Decided to compete: Contamination effects and parties' entry decisions in mass elections

Draft

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Abstract

The Duvergerian theory has been used to explain the behaviour of both party elites and voters. Through the mechanical and the psychological effects of the electoral laws political parties are supposed to withdraw from competition in the long term when nonviable. However, this has been shown not to be true. Nonviable political parties continue presenting candidates, calling into question the Duvergerian theories. Departing from this unexplained paradox this paper argues that it is the superposition of more than one electoral arena or district that encourages viable parties to present candidacies in those districts where they are nonviable. Relying on institutional and sociological variables I address which factors can account for this unexpected increase in the supply of political parties and I find evidence for the existence of contamination effects to national legislative elections from MMS, regional arenas and from presidential elections.

Keywords: Duvergerian gravity, asymmetric viability, electoral contamination, electoral supply.

1. Introduction

Conventional wisdom on voters and parties' strategies is based on the Duvergerian theories (Duverger 1954). According to them, through the *mechanical effects* and the *psychological effects* of the electoral laws political parties at the long term and in contexts with good information are only supposed to present candidacies when they have chances to achieve representation. Voters are believed to cast their ballot only for

viable parties, encouraging the nonviable ones to desert from competition. However, the empirical evidence questions this logic. 'Serious'[1] but nonviable political parties have been shown to continue presenting candidates at the long-run, calling into question the Duvergerian theories.

Multiple examples of this phenomenon can be found worldwide. In the Spanish parliament the post-communist political party *Izquierda Unida* (IU) presents nowadays candidacies in all the 52 districts. Although since the restoration of democracy –more than three decades ago–, the party has managed to achieve representation in only 18 of the constituencies, it continues presenting candidacies in all districts. Similarly in the German mixed-member system the Greens or The Left should be predicted to withdraw from most of the districts at the SMD tier because they are nonviable. However, this does not occur.

Why political parties decide to present candidates when they do not have any chance to achieve representation? Are these isolated situations worldwide or, on the contrary, many examples such as these can be found? This paper departs from the unexplained paradox that more parties than those that are expected to run for elections decide entering competition. The question derived from this paradox is "*how and why we might expect higher numbers of parties* [to what the Duvergerian logic would have predicted] *to contest elections*" (Best 2010: 115)? To me it is the superposition of electoral arenas[2] what generates incentives to political parties to present candidacies when nonviable. I argue that the implicit assumption of independence between electoral arenas that the literature on electoral studies has –at least implicitly– done does not actually hold. Political parties compete in complex political systems where the decision on whether to run for elections or not is not taken at the district level but it is rather influenced by the existence of other electoral arenas. Therefore, nonviable political parties in a given arena (or district) can take advantage of their viability in another electoral arena as to present candidacies in the one where they are nonviable. The literature has labelled this phenomenon as *electoral contamination* or *contamination effects*.

[1] By "serious" parties I am referring to political parties that are viable in at least one arena of competition. I therefore exclude from this group all type of marginal political parties which although not having any chance to achieve representation, they continue presenting candidacies. The fact of presenting candidacies in these cases is just an expressive action.

[2] By electoral arena or arena of competition I understand any constituency or group of constituencies where elections are being held.

The paper proceeds as follows: in the next section I present the main theoretical arguments. Then I introduce where the data comes from, how the dependent variable will be operationalised, its interpretation and finally the methods used to test my hypotheses, which will be presented in the fourth chapter. Section five addresses the empirical analysis, and the sixth section concludes.

2. Theoretical arguments

2.1. The Duvergerian gravity

Voters and parties' strategies at elections have been commonly explained and predicted through the Duvergerian theories (1954). The observance of the Duvergerian gravity is supposed to be done under two specific conditions (Cox 1999: 152): first, precise expectations about prospective candidates' vote shares at the time entry decisions are made (perfect information); and second, potential entrants care mostly about the outcome of the current election (short term instrumentality).

Under this context, within pluralist systems[3] the electorate tends to vote strategically, what "encourages" bipartidism, whereas in the majoritarian systems and –especially– in those systems of proportional representation voters tend to cast their ballot less strategically, what "favours" a multipartidist system. This theory is built upon the *mechanical* and the *psychological* effects of the electoral laws. A large body of literature has documented evidence in favour of both phenomena, what entails what has been called the *Duvergerian gravity*.

According to the *mechanical effect* of the electoral laws, the electoral rules reduce the number of parties irrespective of the way in which votes are cast. It is the permissiveness of the electoral system –mainly district magnitude (Taagepera and Shugart 1989; Lijphart 1990; Lijphart 1994; Cox 1997; Singer and Stephenson 2009)– what reduces the number of parties competing and managing to get a seat. The *mechanical effect* fosters the change in the behavioural patterns of party elites, determining their entry decisions –entering or not competition and joining or not a coalition (Riker 1984). Nonpermissive electoral systems discourage political parties to present candidacies alone when nonviable; contrarily they generate incentives to look for more suitable decisions, i.e. either to coordinate with another party or to withdraw from competition.

[3] The party which gets the higher percentage of votes wins all the seats.

Through the *psychological effect* of the electoral laws, nonviable political parties which fail to anticipate the mechanical effect inherent to the electoral system are thought to be penalised by voters. The *psychological* effect –what has commonly been called *strategic voting*– prevents nonviable parties to gain any vote. Voters are believed to renounce to vote for their preferred political party because of their expected low electoral performance, and they would rather vote for their second-best party or for the least unacceptable of the parties expecting to become viable (Cox 1997; Blais and Carty 1991; Blais and Nadeau 1996; Cox and Shugart 1996; Blais et al. 2001; Blais, Young, and Turcotte 2005; Abramson et al. 2010).

The consequences of the Duvergerian's gravity on the number of parties competing at the district level are summarised by Cox (1999; 1997). For all the electoral systems, the maximum 'carrying capacity'[4] of parties is M+1, which comprises all candidates that are expected to get a seat plus the first running-up party. When only M+1 candidates enter the race, strategic voting is unnecessary (Cox 1999). But when entry coordination fails and more than M+1 candidates enter, then strategic voting is expected: voters are believed to make their electoral choices among these viable parties, avoiding 'wasting' their vote on candidates without feasible possibilities to get a seat.

