Political Learning, Legal Constraints and Party System Development: How do party law and democratic maturity affect the number of parties?

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Political Learning, Legal Constraints and Party System Development: How do party law and democratic maturity affect the number of parties?

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Abstract

While scholars agree that the stability of the party system is imperative for the proper functioning of democracy many note the high number of political parties in new democracies, yet we still lack a systematic comparative analysis of party system development in such states. A possible reason for this is that extant theories on the number of parties were written with established democracies in mind and are thus unequipped to explain the dynamics taking place in young democracies. In attempting to fill this gap, I propose that learning the effect of institutions is crucial to whether they actually have an effect or not and is integral to understanding the number of parties that exist in any given system. Looking beyond district magnitude alone I propose that other institutional arrangements play important roles in determining the number of parties. In particular, I argue that democratic experience and pre-electoral party regulations shape the party systems that ensue. I test these propositions on district data of 20 European democracies using a hierarchical model technique. The results show that at the district level the number of parties decreases with subsequent elections and comes closer to the theoretically predicted equilibrium and the effect is more pronounced in young democracies. Further, the results reveal that pre-electoral constraints such as signature and deposit requirements for political parties wishing to compete have a significant negative effect on the number of parties, while in the presence of EU-related events we observe a rise in the number of parties likely due to the additional incentives for political competition that such events bring. A final interesting finding, which counters our intuition, is that public funding proves to have no significant effect on the number of political contestants.

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1. Introduction

What determines the number of parties? Previous empirical work (Cox 1997; Lijphart 1990; Ordeshook and Shvetsova 1994; Benoit 2001, 2002) provides evidence that the number of political parties is a function of institutional and social factors, showing that the district magnitude and ethnic heterogeneity are positively correlated with the number of parties which emerge. While informative, these findings leave us short of being able to compare systems in a more substantive way and of being able to easily translate the findings to more practical lessons for the engineering of party systems. Are there other factors that influence the number of political contestants? Do institutions other than the district magnitude affect the development of party systems? Building on what has been found so far, I try to improve on these issues both theoretically and empirically.

The electoral races in Eastern Europe since 1989 reveal a multitude of political parties that attempt to get elected and enter parliament - for example, in the first democratic election in Romania there were 34 political parties per district on average, with 56 parties attempting election in the Bucuresti constituency alone; Bulgaria averaged 23 political parties per district, with 37 political parties in the Pleven constituency alone; Slovenia averaged 20 political parties per district, with 23 parties in the Ljubljana electoral district alone in the 1996 election. In the more developed democracies of Western Europe however, Germany and Belgium averaged 8 and 7 political parties with a maximum of 10 and 12 parties per district in 1957 and 1971, respectively. Even Italy, known for its party multiplication has had an average of 13 political parties per electoral district and a maximum of 20 parties in the Puglia district attempting election in 1994. Observing those differences prompts the questions of why do such differences exist and what explains the number of political parties competing at national elections in different places and at different points in time? Theories of strategic electoral behavior which have dealt with similar questions in the past (Austen-Smith 1983; Arrow 1951; Black 1972; Cox 1985, 1987; Downs 1957; Greenberg and Weber 1985; Greenberg and Shepsle 1987; Hotelling 1929; Palfrey 1984; Riker and Ordeshook 1968; Shepsle 1991; Schlesinger 1966; Smithies

1941) provide conditions for entry and exit from the electoral arena in a simplified world but cannot explain why there were 8 political parties in the Nordrhein-Westfalen constituency in Germany in 1957 and 31 political parties in the Caras-Severin constituency in Romania in 1992 for example. Based on these works one may conclude that the differences observed between developed and developing democracies are due to the non-rational behavior of the political elite in the latter. But is this truly the case? Current theory is also silent on explaining the variation in the number of political parties in a single electoral district (in a developed or developing state) when traced over time. For example, the Helsinki constituency in Finland has had between 8 and 18 parties attempt election in the period of 1983-2003. Yet, so far we do not have an answer why they differ or what is the theoretically predicted number of parties for such a district. Therefore we have an issue of comparability (as we are currently ill-equipped to compare districts) and an issue of practicality (as we do not have a way to measure the progress or development of a given district over time).

