment of other parties, the more likely it is that oversized governments will form. The rationale behind this is that surplus coalition parties will serve as an insurance for the possible defection of one of the government parties. In the local elections being analyzed in this study, a specific factor affects the uncertainty about preferences and credibility of commitments. By repeatedly interacting with other political parties and actors, political parties learn about the behavior of their counterparts. Whenever existing municipalities are merged to create a 'new' municipality[2], or when an existing municipality experiences boundary changes, such as an enlargement by adding territory and thus new political competitors, the party system of a municipality may change drastically. Subsequently, political parties are required to operate in a system largely unknown to them, with unknown actors. This

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[2] These municipalities are new in the sense that they are a merger of several existing municipalities/territories into a municipality, often under a new name. However, they are comprised only of territory that previously was part of some other municipality, and are thus not as 'new' as a municipality created within newly acquired territory. Examples of the latter cannot be found in the period studied here.

would create uncertainty as described above, and the possible addition of surplus members to a governing coalition. Thus, the sixth hypothesis of this study is:

H6: After elections in a newly formed municipality, or after elections in a municipality with redrawn boundaries, a higher number of oversized governments will be formed.

Methods and Data

In order to assess the trends in municipal coalition formation in the Netherlands, a longitudinal approach was taken, in which data from 1986-2010 were used. This period covers all the changes discussed, and is large enough to observe the effects of electoral volatility, mergers of municipalities (hence, their size), and the imposed dualistic system, since all three are largely developments of the 1990ties and 2000s.

In order to measure the dependent variable of the study (the coalition type that was formed), a database was constructed in which all municipal election results between 1986 and 2010 were represented, using data published by the Electoral Council (2015) and the Central Bureau of Statistics (1986; 1990; 1994; 1998). When this stage was completed, the party composition of all executive boards was added (using data from personal communication with dr. Peter Castenmiller, and from the Vereniging van Nederlandse Gemeenten 1987; 1991; 1994; 1995; 1997; 1999; 2001; 2003; 2007; 2011). This allowed classification of government type into three categories: (1) minority government, (2) minimum winning government, (3) oversized government. However, this classification is slightly problematic for some of the minority governments: when the council seats are distributed across a large number of parties and when the number of aldermen positions is small, it is sometimes not possible to form anything else than a minority government since assigning the aldermen positions to the largest parties does not result in a government with a supporting majority in the council. Tops (1990) explains that in this case the legislative coalition is larger than the executive coalition, since the aldermen still have to be appointed with the support of a majority of the council. Since these minority governments did not arise out of choice for a certain coalition, but are inevitable, they were exempted from the analyses. These inevitable minority governments represented around 35% (141 cases) of the total number of minority governments formed between 1986 and 2010 in the

sample. The distribution of government types between 1986 and 2010 is represented in Table 1. The total number of cases represented here (3851) encompass more than 95% of the population (all government formations following directly after elections between 1986-2010). Some cases were dropped from the sample when the various sources used did not converge over either the election results or the government that was formed after the election. This will in some cases be due to the fact that a municipal government (or a single alderman) lost the confidence of the council, after which a new government had to be formed or an alderman had to be replaced. None of the sources exactly specified whether the coalition they documented was one that had been formed immediately after elections, or was formed after one or more aldermen were replaced. However, by using data that usually described the composition of the executive board seven to eight months after the elections, I feel confident that these governmental constitutions represent the first ones formed after the elections.

Table 1: Distribution of government types in Dutch municipalities,
1986-2010

Government type	Frequency	Relative Frequency
Minority government	408	10.6%
Minimum-winning governments	2182	56.7%
Oversized governments	1261	32.7%
Total	3851	100%

The first independent dummy variable indicates whether an election (and the subsequently formed government) fell in the pre-2002 monistic era, or in the post-2002 dualistic era, where aldermen were no longer chosen from the council and were not allowed to occupy a seat in the council anymore.