2.2. Distortions in the Duvergerian gravity

According to the Duvergerian theories calculations on parties' strategy are done at the district level. Political parties are supposed to present candidacies when uncertainty in the electoral results allows the party and voters to believe that the party will become viable (Cox 1997; Cox 1994; Reed 1990; Moser and Scheiner 2009). This occurs when the party ends up being either a/the winner party, the first running-up in a Duvergerian equilibrium or the second running-up in a non-Duvergerian equilibrium[5]. In this context the expected benefits of competing surpass the costs so that political parties should decide to run for elections alone. On the contrary, when the party does not have any perspective on becoming viable, the costs of competing are higher than the rewards they can obtain, so party elites choose either to withdraw from competition or to join a coalition.

However, even when the conditions for the fulfilment of the Duvergerian equilibrium are met –short term instrumentality and perfect information–, party elites take decisions

[4] The maximum number of political parties that can be sustained at a given district magnitude.

[5] For further details consult (Cox 1997: Chapter 5).

that do not always correspond to what the Duvergerian logic predicts. Party strategic decisions on whether to enter or not competition alone transcend the scope of each arena of competition to a multi-local logic (Lago and Montero 2009: 178-79). As a consequence, the implicit assumption of independence between electoral arenas or districts that the literature has done does no longer hold (Gaines 1999). The argument that underlies this paper is that it is actually the fact of being viable in one arena of representation but not in another –what I call *asymmetric viability*– what encourages political parties to take decisions at the local level irrespective of their chances to become viable[6].

Hence, the departing point of this research is the existence of an *individual fallacy*: political parties have been said to take entry decisions at the local level exclusively according to the institutional features of the arena at stake. However, party strategies cannot be drawn from each of the decisions that would be supposed to be taken at each individual level (the local arena), but rather party decisions have to be drawn from an aggregate point of view, taking into account all the different arenas where a party is competing and realising that they are all linked and that the decision to enter or not competition transcends the local arena.

However, even though there is enough evidence to question the independence of electoral arenas, it has not been until the emergence of the literature on *contamination effects* that the superposition of electoral arenas has been considered. According to this literature, there is an interaction between different electoral arenas that disturbs party strategic decisions to the extent that the Duvergerian equilibrium does not hold at the local level. In order to avoid wasting resources any party would be supposed either to join a coalition or to withdraw from competition in case of being nonviable. When this political party decides to run for elections alone in the nonviable arena due to its asymmetric viability in another arena, *contamination effects* arise.

There have been some attempts by the literature to define the concept of *electoral contamination* or *contamination effects* (Ferrara, Herron, and Nishikawa 2005: 8; Gschwend 2008: 230). Broadly speaking the concept has been understood as a situation where either *voters* or *political elites* determine their political behaviour on the basis of

[6] It is very relevant to note that political parties which are not viable anywhere cannot be regarded as parties with *asymmetric viability*. The fact that these parties present candidates when nonviable is believed to be just an expressive action, something which is not expected to be explained here.

other arenas than the one that is being elected. To me these are all too broad and vague definitions which may encompass too many different phenomena. For the purpose of this paper I prefer to limit the scope of the phenomena just to the alteration of the Duvergerian equilibrium in the strategic behaviour of *party elites*[7] as a consequence of the superposition with another arena or district.

Hence, I understand contamination effects as:

> *The situation in which the viability of a political party in a given arena shapes party elites' entry decisions in another arena where nonviable to the extent that at the long-run –when the assumptions of perfect information and short term instrumentality are met– elites' dominant strategy is to enter competition alone when nonviable.*

Therefore, contamination effects are supposed to deactivate the functioning of the Duvergerian equilibrium so that party elites modify its strategic behaviour at one arena of competition as a consequence of its superposition with another arena. As a result, more parties than the ones that the Duvergerian theories would have predicted run for elections.

3. Methodological design

In the empirical quantitative analysis to follow I address the incentives that drive parties to present candidacies when nonviable. In previous work I have already addressed the whys of political parties taking a Duvergerian decision –either to join a coalition or to withdraw from competition when nonviable– or challenging this Duvergerian gravity by running alone. But in what follows I assume that when political parties have the chance to enter competition, regardless they are viable or not, they do so.

3.1. The operationalisation of contamination effects

The main consequence of the superposition of electoral arenas is that political parties decide to present candidacies when nonviable. This situation leads to an extra supply of political parties competing at the district level as compare to what the Duvergerian theories would have predicted. A very straightforward way to calculate this extra supply

[7] Note that I exclude *voters*. I consider that if the definition of contamination it is broadened enough so that voters' behaviour can fit within the phenomena, *electoral contamination* would become a concept too imprecise and it might include many different phenomena related to how voters cast their ballot such as the *dual vote*, *ticket splitting*, or *differential abstention*, among others, unrelated all of them with my understanding of the concept.

of political parties competing could be through the raw number of parties running at the district level which do not manage to get representation. However, this measure would not take into account the magnitude of the support to nonviable political parties. To put it simply: the raw number of nonviable political parties would be the same in two different districts where the nonviable parties manage to get half of the votes than in those where they just gather a residual 1% of the ballots cast.

Hence, in this paper I want to test the magnitude of this extra supply of political parties competing when nonviable taking into account the magnitude of the votes cast at the district level to nonviable parties. In order to do so I first calculate a value that captures the effective number of parties that present candidacies at the district level without having chances to achieve representation. This variable, which has to be calculated at the district level, is afterwards aggregated at the country level. To do so each value of the dependent variable at the constituency level is aggregated through weighting the impact of each district on the basis of the number of deputies it elects.

$$S = \sum_{i=1}^{n} \left[\frac{(ENEP_j - ENVP_j) \cdot M_j}{ENVP_j \cdot M} \right]$$

Where,

- S: Extra supply of political parties competing.
- $ENEP_j$: effective number of *elective* parties at the district *j*
- $ENVP_j$: effective number of *viable* parties at the district *j*
- M_j: seats elected in district *j*.
- M: total number of seats elected in the electoral arena.