To get a better understanding of the causes of the number of political parties I argue that we need to employ a more dynamic view of the electoral competition process and consider other mechanisms, such as party regulation, that might be at work. Instead of focusing solely on the size of the district magnitude our models need to consider how politicians respond to existing rules over time and also examine the effect of changing rules on their behavior. I argue that there is a process of political learning that affects the number of parties and how many parties we see at election depends on district but also national regulations about the electoral game. I see political learning as a process in which through time and trial-and-error elite members gain knowledge about the constraining effects of district characteristics. I assume that they become more sophisticated in utilizing cost-benefit calculations as a result of repetitive experience with the institutional constraints imposed on the competition, which eventually leads to actions yielding higher payoffs (such as merger with other parties when there are too many political parties for limited possible slots or leaving the electoral arena when staying in it becomes more

costly than profitable).

Refining the study of the causes of the number of parties through the concept of political learning gives us the ability to find rational explanations for seemingly non-rational outcomes and it increases our ability to compare units, whole systems or electoral districts across time and across space. Political learning explains why in a given district in which the primary parameters considered to matter for the number of parties thus far do not change or change slightly the number of parties varies at different points in time, and why we see different numbers of parties in districts with similar characteristics by taking into account the role of democratic maturity and regulations of political parties wishing to compete.

The main argument I make in this study is that democratic maturity and the rules which parties wishing to compete need to abide by help determine how close the party system in a given electoral district is to the one we expect in theory. From the case of the Helsinki constituency in Finland mentioned above it is easy to see that the number of political parties present in party systems is often different from what theory predicts. Chhibber and Kollman (2004) provide several such examples as well. Party systems undergo alterations due to changes in the electoral rules, changes in the composition and cleavages in the society or regime changes and the number of parties varies as a result. However, I argue that there a learning component that affects the number of parties, which theory has left out thus far. By participating in elections and having to compete under the constraints set by the district characteristics and the rules about the competition itself (such as party regulation on signature and deposit requirements, or the availability of public funding for parties' campaigns), politicians learn what works and what doesn't and make decisions accordingly. Given the assumption of rationality, we can expect that politicians will only stay in the electoral game while it is cost-effective to do so. This is not to undermine the fact that some politicians might take politics as a devotion, however, even these elite members have to 'break-even' when running for office. Thus, I expect parties to form and multiply when it is cheap for them to do so (for example if the only requirement for a political party to form and compete at national elections is to show that it has 50 supporters we are likely

to see much more parties than if there is a requirement of say 5000 supporting signatures) and they will merge and/or disappear when they see that they have a stronger chance of getting elected together than they do apart.

The process of learning is especially important for unconsolidated party systems as in newer democracies politicians are "testing the waters" and more often than not we observe a flooding of political parties, the number of which changes from one election to the next. In the language of game-theory such party systems are experiencing lack of coordination among the players involved, or in other words are suffering from a coordination problem. However, in repeated coordination games, such as Battle of the Sexes or the Game of Chicken, despite the existing positive probability of failure once a stable outcome is reached, the chances of revisiting it increase. Therefore, as elections take place and elite members gain electoral experience and knowledge of the constraints of the regulations within which they have to compete, the chance that the party system approaches the theoretically expected number of parties increases. In other words, the theoretical expectation is that as democracies mature the number of political parties which exist in practice will get closer to the number we expect in theory as a result of the knowledge politicians accumulate over time about what is efficient and what isn't. It is this transformation from coordination failure to increased chance of revisiting the theoretically expected number of parties, a process I deem political learning, that I explore.

The data presented here provides evidence that the new and established European democracies differ substantially in the number of political parties and in the level of party system convergence that their systems exhibit. I argue that democratic maturity, or how old a democracy is, plays a key role in how far from the theoretically expected number of parties (TENP) a particular political unit is due to less or more experience with democratic institutions different units have. Yet, I expect the rate at which party system convergence (the closeness of the observed and the predicted) increases to be larger in developing democracies, i.e. more and faster learning takes place in new democracies. The empirical results confirm that. The analysis shows that at the district level age of democracy has a positive effect on party system

convergence and this effect is four times stronger in young democracies. An important finding is that party regulation is quite important when it comes down to determining the number of parties and it has a significant effect on the number of electoral contestants. For example, the analysis gives evidence that higher numbers of signatures required are associated with higher party system convergence. Based on the empirical tests one can infer that increasing the required signatures by a thousand on average increases the level of party system convergence by 0.34 points. This is an important result considering that the mean amount of signatures required within my sample is 1924 with only four countries which have no signature requirement, and the highest level of convergence is 1. The finding is robust, as it holds true across several model specifications (see models 5, 8, and 11). Finally, the results also show that EU matters have a significant short-term impact on party system convergence, as both during years of EU entry and EP elections the level of party system convergence reportedly decreases (models 9-11).