A second independent variable indicates the electoral volatility in a municipality for a given election. Volatility is measured using the Pedersen index (Pedersen 1979), which portrays the net change in votes between parties within the party system. In order to calculate the

aggregate volatility, the following formula was used, in which P represents party i's share of the vote obtained during election t, and compared with the obtained vote share in the previous election t-1. *E* represents the number of elections used to calculate the volatility, which is always two in this study:

$$V = \frac{1}{E} \sum_{i=1}^{n} |P_{i(t)} - P_{i(t-1)}|$$

However, several problems were encountered while calculating the electoral volatility in this way. Several parties have merged into new parties. The two largest instances of a merger were the 1990 fusion of the EVP, PSP, CPN and PPR into GroenLinks, and the fusion of the GPV and RPF into the ChristenUnie in 2001. The electoral volatility measure was corrected for these fusions. Nevertheless, a sizeable number of party fusions and breakaways of local political parties remained in the dataset, inflating the volatility index for some municipalities. According to Tops (1990, 123-126), this is a phenomenon that often occurs in small, communal local party systems. Dittrich and Kuiper (1986, 4) state that it is not an exception that some candidates have participated in local elections under five different party names over a period of 25 years. In order to correct for the subsequent inflation of the electoral volatility, a variable is added measuring the vote share of new parties (those which compete for the first time in a specific municipality). This variable was later used to create a corrected electoral volatility measure.[3]

Localization of elections is measured by the proportion of votes for local parties. This is not a perfect measure, since a high proportion of national parties does not necessarily mean that politics is nationalized. However, a measure better representing whether politics at the local level follows national or local trends was not available.

In order to gauge the effects of the ongoing mergers of municipalities, and the resulting average increase in size of municipalities, a variable is created which expresses the number of eligible voters per municipality in a specific year, which was derived from election results data. Furthermore, two dummy variables were created indicating whether an election (and thus if the consecutively formed government that took office) was held directly after (1) the creation of a new municipality out of a number of smaller municipalities, or after (2) the re-drawing of the

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[3] By multiplying the electoral volatility by (1-percentage of new parties), a measure was created which corrected for "false" new parties. This will be discussed in more length below.

borders of an existing municipality. These two variables might sound alike, but the choice to distinguish between them was made since on average the creation of a new municipality represented a larger change in the composition of a municipality than the redrawing of the borders did.

In the next section an overview is given of the descriptive statistics of the variables under consideration in order to get a better understanding of the data. Subsequently, the hypotheses stated above are tested by means of a multinomial regression because the dependent variable in this analysis is a nominal variable with three possible values. This method is used following Mitchell and Nyblade (2008), who state that a multinomial regression is preferred over an ordered logit or probit model, since some variables will not fit the ordered model. This is also the case in this study, where some variables are expected to increase the chance of the formation of both minority and oversized governments over minimal winning governments. This makes the classification of a minimal winning government as falling in between minority and oversized governments problematic, which is why a model assuming a ranked order of the dependent variable is not preferred.

Another way to analyze the data would be to use a normal logistic regression in which the dependent variable is collapsed into a variable where the formation of a specific type of government is compared to the formation of all other government types. The multinomial logistic regression is more nuanced in this regard. When, for example, the chance of the formation of a minority government is analyzed, it is not analyzed *vis-à-vis* the chance of the formation of all other government types combined, but rather *vis-à-vis* both separate categories of government types.

Analyses

In order to better understand the data and be able to interpret the multinomial logistic regressions which will follow better, an exploration of the data precedes the statistical analyses. The overall distribution of the dependent variable (types of governments formed) was already shown in Table 1. The distribution of the types of governments formed is plotted against time in Figure 1. The distribution seems to be stable between 1986 and 1994, after which the proportion of minimum winning governments declines with a total of around ten percentage points until 2002. After 2002 the proportion of minimum winning governments increases again by around five

percentage points to around 55% of the total governments formed. The proportion of voluntary minority governments seems quite steady during the entire period, hovering between 8-12% of the total. The proportional decline of minimum winning governments between 1994 and 2002, and the increase thereafter seems to be almost entirely offset by the proportional changes in the number of oversized governments. The proportion of governments with surplus members is rather stable until 1994, after which is rises with around 10 percentage points until 2002, after which it slightly declines again.