Both the ENEP and the ENVP are calculated through the Laakso and Taagepera's index (1979).

$$ENEP = \frac{1}{\sum_{i=1}^{n} p_i^2}$$

Where *p* is the percentage of votes received by party *i* at the district level.

The calculus for the ENVP and the ENEP are formally the same but they only differ in which parties are taken into account. In the case of ENEP, all the political parties which have received electoral support at the district level are included. On the contrary, in the case of the ENVP parties considered are only the ones which turned out to be viable at

the district level. As mentioned before this includes the sure winner, the first looser party in a Duvergerian equilibrium and the second looser party in a non-Duvergerian equilibrium.

3.2. Interpretation

The dependent variable always takes positive values. A value close to 0 indicates that the number of parties which present candidacies at the district level corresponds to the number of parties which manage to get a seat in the district, in line with what the Duvergerian theories predict. Concretely, the value 0 means that only viable parties in each district present candidacies, so that electoral contamination is nonexistent. On the contrary values different from 0 show evidence of an imbalance between the number of parties which present candidacies and the number of parties that eventually end up obtaining a/the seat. As the value of the dependent variable increases this imbalance becomes clearer, showing thus evidence in favour of electoral contamination.

The value that the dependent variable takes can be directly interpreted as long as this is no more than an increasing rate. Hence, a value of 0.2 means that the ENEP is 20% higher than the ENVP, i.e, the value that would have been found in a perfect Duvergerian world. A value of 1 means that the ENEP is twice (100% if increase) the value expected to be found according to the Duvergerian theories. Therefore, low values of the dependent variable signal low levels of extra supply of political parties presenting candidacies when nonviable in comparison with what the Duvergerian theories would have predicted; on the contrary, high values in the dependent variable refer to high levels of extra supply of political parties.

3.3. Data

In order to carry out this research I elaborate a completely new database on legislative elections held in democratic countries. Given that the dependent variable has to be calculated at the district level the number of cases which can be included in the sample is considerably restrictive. The data to build the dependent variable comes from different official directories of electoral results at the national level, most of which have been compiled in the webpage *Election Resources in the Internet*[8]. Additionally, data on

[8] http://electionresources.com.

some elections has been obtained from the *European Election Database*[9] and from the *Constituency-Level Elections Archive* (CLEA)[10].

Three main criteria have been set up to determine which countries and elections are included. *First*, I only consider democratic countries. In order to determine whether a country is democratic or not I use the Polity IV Project[11], which provides data on the level of democracy in each country of the world for each year since remote times. *Second*, for each country I include at most the 6 last national legislative elections. Just in the case that data for the latter elections is not available I go back in time, although never before 1985 since I want data for the different countries to be relatively contemporary. And *third*, in the event of a process of democratisation or a reform in the electoral system (see Lijphart 1994) first democratic elections or founding elections with the new electoral system are excluded.

Eventually I end up with a database of national legislative elections which includes 32 countries, 147 different elections, and data compiled for over 12,000 districts[12]. Figure 1 plots a histogram with the distribution of the extra supply of political parties for the 147 elections taken into account. The mean of the dependent variable extra supply of political parties competing to what the Duvergerian theories would have predicted is 0.4268. This means that for all the countries and years, as a mean, the ENEP has been 42.68% higher than it would have been in the case that only those parties that ended up being viable would have decided to compete. The standard deviation of electoral contamination is 0.4533, the minimum value is 0.014 (Netherlands, year 2002) and the maximum value is 2.832 (Lithuania, 2008).

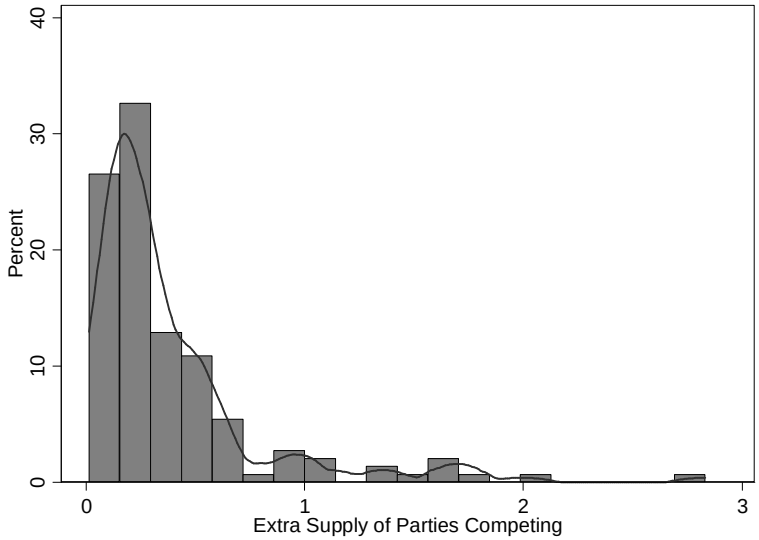
[9] http://www.nsd.uib.no/European_election_database.

[10] http://www.electiondataarchive.org.

[11] http://www.systemicpeace.org/polity/polity4.htm.

[12] In the Appendix the countries and years included are summarised. As most of the literature on electoral studies has done, in mixed-member systems electoral results for only the lower tier –the one elected through SMD– are included. In multiround legislative elections, only the first round/ first vote elections are incorporated.