The paper proceeds as follows. In the next section I discuss the TENP and the operationalization of the dependent variable, the party system convergence index. In section 3 I talk about the sample and the operationalization of the independent variables. Section 4 includes the model specification, the hypotheses, and the methodology employed. Section 5 presents and discusses the results and section 6 concludes.

2. The TENP and the Party System Convergence Index

Current explanations for the number of political parties go so far as to produce a lower and an upper bound of the number of parties we can expect. We have Duverger's (1954) lower bound of 2 or more political parties for proportional representation systems and Cox's (1994, 1997) 'M+1' rule, which states that in a district of size M we should not see more than M+1 number of political parties competing for seats. Both expectations are rooted in rational choice theory. Following this logic one is bound to deem any district which does not 'fit' within the 2 and M+1 boundary as having irrational players. I try to show that this conclusion is incorrect by pointing out and offering alternatives to three existing problems with our current way of studying the

number of parties - the exclusion of ethnic heterogeneity from our mathematical predictions, the lack of dynamic tests in the literature, and the common use of what many claim to be the wrong unit of analysis. I proceed by discussing each problem, and the alternative that I propose.

The first problem that exists is with the generality of the 'M+1' rule itself - as the literature shows and Cox's later work confirms ethnic heterogeneity has an effect on the number of political parties which emerge as well - yet, we do not have a refined measure that is readily available to predict the number of parties we expect to see in theory incorporating heterogeneity. I attempt to do that with the TENP. The theoretically expected number of parties (TENP) is a statistic which I develop as a function of the district magnitude, implementing Cox's M+1 rule, and the ethnic heterogeneity in a particular district. The ethnic heterogeneity data which most works using this variable rely on is national level data, which is often thought of as the 'wrong' data to use, yet district level data had not been available so far. As part of my project I collected a district-level heterogeneity dataset, calculating ethnic heterogeneity on the basis of Rae (1967)'s proportionality formula. The formula I use then to calculate the TENP is (m+1)/(2-h), where 'm' is the number of parliamentary seats at contention in a given district, and 'h' is the district ethnic heterogeneity. Using the TENP statistic we can differentiate between districts of various magnitude, but also between districts of different heterogeneity - this improves our ability to both frame and study districts in a comparative perspective, as it provides a more powerful tool for comparison (instead of comparing districts just by size we can now compare them based on ethnic composition; thus, we can have districts of same magnitude but different heterogeneity, districts of same heterogeneity but different magnitude, or either magnitude or heterogeneity may change over time, and as a result providing in effect a new TENP for the particular district). To illustrate the usefulness of the TENP consider the following example of two districts of size 13. The first has an ethnic heterogeneity index of 0.03 (very homogeneous), the second has ethnic heterogeneity of 0.57 (quite heterogeneous). Current theories will tell us that given the district size we should expect somewhere between 2 and 14 political parties. This

is a very broad range and it is not possible to examine which districts do better than others, or how they change over time. Using the TENP specification however we get $TENP_1$=7.10 or approximately 7 parties, while $TENP_2$ equals 9.79 or approximately 10 political parties. Therefore, despite the same district size we can expect on average 3 more parties in the second district in order to properly reflect the higher level of social diversity. These distinctions are important especially when we want to study how far from the predicted equilibrium the observed number of parties is and when we want to have a way to compare across time and space among districts. The 'M+1' rule, which Cox explicitly developed as an upper bound, becomes a unique case of the TENP - the case in which a district has 100% heterogeneity (when h=1, TENP=M+1) regardless of the size of the district. The other special case where h is close or equal to zero (i.e. a district is almost 100% homogeneous) and we have a single member district (i.e. a district where m=1) produces a TENP close to or equal to 1. One can think of the TENP as a suggested equilibrium for the number of parties that can be feasibly elected and in an SMD district this would be 1, while the M+1 rule suggests the highest number of parties that we can expect to see in competition given rational expectations. Thus, we can think of the TENP as the theoretically predicted number of parties that can be elected (accounting for the additional constraining effect of the social composition in a given district) and the M+1 as the theoretically predicted highest number of parties that can apply.