Some of the independent variables in this study also require some closer inspection. The first is electoral volatility, which at the Dutch national level has increased enormously if one looks at its level between 1980-2006 (Mair 2008). When assessing the volatility at the local level there seems to be almost no change between 1986 and 2010. The Pedersen index, which ranges between 0 and 1 (0 when no voters change their vote to another party between elections, and 1 when all of the voters do), is 0.18 on average over the entire period. Deviations from the average are minimal: at most 2.5 percentage points in 2010. However, the electoral volatility should be interpreted with some caution. The party system at the local level is far less stable than a usual national party system, with local parties coming and going between elections. Yet, many parties that are new to a municipality are often continuations of old parties under a new name, or existing local parties that merged into a new one. It can be argued that when a voter changes his vote from party A to party B, which is a continuation of party A under a different name, this creates a false case of a voter changing his vote, thus falsely inflating the volatility. Tops (1990) argues that this is mainly a problem of local parties formed around a single local person. The occurrence of such parties is highest in the Southern provinces of Limburg and Noord-Brabant, where the percentage of votes for local parties is also highest throughout all years. Not surprisingly then, these provinces also enjoy a significantly higher level of electoral volatility than most other provinces: the average volatility in the two Southern provinces combined is around 0.24, whereas it is only 0.16 in the other provinces combined.

The artificial inflation of volatility caused by "new" parties, which are not entirely new pose a problem. Therefore, in the subsequent analyses an extra variable will be used besides electoral volatility, namely a corrected measure of electoral volatility calculated with the following formula:

$$Corrected\ volatility = Electoral\ volatility \times \left(1 - \frac{\%\ new\ parties}{100}\right)$$

The artificial inflation of the electoral volatility will hereby be reduced for municipalities which have new parties in their party system. Of course this also means that some real electoral volatility will be lost in the case that entirely new parties emerge and acquire votes at the cost of existing parties. This is why the findings referring to this variable have to be interpreted with caution, and in conjunction with the findings arrived at with the uncorrected electoral volatility measure.

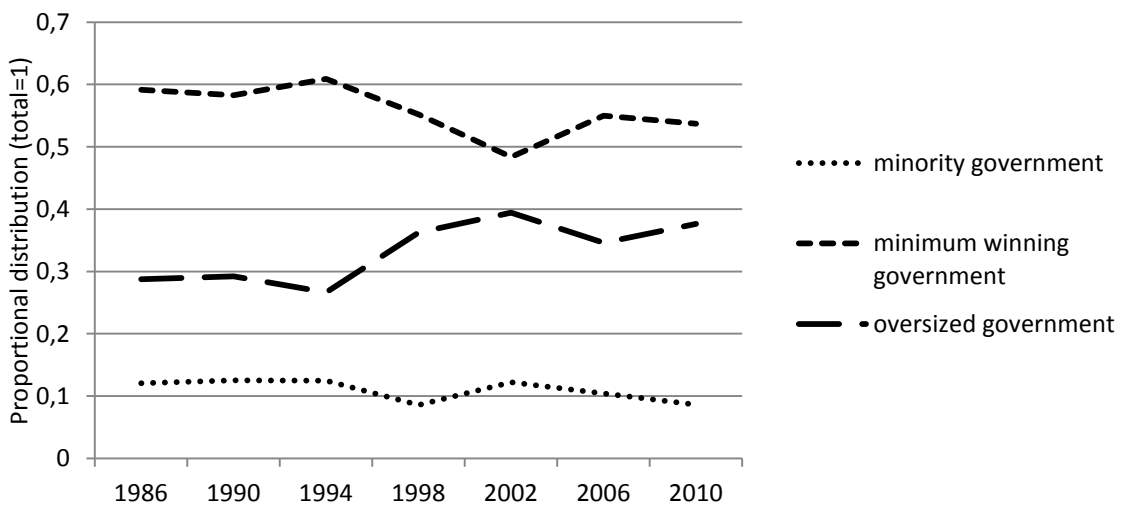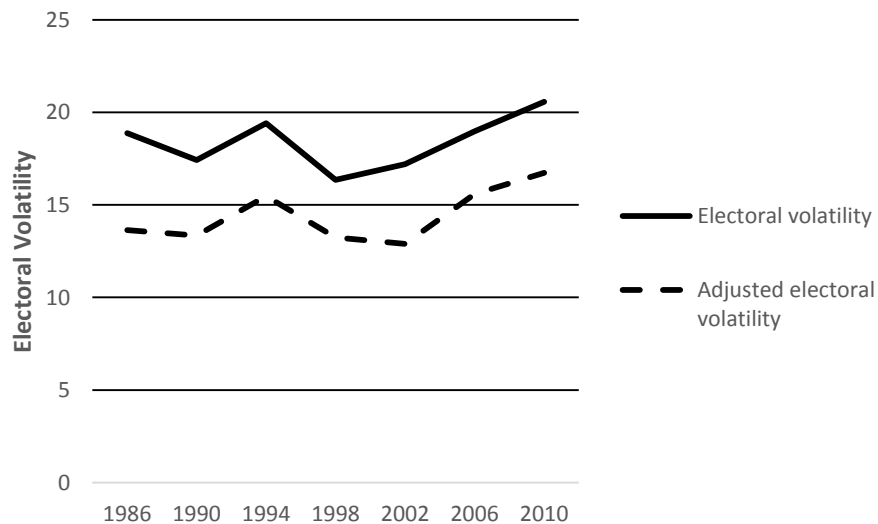**Figure 1: Proportional distribution of municipal government types 1986-2010**