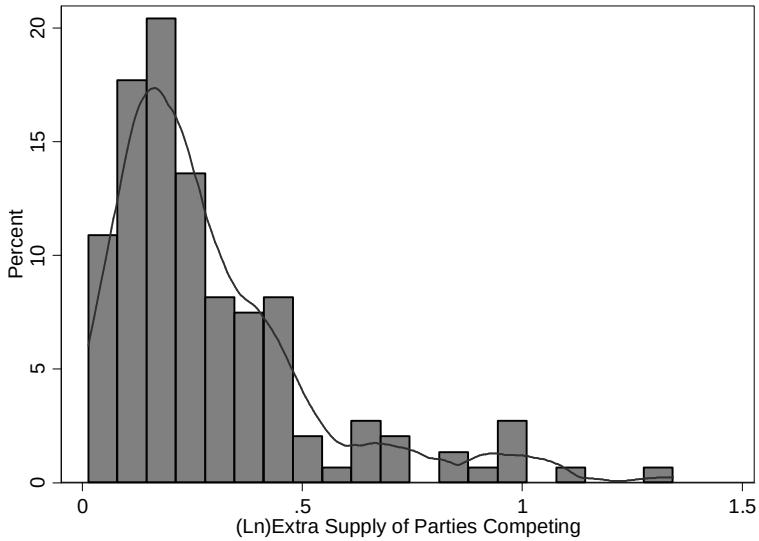
Figure 1 *Histogram of the Dependent Variable*



As it can be seen in Figure 1 the distribution of values of the dependent variable is extremely skewed to the right: almost 90% of the values are smaller than 0.65, whereas the remaining 10% is distributed in a range which goes from 0.7 to 2.8. In order to obtain a more log-normal distribution the dependent variable has been logarithmically transformed.

Figure 2 shows the distribution of values of the dependent variable once the logarithmic transformation has been performed. Through this transformation it can be seen that the distribution of the dependent variable shows a more log-normal distribution, where lower values are more uniformly allocated and where the previous long right-tail becomes slightly shorter.

Figure 2 *Histogram of the (ln)Dependent Variable*



4. Hypotheses

Following on what the literature on contamination effects has pointed out, here I develop an empirical model which accounts for differences in the extra supply of political parties at a cross-national level. I divide the plausible explanations in three different groups of factors: factors related to the *supply side* of political parties, to the *demand side* and *control variables*.

4.1. Supply side

From the *supply side* it has been pointed out that when the electoral system is the same between two electoral arenas, *ceteris paribus,* political parties are believed to be either viable in both arenas or nonviable in any of the arenas. At equal electoral system, equal elites' expected behaviour. But as differences in permissiveness increase the more likely is to find political parties with asymmetric viability. Five different institutional contexts have been said to be able to bring about asymmetric viability, and therefore, they may generate electoral contamination: these are a) in the presence of a mixed member system; b) between the presidential and the legislative arenas; c) in bicameral legislatures; d) in or within second order elections; and e) within elections. From them, several hypotheses are derived.

a. Mixed Member Systems

The existence of an upper tier elected through PR modifies party elites' strategic entry behaviour. Even though there are many features related to the institutional design in mixed-member systems (MMS) that have been shown to have an explicative power in predicting the chances of political parties to coordinate or not, the feature which is believed to determine to a greater extent the level of coordination between tiers is the percentage of seats elected through PR. As the literature has pointed out, the higher the percentage of seats elected in PR, the higher the incentives party elites face to run for elections alone (Kostadinova 2002; Moser and Scheiner 2004; Ferrara and Herron 2005). When most of the seats in a MMS are elected through majority/plurality the percentage of seats elected through PR is "too small to offset the disproportionality that the majoritarian elections are likely to yield" (Ferrara and Herron 2005: 21). But as the percentage of seats elected through PR increases, the lower will be the coordination in the SMD tier, and hence, the higher the extra supply of political parties at this tier (Ferrara, Herron, and Nishikawa 2005; Jesse 1988; Herron and Nishikawa 2001).

H1: A high percentage of votes elected through PR in MMS increases the extra supply of political parties competing.

A variable identifying the percentage of seats in mixed member systems elected through proportional representation is used. This variable, which is labelled *% Seats UpperTier*, is built mostly from the *PARLINE database on national parliaments*[13], and complemented with data from Golder (2005), the *Constituency-Level Elections Archive* (CLEA) and from national parliaments' official websites.

b. Presidential – Legislative Arenas

Achieving the presidency has been shown most times to be a bigger prize than winning the legislative elections (Mozaffar, Scaritt, and Galaich 2003: 381; Golder 2006: 35; Clark and Golder 2006: 695). This fact has led many scholars to study the existence of contamination effects between the presidential and the legislative arenas –the so-called *coattail effects*–, especially in what concerns *voters'* behaviour (Golder 2006; Campbell 1986; Samuels 2000a; Samuels 2000b; Hogan 2005).

The appearance of presidential coattails has been shown to depend on three different institutional features of the political system: first, the *timing* of the legislative elections in comparison with the presidential elections –whether elections are concurrent or nonconcurrent– (Cox 1997; Clark and Golder 2006; Shugart and Carey 1992; Reich 2001; Gélineau and Remmer 2005; Hicken and Stoll 2007); second, the structure of the presidential arena (Kostadinova 2002; Ferrara and Herron 2005; Riker 1982; Jones 2004); and third, the power of the presidential arena as compare to the legislative one (Mozaffar, Scaritt, and Galaich 2003; Hicken and Stoll 2007; Clark and Wittrock 2005; Hicken 2009). For parsimony matters and lack of data availability, but especially given that the concurrence or nonconcurrence of the elections has been shown to be the more powerful resource to explain variation in the existence of contamination effects, only the *timing* of the two elections is considered in this empirical analysis.

The logic that follows the variable *timing of the elections* has been presented by Clark and Golder (2006: 695): "temporal proximity is important because presidential elections are most likely to have their strongest effect when presidential and legislative elections are held concurrently". On the contrary, when elections are more separated in time – what has been called nonconcurrent elections– the legislative and the presidential elections are best able to support separate party systems (Shugart and Carey 1992).