The second identified problem in the party systems literature is that it lacks a dynamic structure. All analysis of which I am aware study the determinants of the number of parties at a particular time most often use district magnitude as a main explanatory variable without incorporating growth curves, which are seemingly called for by the nature of the subject. This is problematic first because district magnitudes do not change very often and second because we have not thus far been able to anchor the development of a particular political unit over time based on where ideally we expect it to be given our theoretical models (part of why this is the case is likely due to not having had a statistic with which to calculate where one unit is expected

to be - something which we can now do using the TENP). To address this problem, I develop a variable which becomes the dependent variable in my analysis called party system convergence. Party system convergence is an index calculated as a ratio between the actual and the expected number of political parties in a particular district, subject to the specific electoral and social characteristics of the district. It is calculated by

$$PSCI_{it} = 1 - |1 - \frac{RNP_{it}}{TENP_i}|,$$

where RNP_{it} is the raw number of parties[1] in district i at time t and $TENP_i$ is the theoretically expected number of parties for district i. Party system convergence can thus take values from negative infinity (in theory, if the number of actual parties is infinitely larger than the number of expected parties) to 1, where 1 signifies that the number of observed and expected political parties is exactly the same. The indicator shows how far (from above or below) a district is from where we expect it to be theoretically.

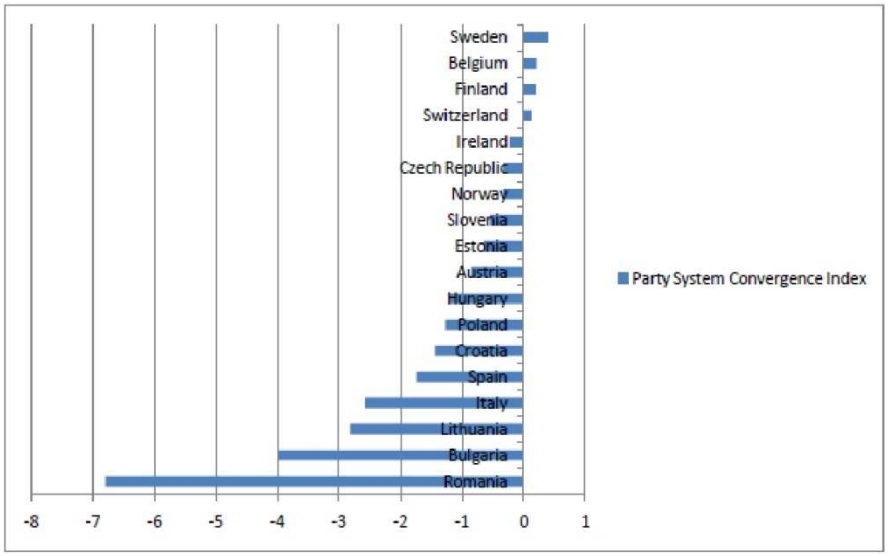
What the party system convergence index allows us to do is to compare how well district party systems do in relation to each other (for example, we can compare the party system convergence of districts with the same characteristics from different parts of a country or from different countries), or how districts' party systems perform across time (we can compare a district to itself over time and see the direction and magnitude in which it progresses). Some differences are quite telling. Figure 1 shows the variance in the average party system convergence among European democracies. Two trends can be easily identified from the picture - first, we see that the more developed democracies of Western Europe have on average a higher level of party system convergence index (the ratio between developed and developing democracies above the chart median, Estonia, is 6:2 respectively, while below the median it is 3:5)[2]. The fact that developed democracies have fewer political parties and thus higher system

[1] The raw number of parties should not be conflated with the number of registered parties which is often much larger. An alternative way to examine the party system is to study the behavior of voters by looking at the effective number of parties. This will allow for conclusions on voters' adaptation to the rules and the incentives of the electoral game. My primary focus here, however, is the behavior of the elite.

[2] The poor performance of Italy and Spain is mostly due to outlying districts with smaller magnitudes. For example the Trentino Alto Adige, the Bastilicata, and the Molise districts in Italy which have 2, 2, and 1 seats in parliament respectively,

convergence is also confirmed by the average number of parties (not shown) across the European states where West European states tend to have 9 political parties on average, while East European democracies have 15 parties on average. Further, the maximum number of parties that contested in a West European electoral district is 29 (in Belgium, 1981), while 59 political parties were recorded contesting in the Bucuresti district in Romania in 2000.

Figure 1: Level of Party System Convergence



Note: Please note that the chart represents average levels of party system convergence for each country (over time and across districts), thus the actual change in the index is not shown. We do observe however, that on average all East European countries exhibit negative levels of party system convergence, and in most cases larger than the countries of the West.