Figure 2: Electoral volatility (Pedersen Index) in Dutch municipalities 1986-2010

Another independent variable deserving closer exploration is the amount of municipalities which experienced re-drawing of its boundaries, and the formation of new municipalities. As described above, the latter is in most cases more severe than a boundary change in which one or several residential areas are added to an existing municipality. There may be exceptions, but the impact on the local party system after a redrawing of boundaries were hence far smaller than those after the formation of a new municipality out of several smaller municipalities. In the case of the former, the already existing parties usually kept their representation in the council. Overall, the sample contained 90 governments formed after a new municipality was created and 165 governments that were formed after a merger/redrawing of municipal boundaries.

The mergers and creation of new municipalities do have a lasting effect: the overall size of municipalities has steadily grown in the period under review here. With a greater territory, the average number of eligible voters will increase as well. This affects the size of the municipal council, and hence the possibility for a municipality to create extra alderman-positions. The development of the growth of both is displayed in figure 3. The average number of eligible voters per municipal electoral cycle has doubled over the course of 24 years: from around 15000 in 1986 to 30000 in 2010. During this same timespan the average number of aldermen has increased as well, yet less dramatically than the average number of eligible voters. The average number of aldermen in the sample was just over 2.5 in 1986, and rose to 3.5 in 2010.