[13] http://www.ipu.org/parline/

Accordingly, concurrent and/or proximate elections would be likely to yield a reduction in the number of parties competing at the legislative arena, whereas nonconcurrent elections would tend to enhance the number of parties at this later chamber, as long as the reductive effect of the presidential arena becomes more dismissive as the time between the two elections increases.

H2.1. Close presidential races to the legislative elections diminish the extra supply of political parties competing.

To operationalise the temporal distance between the presidential and the legislative arenas I rely on the classical continuous measure of temporal proximity used by most of the literature (Cox 1997; Golder 2006; Clark and Golder 2006; Neto and Cox 1997), which is calculated as $2 \cdot \left| \frac{L_t - P_{t-1}}{P_{t+1} - P_{t-1}} - 1/2 \right|$, where L_t stands for the year of the legislative election, P_{t-1} for the year of the previous presidential election, and P_{t+1} for the year of the next presidential election. This continuous variable, which I label *Proximity*, equals 1 whenever both elections are concurrent and 0 whenever both elections are held in the midterm. Within parliamentary countries the variable takes also a value of 0. This variable is built from national parliaments' official websites.

Drawing also on the literature on *coattail effects*, some scholars have recently analysed the effect of the composition of the party system at the presidential elections as a possible explicative modifying factor of the party system at the legislative arena. Because of the fact that only one or two candidates can realistically win in presidential elections –these elections are always held under SMD plurality or majority run-off– there are typically a smaller number of candidates in the presidential arena than in the legislative one. However, and due to the fact that winning the presidential race is most of the times a bigger prize than winning the legislative elections, a high number of legislative parties could also be explained by a high number of presidential candidates (Golder 2006; Clark and Golder 2006).

As Hicken and Stoll have shown "Presidential elections with few candidates were more consistently found to induce better cross-district coordination (...) whereas presidential elections with many presidential candidates were found to undermine the incentives to cooperate across districts" (2011: 25). Similarly, presidential elections could also be though to increase legislative fragmentation in the event of having a large number of presidential candidates.

The effect of having a large number of presidential candidates can thus be hypothesed to increase the likelihood of having a large number of political parties presenting candidates at the legislative arena without chances to achieve representation, thus enhancing the extra supply of political parties competing in comparison to what the Duvergerian theories would have predicted.

H2.2. A high effective number of presidential candidates increases the extra supply of political parties competing at the legislative arena.

The variable *Effective Number of Presidential Candidates* is built from official directories which report presidential results at the national level and it is labelled *Enpres*.

However, the *Effective Number of Presidential Candidates* has been reported to have a conditional effect –rather than a constitutive one, as H2.2 presents– on legislative fragmentation together with temporal proximity (H2.1). Temporary proximate presidential and legislative elections have been shown to have a reductive effect on the fractionalisation of party system at the legislative arena, though this effect is believed to become weaker as the number of presidential candidates increases (Golder 2006; Clark and Golder 2006). Actually, Hicken and Stoll (2011) have recently argued that when there are many presidential candidates, proximate presidential elections undermine party aggregation at the legislative arena, thus increasing the extra supply of parties competing. In the event of nonconcurrent presidential and legislative elections both elections are more able to hold different party systems, so that the impact of the effective number of presidential candidates is believed to be weaker or even dismissive.

In this sense, I argue that temporary proximate presidential elections reduce the number of political parties competing only when the effective number of presidential candidates is low. Hence, the extra supply of political parties at the legislative arena will be expectedly low in the case of temporary proximate elections where the effective number of presidential candidates is enough low to foster coordination at the legislative arena. On the contrary, when the effective number of presidential candidates is high, temporary proximate elections will disfavour coordination and thus a higher extra supply of political parties competing to what the Duvergerian theories would have predicted is expected.

H2.3. Temporary proximate presidential elections increase the extra supply of political parties competing only when the number of presidential candidates is high.

c. Second-order Elections

As the literature has pointed out the interaction of different arenas is not restricted to MMS, presidential regimes and bicameral legislatures, but "they are also inherent to multi-level governance" (Hooghe and Marks 2001: XI), and in particular between national and regional legislative arenas. The interaction of these arenas has been shown to increase the fractionalisation of the party system in the less permissive arena, i.e. in the national one (Jones 1997; Park 2003; Chhibber and Kollman 2004; Selb 2006).

Political parties take advantage of their viability in the regional chamber in order to present candidacies in the national one. Elites' attitudes at the more restrictive arena are once again determined by the presence of more permissive arenas. However, a simple dichotomous variable identifying the presence or not of a regional arena as a mechanism to enhance contamination would be able to capture few variation since almost all the countries in the analysis have some sort of regional legislatives arenas and thus, they would be attributed a value of 1. In order both to introduce some variation in the variable and to capture the importance that each of the regional arenas has in comparison to the national one, a variable which identifies the powers attributed to the regional governments as compare to the ones that hold the national government is used.

The causal mechanism behind the inclusion of this variable is that the higher the level of political decentralisation within a State, the higher the importance of the regional chamber as compare to the national one. Hence, as the power of the regional arena increases, incentives for viable parties at the regional arena but nonviable in the national one to present candidacies in this later chamber increase. Therefore, it is expected that the larger the powers transferred to the regional arena, the higher the extra supply of political parties in comparison to what the Duvergerian theories would have predicted.

H3. Large powers attributed to the regional arena increase the extra supply of political parties competing.

The best indicator to measure the level of powers transferred to regional governments is found in the *Regional Authority Index* (Hooghe, Marks, and Schakel 2010)[14]. Among the countries included in the sample the lower value is 0 (e.g. Estonia or Iceland) and the higher 22 (Belgium). The logarithmic transformation is performed as long as I do not expect a liner relationship of this variable with the extra supply of parties but rather I expect the level of self-government to have a positive but decreasing effect on the

[14] Available on-line at http://www.unc.edu/~gwmarks/data_ra.php. I use the variable labelled *Self-rule*.

extra supply of political parties. In the empirical analysis I label the variable *(ln)Self-rule*.

d. Within Elections

Contamination has also been shown to appear within electoral arenas. In view of Cox's argumentation (1997: chapter 10), a nonviable party in one district would be supposed to reach agreements with a viable party in the same district in order to strategically withdraw from competition. In contraposition, when in another district the order of viability was the opposite, the nonviable party would decide not to run for elections.