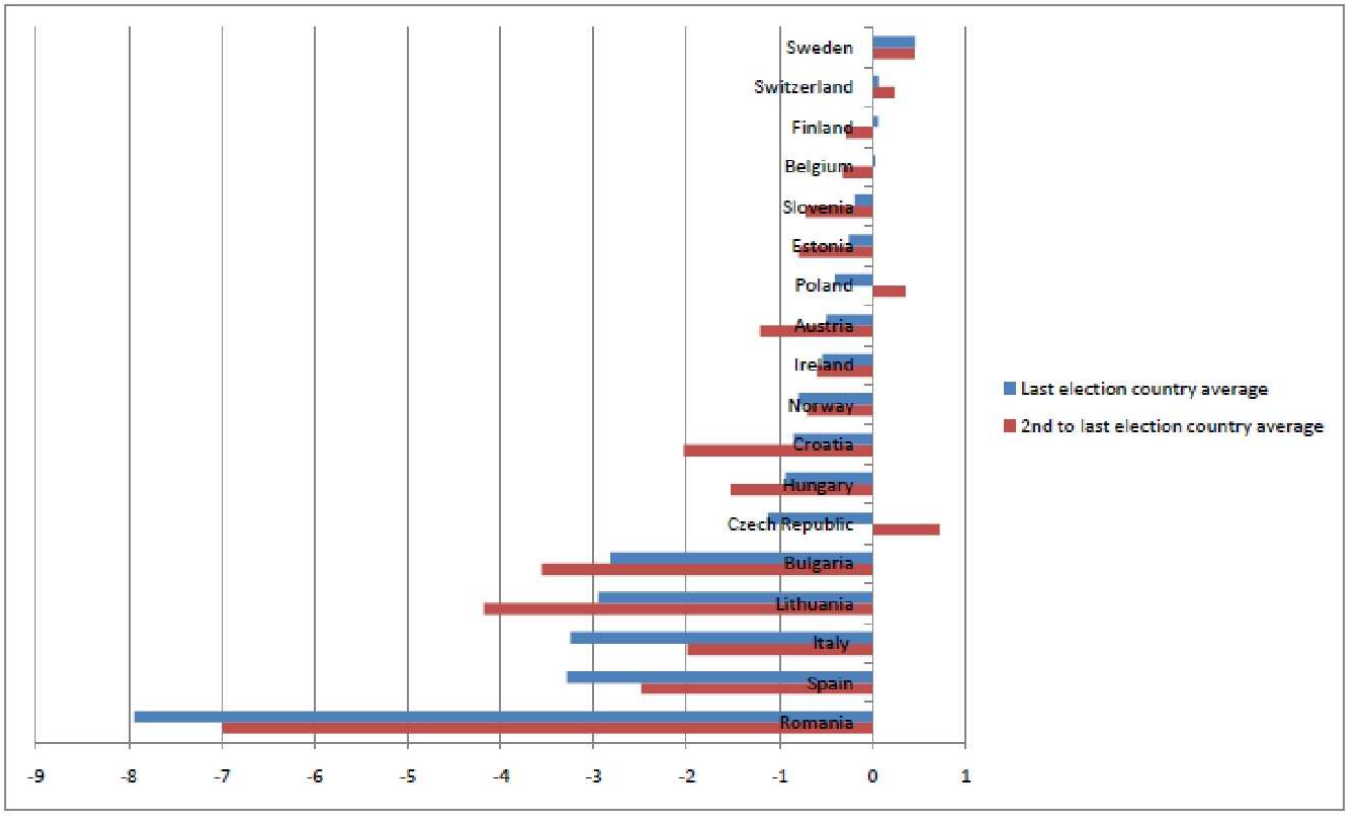
The second trend that Figure 1 reveals is that none of the East European democracies have reached a positive level of party system convergence yet. The Czech Republic and Slovenia score much higher than the rest of the group, but their average party system convergence index is still in the negative range.

The more interesting piece of information we can extract from the party system convergence index is how electoral districts and countries do over time. Does the level of party system convergence change and do elite members learn to play the game as the theory proposes? If there is change, what is the direction, and is there a difference in the magnitude of change among different units? I address these questions at greater detail in section 5 but one can get an

also have the lowest level of party system convergence, which means that too many of the existing parties contested elections in those districts. This can often be attributed to lower additional marginal costs for contesting in additional districts, and parties who already exist and compete in other districts, try out even in the smaller ones where there isn't room for more than a few contestants.

overview of how the party system convergence index in the European states changes across time from Figure 2 below.