Figure 3: Average number of eligible voters and aldermen in sample 1986-2010
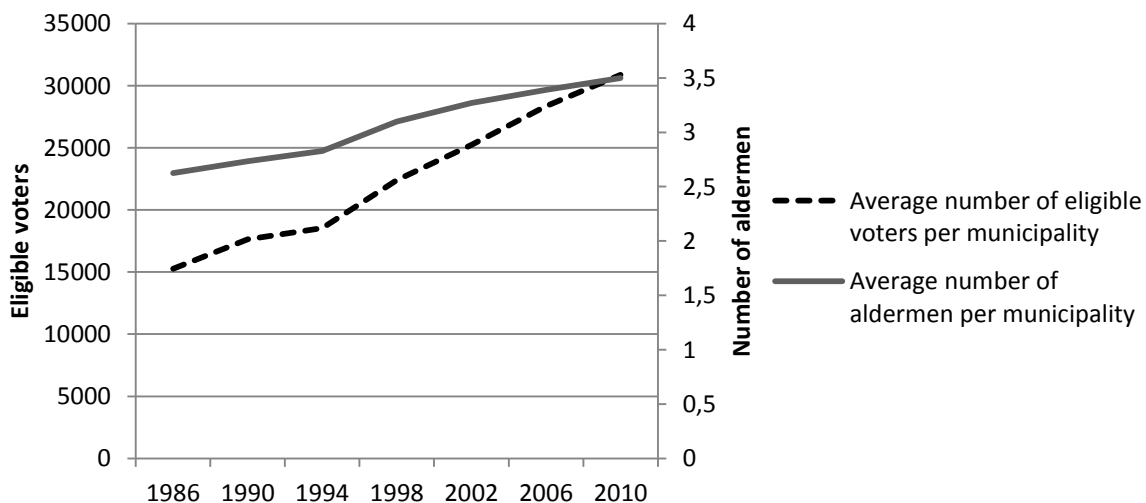
With a clearer picture of the overall data, I now turn to the multinomial regression analyses, the results of which are displayed in Table 2. The table represents all possible comparisons of the possible outcome categories of the dependent variable: the likelihood of the formation of a minority government vs. a minimum winning government, oversized government vs. minimum winning government, and oversized vs. minority government. The second term in each comparison refers to the reference category. When interpreting the results, this means that a positive B-coefficient (or an odds ratio > 1) implies that the likelihood of observing the first category in the comparison relatively to the reference category rises, when the independent variable the coefficient refers to rises. More specifically, the odds ratio exactly specifies the ratio between the odds of the first category in the comparison relatively to the reference category before and after a one-unit increase of the independent variable in question. Thus, the odds ratio of 0.98 of the number of eligible voters in a municipality in the first comparison conveys that as the number of eligible voters increase by a thousand (since it is measured in thousands), the odds of arriving at a minority government compared to a minimum winning government decrease. This is the case since the odds ratio is smaller than 1, which indicates that the ratio between the odds before and after a one-unit change of the independent variable are 1:0.98.

In the case of number of eligible voters in a municipality the odds ratios are directly interpretable, but one should be careful with the interpretation of some of the other odds ratios, especially the ones referring to an independent variable constructed with an interaction term. This is the case for both the electoral volatility corrected for new parties, and for the electoral volatility in interaction with the level of localization of the elections prior to the formation of the local government. The high odds ratio of the former does not necessarily signify a large effect, but is also due to the measurement scale of this variable. For these variables it is therefore better to solely look at the direction of the relationship, and the significance of this relation.

The multinomial regression model as a whole was highly significant (model $\chi^2(14)=361.48$, p<0.001), which indicated that it was able to make a significant higher number of correct predictions about types of governments formed than the baseline model without any independent variables. Furthermore, all model diagnostics appeared to be normal, raising confidence in the robustness of the model, even though the total explained variance of the model was low with a Nagelkerke R-squared of 0.11.

Table 2: Multinomial regression results for likelihood of municipal government types 1986-2010

	B (SE)	95% CI for Odds ratio		
		Lower	Odds Ratio	Upper
Minority government vs minimum winning government				
Intercept	-2.69 (0.18)***			
Number of eligible voters (in thousands)	-0.02 (0.01)***	0.97	0.98	0.99
New municipality	2.40 (0.65)***	3.05	10.98	39.54
Municipal re-devision	1.58 (0.33)***	2.53	4.86	9.34
Dualism	0.34 (0.14)*	1.06	1.40	1.86
Electoral volatility	-1.97 (1.22)	0.01	0.14	1.53
Electoral volatility corrected for new parties	6.10 (1.67)***	16.80	446.67	11874.95
Electoral volatility x localization	1.75 (1.10)	0.68	5.78	49.28
Oversized government vs minimum winning government				
Intercept	-0.99 (0.09***			
Number of eligible voters	0.01 (0.00)***	1.01	1.01	1.02
New municipality	0.86 (0.57)	0.76	2.35	7.24
Municipal re-devision	0.88 (0.25)***	1.48	2.41	3.91
Dualism	0.23 (0.08)**	1.08	1.26	1.47
Electoral volatility	0.10 (0.99)	0.16	1.11	7.65
Electoral volatility corrected for new parties	1.63 (1.38)	0.34	5.09	75.55
Electoral volatility x localization	-4.80 (0.94)***	0.00	0.01	0.05
Oversized government vs minority government				
Intercept	1.70 (0.19)***			
Number of eligible voters	0.04 (0.01)***	1.03	1.04	1.05
New municipality	-1.54 (0.75)*	0.05	0.21	0.92
Municipal re-devision	-0.70 (0.33)*	0.26	0.50	0.95
Dualism	-0.11 (0.15)	0.67	0.90	1.21
Electoral volatility	2.08 (1.42)	0.50	7.96	128.22
Electoral volatility corrected for new parties	-4.48 (1.98)*	0.00	0.01	0.55
Electoral volatility x localization	-6.55 (1.28)***	0.00	0.00	0.02