However, this equilibrium has been shown not to be accomplished due to the existence of electoral contamination within electoral arenas. The presence of several electoral districts with different magnitude allows for the appearance of asymmetric viability. When district magnitude is the same or similar in an electoral arena, *ceteris paribus*, all the political parties are expected to be either viable or nonviable everywhere. But it is when differences in magnitude increase between districts that some political parties viable at the more permissive districts but not in the rest of the districts may face a situation of asymmetric viability. If they decide to present candidacies when nonviable they are calling into question the Duvergerian principles.

Hence, a high variation in district magnitude is likely to yield a high number of parties with asymmetric viability which, at turn, may lead to high levels of electoral contamination within the arena. However high levels of asymmetric viability do no unavoidably lead to high levels of electoral contamination. Actually, high asymmetric viability may also lead to high levels of coordination in the less permissive districts if several viable parties in the more permissive districts agree on running for elections together or to strategically withdraw from competition in the more restrictive districts.

Nonetheless, here I hypothesise that the relation asymmetric viability/electoral contamination holds and is positive so that as differences in magnitude across districts increase, the likelihood of having a higher number of political parties asymmetrically viable increases as well.

H4. High differences in magnitude across district from an arena enhance the extra supply of political parties competing.

This variable, which I label *Std.Dev District Magnitude,* is built mostly from the *PARLINE database on national parliaments* and from national parliaments' official websites.

4.2. Demand side

Asymmetric viability can arise as well from the *demand side*. The presence of some part of the country with an ethnic or linguistic minority may configure a party system in this zone different from the one at the rest of the country. From the demand side of parties therefore another independent hypothesis is drawn.

a. Presence of Ethnic Segregation

A national political party which is viable in most of the territories of the country may turn out to be nonviable in an ethnically different territory because of the presence of a regional political party which displaces the viable party in the rest of the country to a situation of nonviability in this particular territory. If this party viable in most part of the territory decides to present candidacies in the ethnically differentiated districts where it is nonviable, this is expected to increase the extra supply of political parties competing.

Although this argument is novel from the perspective of the literature on electoral contamination, the presence of a regional cleavage has been largely taken into account in order to explain party system fragmentation (Cox 1997; Mozaffar, Scaritt, and Galaich 2003; Neto and Cox 1997; Kim and Ohn 1992; Ordeshook and Shvetsova 1994; Jones 1994; Filippov, Ordeshook, and Shvetsova 1999). For the case that concerns this research, the presence of a regional cleavage increases the demand of political parties within a region, as long as a new dimension such as the regionalist discourse is summed up to the already existent in the rest of the country. Social heterogeneity is therefore believed to increase the likelihood of having a higher supply of political parties at the district level in comparison to what the Duvergerian theories would have predicted.

H5. The presence of an electoral cleavage concentrated in a territory will enhance the extra supply of political parties competing.

The data to build this variable comes from Alesina and Zhuravskaya's (2011). In particular I use data on ethnic fragmentation as long as this is the variable for which a higher number of observations are available and because ethnic fragmentation

adequately fits the theoretical requisites of the hypothesis presented above[15]. I label this variable *Ethnic Segregation*.

4.3. Control variables

Besides, in order to avoid introducing some bias in the estimates for the other independent variables three control variables are included. First, district magnitude: as district magnitude decreases the reduction of the number of parties competing is believed not to decline linearly due to the inelasticity of the supply of nonviable political parties. If this is true, *ceteris paribus*, more contamination would be found in the most restrictive districts, and thus the control variable *(ln)District* magnitude would take a negative sign.

Second, a control is also included for the antiquity of the democracy. Drawing on Mainwaring and Zoco's (2007) work I operationalise this variable, which label *Ages since Democracy,* with the log of the age of a country's democracy at each of the elections considered.

And third, a control is included for post-communist countries in Central and Eastern Europe. The literature has reported high levels of electoral volatility in these countries (Sikk 2005) and many scholars have attributed this fact to the previous non-democratic period (Kolankiewicz 1993; Rychard 1993). A dummy variable labelled *Post-communist* is created.

5. Methods and models

As long as the unavailability of data at the district level for many countries forces the inclusion of several elections per country, the empirical method used to make inferences has to control for the autocorrelation between units in different points in time. One suitable solution for this situation is the use of *time-series-cross-sectional analysis* (TSCS). The first virtue of including longitudinal level data in TSCS analysis stems from the fact that the number of cases is country-year, i.e. n × t, what allows for testing the impact of many independent variables (Schmidt 1997: 156). Including longitudinal data in TSCS analysis also allows the possibility to capture not only the variation which emerges either through time or through space, but the variation of these two dimensions simultaneously (Pennings, Keman, and Kleinnijenhuis 1999). But also TSCS analysis is an appropriate methodology as long as it controls for the fact that the decision to present

[15] In particular I use the variable labelled by the authors as *ethnicity_I*.

candidacies at *t* time is not independent from what happened in *t-1*, i.e. the errors are not independent form a period to the next.

A Hausman test (1978) indicates that a model with fixed effects fits better the data. However, as long as there are some variables that do not vary along time (such as *Ethnic Segregation* or *Post-communist*), the program automatically drops these variables, thus disabling to create the adequate models. Hence, in order to solve this, a model with random effects and country dummies is eventually run[16].

In order to assess the effects of the different independent variables, four models are designed. The first one includes all the constitutive variables which explain variation from the *Supply side* of parties (section 8.1.1), except for *Enpres*, which is typically included only through its interaction with *Proximity*. The second model contains the variable from the *Demand side* of parties (section 8.1.2) plus *(ln)District Magnitude* as a control variable. The third incorporates to the first model all the control variables (section 8.1.3). And finally the fourth one adds to the previous one the interaction variable *Proximity*Enpres*.