Figure 2: Do Politicians Learn Over Time?



Note: Please note that the chart represents average levels of party system convergence for each country (across districts) for the last and second to last election in the country for which data were available. As a result of averaging some trends of positive (or negative) convergence may remain unshown. An example is Italy, which fairs rather poorly compared to the rest of Europe; yet, between the 1994 and 1996 election system convergence shows a positive trend however, the data used for this chart consist of the last two elections, which are in 1996 and 2001 for Italy. Even with these limitations in mind, we can see that 11 out of 18 countries report a positive change in the level of party system convergence, and 6 out of the 9 East European countries are among them, which confirms the overaching hypothesis that politicians gain knowledge over time, and more specifically ,that the amount and magnitude of change in party system convergence is larger in the new democracies of Eastern Europe, thank it is in their more established Western states.

Figure 2[3] presents the change in the average level of party system convergence (across all electoral districts for each country) in the last two elections for which data were collected. The graph shows that 11 out of the 18 countries exhibit a positive change in party system

[3] The chart represents average levels of party system convergence for each country (across districts) for the last and second to last election in the country for which data were available. As a result of averaging some trends of positive (or negative) learning may remain not shown. An example is Italy, which fairs rather poorly compared to the rest of Europe; yet, between the 1994 and 1996 election elite knowledge shows a positive trend however, the data used for this chart consist of the last two elections, which are in 1996 and 2001 for Italy. Even with these limitations in mind, we can see that 11 out of 18 countries report a positive change in the level of elite political knowledge, and 6 out of the 9 East European countries are among them, which confirms the overarching hypothesis that politicians gain knowledge over time, and more specifically ,that the amount and magnitude of change in elite knowledge is larger in the new democracies of Eastern Europe, thank it is in their more established Western states.

convergence which means that 61% of the cases register an increase in the PSCI over time[4].

If we now look just at the East European cases, six out of nine or 67% show positive change in their level of party system convergence, which is high considering that these are averaged statistics across multiple districts and that they are for the last two elections only. Out of the three countries with a negative change in party system convergence the Czech Republic and Poland are the two most unexpected ones since both countries rank highly on their overall level of party system convergence and the Czech Republic also shows the highest average value of system convergence for its second-to-last election (it is closer to 1, the equilibrium, than any other East or West European country). The reason for the negative trend is most likely the redistricting of the country - six new electoral districts were added in 2002 (the last election for which data is analyzed here). As can be expected, new electoral districts provide new ground for competition and are an incentive for new party formation. This in turn affects the level of party system convergence as the overall number of parties increases and new parties might compete also in old districts thus pulling a district away from its TENP. Adding new electoral districts inevitably results in lower magnitudes of already existing districts as well, which lowers their TENPs and if parties do not instantly accommodate to the changes, which by assumption they cannot do, this increases the distance between the actual and the theoretically expected number of parties and manifests in lower levels of party system convergence.

In Poland an opposite redistricting took place. In 2001 the country decreased the number of its electoral districts from 52 to 41 increasing the magnitude in the ones that remained. Two opposite effects took place - at the district level, there was an incentive for larger scale party competition (as M had increased), yet I do not expect to see many more parties overall because

[4] Slovakia was excluded from figures 1 and 2 because the country changed its electoral system from a multi-member system with four electoral districts in 1994, to a single country-wide electoral district to encompass all 150 parliamentary seats, which makes the comparison between elections superfluous. In order to present a balanced set of East and West European countries, I chose not to show Germany, as it is the case with the most non-straightforward data, thus not as telling as the other countries (the district magnitude for Germany is given by landern, 16 larger provinces, while the electoral competition takes place at smaller districts within these provinces; in order to deal with this I have divided the district magnitude of each province by the number of districts in which elections for parliament took place). Even with this data specificity the German party system convergence index shows a positive trend for the two latest elections available.

the gerrymandering was not directly related to contentious political issues at hand. At the national level I would expect fewer parties than before due to the fewer districts where parties may compete. In 2005 however, more new political parties contested the election. The analysis carried out in section 4 assigns this to increased political opportunities and politicized issues created by Poland's entry into the European Union which took place in 2004.

The Romanian case is the hardest to explain, as there were no major changes to which the negative trend can be attributed. Few studies of Romania's party system exist to date and we lack a good explanation of what goes on there so far. A possible explanation is the low level of institutional safeguards gate-keeping the party system space - such as monetary deposits, or number of signatures required from political parties which wish to compete at national parliamentary elections.