Note: R-squared = 0.11 (Nagelkerke). Model $\chi^2(14)$=361.48, p<0.001. *p<.05, **p<.01, ***p<.001.

The six hypotheses discussed above will be used as a guide to navigate through the different coefficients. An overview of the hypotheses and whether they are supported or rejected is also displayed below in Table 3. The first hypothesis is that the adoption of a dualistic system should have led to a higher number of minimum winning governments, both *vis-à-vis* minority governments and oversized governments. The results disconfirm the hypothesis: the likelihood of the formation of an oversized government compared to a minimum winning government actually increases if one compares the dualistic period starting in 2002 with the period before. This same conclusion can be drawn for the likelihood of the formation of a minority government compared to a minimum winning government: the likelihood of arriving at the former rises after 2002.

Hypothesis two expresses a positive expectation concerning the size of the municipality of the local government and the likelihood of forming minimum winning governments, both *vis-à-vis* oversized governments and minority governments. The coefficients indeed indicate that the likelihood of forming a minimum winning government compared to a minority government significantly increases when the size of the municipality increases, even though the effect is not very strong. However, the coefficient in the comparison between minimum winning governments and oversized governments indicate that oversized governments are more likely to be found when the size of a municipality increases.

Hypotheses three, four, and five are all concerned with the effects of electoral volatility on the formation of specific governmental types. In none of the comparisons does the uncorrected electoral volatility measure have a significant effect on the type of government formed. However, as argued, this measure is inflated by the appearance of new local political parties which were often continuations of, -or mergers between existing local parties. The electoral volatility measure which corrected for this phenomenon does have a significant effect: when the corrected electoral volatility rises, the likelihood of forming a minority government compared to a minimum winning government increases. Furthermore, the coefficient in the bottommost comparison in table 2 indicates that the likelihood of forming an oversized government compared to a minority government significantly decreases when the corrected electoral volatility rises. Even though the "normal" electoral volatility measure was not significantly related to government type, this finding renews confidence that electoral volatility does have the expected effect expressed in the third hypothesis. Furthermore, this finding

indicates that there is no evidence in Dutch municipalities that electoral volatility is positively related to the formation of oversized governments, expressed in hypothesis five.

Hypothesis four expresses the expectation that local electoral volatility will only have an effect on local government type when it is combined with a certain level of localization of the elections. This hypothesis is tested with an interaction term between the number of votes for local parties and the electoral volatility. Minority governments are indeed significantly more likely to form compared to oversized governments when electoral volatility is combined with a high localization of politics. However, no significant effect is found on the likelihood of forming a minority government compared to a minimum winning government, which would be a stronger supportive indicator for hypothesis four.

Lastly, a positive effect on the likelihood of the formation of oversized governments was expected for new municipalities and municipalities which had recently experienced a merger or boundary change. When the likelihood of forming an oversized government is compared to minimum winning government, this relationship is confirmed for municipalities that experienced a boundary change. The same direction of the relationship is also found for newly merged municipalities, but this relationship is not significant. What is also striking is that both new municipalities and re-divided municipalities experience a higher likelihood of forming minority governments, both when compared to minimum winning governments and oversized governments.