[16] The estimates for the country dummies are not provided since this is only a manner to fix country effects.

6. Empirical findings

Table 1 presents the results of the four TSCS analysis estimated, in which the independent variables are progressively introduced.

Table 1 *TSCS Analysis of the (ln)Extra Supply of Parties Competing*

	Model 1	***Model 2***	***Model 3***	***Model 4***
Std.Dev. Magnitude	-0.034†		0.009	0.019
	(0.019)		(0.026)	(0.026)
Upper Tier	1.136**		0.752**	0.724**
	(0.200)		(0.228)	(0.224)
Proximity	0.014		0.011	0.158*
	(0.032)		(0.031)	(0.072)
(ln)Self-rule	0.057*		0.099**	0.102**
	(0.024)		(0.027)	(0.027)
Ethnic Segregation		7.418		
		(8.848)		
(ln)District Magnitude		-0.379**	-0.185	-0.223†
		(0.083)	(0.125)	(0.125)
(ln)Ages of democracy			-0.100**	-0.103**
			(0.031)	(0.030)
Post-communist			0.634*	0.644*
			(0.312)	(0.306)
Enpres				0.0595*
				(0.025)
*Proximity*Enpres*				-0.055*
				(0.024)
Constant	0.210	-0.078	0.601†	0.598†
	(0.260)	-1.282	(0.315)	(0.308)
Observations	**134**	**141**	**134**	**134**

Standard errors in parentheses. † p<0.10, * p<0.05, ** p<0.01

The results from these models confirm some of the expectations. Model 1 shows empirical evidence and in the expected direction for a positive and very significant effect of the presence of an *Upper Tier* in the extra supply of political parties competing, thus confirming H1. The *(ln)Self-rule* also appears to have a significant and positive effect on the dependent variable as established in H3. On the contrary, the

Standard Deviation of District Magnitude, which treats to capture the effect of asymmetric viability on the extra supply of parties (H4), shows a negative but very weak statistical signification, against what has been hypothesed. Finally, *Proximity* between the presidential and legislative and elections does not appear to have the expected constraining effect on the extra supply of political parties competing, showing thus some divergence with the literature on party system fragmentation and with our hypothesis H2.1.

Model 2 shows no evidence for a raising number of political parties competing when nonviable due to the presence of ethnic segregation, thus rejecting H5. Even though the variable shows the expected direction it falls very far away from statistical signification. If the remaining variables are included *Ethnic Segregation* loses all the power to predict changes in the dependent variable. The non-statistical significance of this variable could be explained by the fact that, even though ethnic segregation has been largely shown to increase political fragmentation at the district level, this does not necessarily lead to a higher number of political parties running when nonviable, as long as this large number of parties competing may actually gain viability instead of ending up in the group of nonviable parties. In this case ethnic segregation would increase the number of parties competing as compare to a region without ethnic specificities but this would not have an effect on the extra supply of parties competing since they may all gain representation.

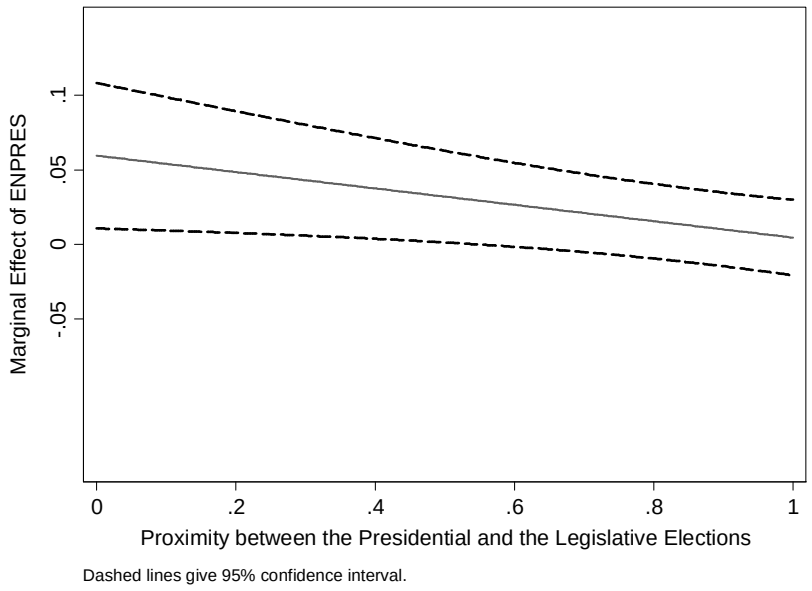
Model 3 adds all the control variables in the model. These all show the expected direction though *(ln)District Magnitude* in this model is not statistically significant. The second control variable, *(ln)Ages of democracy*, is statistically significant, showing important support for a decreasing extra supply of parties as the democratic system gets older. Similarly, the third control variable, *Post-communist*, shows evidence in favour of a high extra supply of political parties competing in Central and Eastern Europe, even when controlling for the antiquity of the democracy.

The inclusion of this three control variables deactivates the statistical signification of Standard deviation of district magnitude which in the first model was negative, calling into question what hypothesed in H4. Now the variable does not show statistical signification and the beta coefficient is very close to 0. The remaining two significant variables continue being statistical significant and in the expected direction: *Upper Tier* loses a very small portion of its explicative capability (from 1.1 to 0.8), whereas *(ln)Self-rule* slightly increases its coefficient (from 0.06 to 0.1). *Proximity* is still non-significant.