The last problem facing the study of parties is that most extant work on electoral and party systems uses an incorrect unit of analysis. Most academic work on the number of parties, with the notable exception of Cox (1997), studies party systems at the national level despite the fact that competition takes place at the level of the district and that the electoral district has been pointed out as the correct unit of analysis for examining the dynamics of party competition long ago by Duverger (1954). Even though few scholars would argue against that, we continuously see studies done at the national level. The primary reason behind that is the common problem of lack of readily available data at the district level and the abundance of national level datasets. Cox (1997) examines the 1960-1990 Japanese party system but we do not have similar studies on other countries that I know of, nor do we have cross-country comparative studies or data available thus far. Here, I embark on the challenge to try to change this, not only by providing another analysis on the district level complementing the work done by Cox (1997), but also collecting and examining comparative cross-national district-level data. The dataset which I built consists of West and East European countries and it encompasses all political parties that attempted election – it thus provides raw data for the respective party system and leaves the decision of the level of competitiveness at which to study the system to the discretion of the

researcher. As result it improves on and expands the regions and time periods covered by existing district datasets (Caramani 2000, Morgenstern and Pothoff 2005, and the East European database at the University of Essex). My dataset also includes a district level ethnic heterogeneity index for all 20 countries which are studied. Detailed explanation of the dataset and operationalization of the independent variables follows in section 3.

The logical next question is what explains party system convergence or what explains change in the number of political contestants? One answer mostly given so far is that they depend on the district magnitude and the social characteristics of the unit in which they compete. As I argue above however, there seems to be a lot more going on than that especially when one finds multiple examples of similar by characteristics units which have different number of parties. Therefore, I argue that factors which explain party system convergence are factors which can explain a change in the number of parties. When and under what conditions does the number of parties change? While one can give a more mathematically sophisticated answer to this question, it simply comes down to a cost-benefit analysis on behalf of the elite. There are four possible scenarios under which the number of political parties can change – new party entry, party merger, party split, and party dissolution – and each of these will happen when it is cost-effective to do and the cost-effective calculation comes from parameters linked to the electoral competition which parties contest. I argue that there are institutional constraints which impose direct costs on the elite – for example the restrictiveness of the district magnitude or the legal regulations that parties wishing to compete need to abide by – but also indirect costs/benefits can come as a result of how experienced in knowing the consequences of the 'rules of the game' the elite is. I therefore propose the concept of political learning which claims that experience with electoral institutions increases party system convergence and test the effect of age of democracy on convergence, alongside the direct cost-related variables of required signatures, required deposit, and the availability of public funding. Furthermore, I would argue that the cost-benefit calculus is affected by exogenous to the national party system factors such

as election for supranational institutions which are open to local elite or entrance in a supranational institution. Specifically, I believe that the additional issues of contention which for example EU-related events bring change the cost-benefit calculus of local elites as they at the very least increase the opportunities for service or the issues to compete on and thus the benefits of contesting (because at no additional cost than the one incurred for contesting a national election elites get more opportunities to win). I therefore test the effect of EP elections, EU entry and EU accession on the level of party system convergence.

3. Data & Operationalization of Independent Variables

The data for this project consists of 20 European democracies equally divided between the East and the West[5]. For Eastern Europe the data consists of elections which took place after the regime change, while for West European countries the majority of the data spans from 1980 to present with the exception of Belgium and Switzerland which date back to the 1970s and Germany which dates back to the late 1950s. By design, the data for Western Europe had to cover elections from 1980 onwards, but the respective institutions in these three countries provided me with data covering a longer period and given the scarcity of data I chose to include it.

The data for the project is collected at the district level and the electoral district is the unit of analysis. There are 2899 observations of which 686 electoral districts within 20 countries. Some countries as I mention earlier, have undergone redistricting over the years, therefore, districts have been carefully matched by name of the region to ensure that district 'x' in country 'Y' in election year t is the same as district 'x' in country 'Y' in election year t+1 and election year t-1. For example, the Turnhout district in Belgium, which has been coded as district 3 disappears after 1991 as it then merged with the Mechelen district. A careful tracing of the developments of the electoral districts in each country was necessary to make sure that districts which are compared over time correspond to each other.