Discussion and Conclusion

The type of government formed at the municipal level seems not to have been influenced in the expected direction by the move to a dualistic system in 2002. If the willingness of parties to be part of government, and the strength of their wish to minimize its size is indeed influenced by the value which a position in the government has for them, then the conclusion can be drawn that dualism at the Dutch local level has not increased the value of government. This might say something about the changes (or rather, the absence of changes) in the power relationship between the council and the executive board that have been experienced after the move to a dualistic system. This is somewhat in line with the findings of the committee Leemhuis-Stout (2004), which investigated the effects of the adoption of the dualistic system at the Dutch local

level. One of their conclusions is that even though dualism gives aldermen extra powers on paper, in practice they experience dualism as a burden (2004, 156).

Table 3: Overview of the hypotheses and whether they are supported or rejected

Hypothesis	(Partly) supported / rejected
H1: The probability of minimum winning coalitions to form – vis-a-vis both oversized and minority governments – has increased after the adoption of a dualistic system.	Rejected
H2: The probability of minimum winning coalitions to form – vis-a-vis both oversized and minority governments – is positively related to the size of the municipality.	Partly supported (only in comparison MWC vs. minority government)
H3: Increased electoral volatility positively affects the likelihood of minority governments to form, vis-a-vis both surplus and minimum winning coalitions.	Partly supported
H4: Minority governments are more likely to form, when high electoral volatility is combined with high localization of politics.	Partly supported
H5: Increased electoral volatility will positively affect the number of oversized governments that are formed	Rejected
H6: After elections in a newly formed municipality, or after elections in a municipality with redrawn boundaries, a higher number of oversized governments will be formed.	Partly supported

The increasing size of the municipalities also did not entirely have the expected effect on the type of government formed: whereas a higher occurrence of minimum winning governments was expected, a general trend towards larger governments was observed when size increased.

Thus, minimum winning governments were more likely compared to minority governments, which is according to expectations. However, the likelihood of incorporating surplus members also increased. More research is needed to explain this.

Effects concerning electoral volatility also diverge slightly from the expectations, depending on whether a corrected or uncorrected volatility measure was used. Some caution should be in place when the positive results of the corrected volatility measure are interpreted. There is no doubt that some correction of the volatility measure is in place, but how much is not clear. The measure used here is likely to overcorrect to some extent, since it basically assumes that all new parties are continuations or mergers of existing parties, which is incorrect. In order to arrive at more robust conclusions concerning the role local electoral volatility plays in the type of government that is formed, a correct next step would be to study the exact size of the problem that "fake" new parties pose for the traditional electoral volatility measure.

Concerning the redrawing of municipal boundaries and creation of new municipalities, a higher likelihood for the formation of both minority governments and oversized governments is found compared to minimum winning governments. Firstly, this raises confidence that a multinomial logistic regression is the proper way of studying government types. This finding shows that ordered models are indeed not appropriate since there is no definite ordered logic in the specific government types. The increased likelihood of moving away from a minimum winning coalition to an oversized government gives confidence that insecurity about the preferences and commitment of potential government partners in a new environment indeed give an incentive to parties to add surplus members to a coalition as an insurance. However, this does not explain the higher coincidence of minority governments. A possible explanation is that when no surplus members are found some political parties in the coalition formation negotiations leave the negotiations since they do not want to be part of a government without the insurance of a surplus member, thus forcing other parties to form a minority government. Further research would definitely be needed in order to investigate the viability of this explanation.

Overall this study gives some clear results concerning Dutch municipal government formation, and coalition theory in general, which can be used as a starting point of further research. The dataset that was created for this study might be useful point of departure for this, and might make a contribution as such. This study also shows that there is indeed great potential in the study of governments at the local level, as Laver and Schofield (1990, 8-9) suggest.

References

Axelrod, Robert. 1970. *Conflict and Interest.* Chicago: Markham.

Bäck, Hanna. 2003. *Explaining Coalitions: Evidence and Lessons From Studying Coalition Formation in Swedish Local Government*. Stockholm: Elanders Gotab.

Boogers, Marcel, en Gerrit Voerman. 2010. "Independent Local Political Parties in the Netherlands." *Local Government Studies* 36(1): 75-90.