In the fourth and last model the interaction *Proximity*Enpres* is included. In this case, the control variable *(ln)District Magnitude* falls within a 90% statistical signification. This fact shows evidence for the existence of a certain degree of inelastic supply of political parties as the system becomes more restrictive. The two remaining control variables keep their coefficients and show the same levels of statistical signification. Regarding the Supply variables, both *Upper Tier* and *(ln)Self-rule* conserve the same values than in the previous model. *Standard deviation of district magnitude* increases its coefficient in accordance with what was hypothesed in H4, though not reaching statistical signification. The inclusion of the interactive term *Proximity*Enpres* gives positive statistical signification for the variable *Proximity*, conflicting what was expected in H2.1. This means that in contexts with low levels of Effective number of Presidential candidates, close presidential elections increase the extra supply of political parties competing, something which is considerably counterintuitive. Besides, the variable *Enpres* is statistically significant and in the expected direction, what points to the fact that in nonconcurrent presidential elections, increasing the effective number of presidential candidates has a positive effect on the extra supply of political parties, as hypothesed in H2.2. Finally, the interaction *Proximity*Enpress* shows a weak negative but statistically significant relation, contrary to what hypotesed in H2.3. This means that when elections are concurrent, the effective number of presidential candidates does not have such an important in raising the extra supply of political parties.

In order to better understand the real impact of this conditional relationship on the extra supply of political parties, as suggested by Brambor, Clark and Golder (2006), the marginal effect of temporary-proximate presidential elections and the corresponding standard errors is plot in Figure 3. The graph enables to understand that both when elections are concurrent and nonconcurrent, raising the effective number of presidential candidates has a positive impact on the extra supply of parties. The dashed lines giving the 95% confidence interval in Figure 3 indicate that, even though the interaction term is statistically significant, the reductive effect on the extra supply of parties when elections are concurrent cannot be by any means considered as conclusive.

Figure 3 *Marginal Effect of Temporary-Proximate Presidential Elections on the Extra Supply of Political Parties*



7. Conclusions

In democratic and institutionalised countries, where the conditions for the existence of the Duvergerian equilibrium –perfect information and short term instrumentality– are met political parties would be supposed to compete when they are believed to become viable. However, it has been observed that parties present candidacies when nonviable, calling into question the Duvergerian theories. Far from being this just a random decision, I have argued that the decision to present candidacies when nonviable has turned out to be the dominant one. Political parties with asymmetric viability –the party being viable in one arena but not in another– decide to present candidacies in those places where it is nonviable, taking advantage of their viability in the first arena. Therefore, when electoral contamination is at play, party elites do no longer take decisions on the basis of the arena at stake, but the decision is also affected by the presence of other arenas, districts or tiers.

In this paper I have addressed the determinants of political parties presenting candidacies when nonviable from a cross-national perspective. Relying on a dependent variable which captures the extra supply of political parties competing at the district level in comparison to what the Duvergerian theories would have predicted, I test the effect of some institutional and sociological factors which may account for differences in the extra supply of political parties at the national level. Empirical evidence supports some of the hypotheses suggested. The higher the percentage of seats in a MMS elected

through PR has been shown to increase the extra supply of parties thus confirming H1. The degree of self-rule attributed to the regional arena also explains our dependent variable, showing evidence in favour of the existence of contamination effects between national and regional arenas (H3). Similarly, the higher the number of presidential candidates, the higher the extra supply of political parties competing at the legislative arena (H2.2), showing therefore the existence of electoral contamination from presidential to legislative arenas.

On the contrary, the concurrence of the presidential and the legislative elections does not provide the expected results, disabling the possibility to accept H2.1 and H2.3. Probably, the low number of presidential countries included in the database (9 out of 32, including 3 semi-presidential countries) makes more difficult the possibility to reach reliable conclusions. Finally, asymmetric viability does not have a conclusive effect on the extra supply of parties –even though in the last and more complete model the variable takes the expected direction–, as was hypothesed in H4. However, this does not constitute a very upsetting conclusion since a high asymmetric viability has already been argued to lead either to high levels of electoral contamination or high levels of coordination. Finally, ethnic segregation does not appear to be statistically significant either, showing thus no evidence for the presence of an extra supply of political parties competing and rejecting therefore the existence of electoral contamination from the demand side of political parties (H5).

Finally, it is also relevant to pay attention on the empirical results of the control variables. Even though they do not tell us anything about the existence of electoral contamination, they all provide very remarkable insights on the explanation of the extra supply of political parties. First, a low district magnitude has been shown to increase the number of parties competing when nonviable. Second, the older a democracy is, the lower the number of votes devoted to nonviable parties. And finally, post-communist countries have been shown still to hold a higher number of extra supply of parties competing, even when controlling for the antiquity of the democracy.

APPENDIX.

A1. Countries and elections considered in the empirical analysis

Australia	1993	1996	1998	2001		
Austria	1994	1995	1999	2002	2006	2008
Belgium	1999	2003	2007	2010		
Canada	1993	1997	2000	2004	2006	2008
Croatia	2003	2007				
Czech Republic[a]	1996	1998	2006	2010		
Denmark	1990	1994	1998	2001	2005	2007
Estonia	1995	1999	2003	2007	2011	
Finland	1995	1999	2003	2007	2011	
France	1993	1997	2002	2007		
Germany	1994	1998				
Greece	1996	2000	2004	2007	2009	
Iceland	2003	2007	2009			
Ireland	1989	1992	1997	2002	2007	2011
Israel	1992	1996	1999	2002	2006	2009
Latvia	1998	2002	2006	2010		
Lithuania	2000	2004	2008			
Luxembourg	1999	2004	2009			
Netherlands	1994	1998	2002	2003	2006	2010
New Zealand	1996	1999	2002	2005	2008	
Norway	1989	1993	1997	2001	2005	2009
Poland	2001	2005	2007			
Portugal	1991	1995	1999	2002	2005	2009
Slovakia	1994	1998	2002	2006	2010	
Slovenia	1996	2000	2004	2008		
South Korea	1992	1996	2000			
Spain	1989	1993	1996	2000	2004	2008
Sweden	1991	1994	1998	2002	2006	2010
Switzerland	1987	1991	1995	1999	2003	2007
Taiwan	1995	1998	2001	2004		
United Kingdom	2001	2005	2010			
USA	1996	1998	2000	2002	2004	2006

[a] In 2002 Czech Republic changed the number of districts from 8 to 14. Hence these elections have been excluded.

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