Castenmiller, Peter. 2015. Data on composition of municipal political institutions, from personal communication.

Commissie Leemhuis-Stout. 2004. *Evaluatie van de wet dualisering gemeentebestuur: Eindrapport*. Utrecht: Berenschot.

Centraal Bureau voor de Statistiek. 1986;1990;1994;1998. *Statistiek der Verkiezingen: gemeenteraden*. The Hague: staatsuitgeverij.

Denters, Bas. 1985. "Towards a conditional model of coalition behavior." *European Journal of Political Research* 13: 295-309.

Dittrich, K.L.L.M., and W. Kuiper. 1986. "Het democratische gehalte van de lokale politiek in Limburg: een terreinverkenning." Maastricht: Paper of Working Group in Local Politics.

Dumont, Patrick, Lieven de Winter and Rudy B. Andeweg. 2011. "From coalition theory to coalition puzzles." In *Puzzles of government formation: coalition theory and deviant cases,* eds. Rudy B. Andeweg, Lieven de Winter, and Patrick Dumont. London: Routledge.

Franklin, Mark N., and Thomas T. Mackie. 1983. "Familiarity and Inertia in the Formation of Governing Coalitions in Parliamentary Democracies." *British Journal of Political Science* 13 (3): 275-298.

Gamson, William A. 1962. "Coalition Formation at Presidential Nominating Conventions." *American Journal of Sociology* 68 (2): 157-171.

Gemeentewet (Municipal Law). 2015.

Jungar, Ann-Cathrine. 2000. *Surplus Majority Government. A Comparative Study of Italy and Finland.* Uppsala: Acta Universitatis Upsaliensis.

Kiesraad. 2015. www.verkiezingsuitslagen.nl (last accessed 15-01-2015)

Laver, Michael, and Norman Schofield. 1990. *Multiparty Government: The Politics of Coalition in Europe*. Oxford: Oxford University Press.

Mair, Peter. 2008. "Electoral Volatility and the Dutch Party System: A Comparative Perspective." *Acta Politica* 43: 235-253.

Mitchell, Paul, and Benjamin Nyblade. 2008. "Government Formation and Cabinet Type." In *Cabinets and Coalition Bargaining*, eds. Kaare Strom, Wolfgang Muller and Torbjorn Bergman. Oxford: Oxford University Press.

Pedersen, Mogens Nielsen. 1979. "The Dynamics of European Party Systems: Changing Patterns of Electoral Volatility." *European Journal of Political Research* 7 (1): 1-26.

Peleg, Bezalel. 1981. "Coalition formation in simple games with dominant players." *Journal of Game Theory* 10: 11-33.

Raad voor het Openbaar Bestuur, *De cultuur van dualisering*, Den Haag, 2001

Riker, William H. 1962. *The Theory of Political Coalitions*. New Haven/New York: Yale University Press.

Stefuriuc, Irina. 2013. *Government Formation in Multi-Level Settings: Party Strategy and Institutional Constraints*. New York: Palgrave Macmillan.

Steunenberg, Bernard. 1992. "Coalition theories: empirical evidence from Dutch municipalities." *European Journal of Political Research* 22 (245-278).

de Swaan, Abram. 1973. *Coalition Theories and Cabinet Formations; A Study of Formal Theories of Coalition Formation applied to nine European Parliaments after 1918*. Amsterdam: Elsevier

Taylor, Michael, and Michael Laver. 1973. "Government Coalitions in Western Europe." *European Journal of Political Research* 1 (3): 205-248.

Tops, Pieter. 1990. *Afspiegeling en Afspraak*. Den Haag: VUGA

Tops, Pieter, en Arno Korsten. 1998. "Het college van burgemeester en wethouders." In *Lokaal bestuur in Nederland*, eds. Arno Korsten en Pieter Tops. Alphen aan den Rijn: Samsom.

Vereniging van Nederlandse Gemeenten. 1987; 1991; 1994; 1995; 1997; 1999; 2001; 2003; 2007; 2011. *Gids Gemeentebesturen.* The Hague: VNG uitgeverij