[5] The countries and time periods covered by the dataset are: Austria (1986-2002), Belgium (1971-2003), Bulgaria (1991-2005), Croatia (2003-2007), Finland (1983-2003), Germany (1957-2002), Hungary (1990-1998), Ireland (1982-2002), Italy (1994-2001), Norway (1981-2005), Poland (1991-2005), Romania (1996-2004), the first two elections in Romania were excluded as the country was not ranked as 'democratic' by the standard used for all other states, Spain (1996-2004), Sweden (1994-2002), Switzerland (1971-2003), Czech Republic (1996-2002), Slovakia (1994-2002), Estonia (1992-1999), Lithuania (1992-2000), and Slovenia (1992-2008).

To explain party system convergence I use the following independent variables - age of democracy, number of supporting signatures, monetary deposit, direct and indirect public funding, European Parliament elections, European Union entry and European Union accession. Democratic maturity is operationalized as a count variable reflecting the number of years a country is considered to have been democratic at a particular election year. The rationale behind using age of democracy as a determinant of party system convergence is that party systems are dynamic and their development is subject to institutional and social constraints on the one hand, and getting accustomed to and learning their effect on the other. I expect that more experience with elections and the electoral process will result in higher levels of party system convergence and the effect will be stronger in young democracies. To code the variable I use the Polity democratic score which is scaled between 1 and 10, with 1 signifying totally undemocratic and 10 representing totally democratic. I code every country-election year in which the Polity score was greater or equal to 6, subsequently counting the number of years under democracy. For election years during which a country's Polity score is less than 6, age of democracy is coded 0, which in cases where the Polity score increases thereafter is taken to stand for the beginning of democracy. If the Polity score remains under 6 at the next election, then the election is deemed to have taken place in a non-democratic setting and has been excluded from the analysis (such was the case with the 1990 and the 1992 elections in Romania, both of had a Polity score under 6 - hence, they were dropped from the analysis, with the 1996 election being considered the first democratic election). For the sample of countries studied here age of democracy varies between 0 and 155, with a mean of around 33 years (see Table 2 for summary statistics).

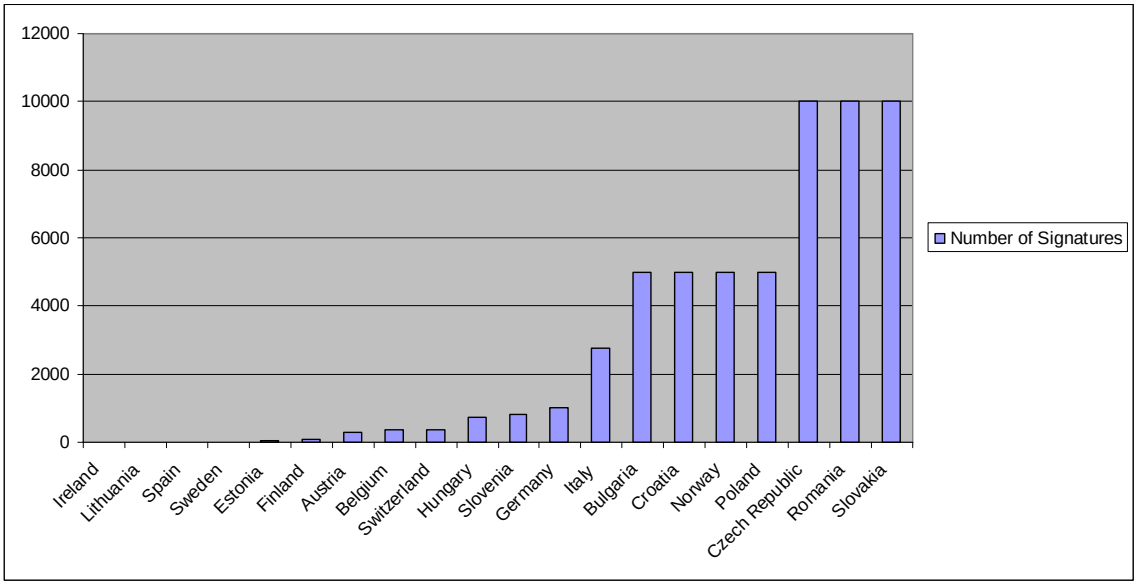
Table 2: Summary Statistics

Variable name	Observations	Mean	Standard Deviation	Min	Max
PSCI	2735	-1.800	2.286	-15.66	1
Age	2899	32.86	40.16	0	155
EP elections	2980	0.257	0.437	0	1
Entry	2899	0.035	0.184	0	1
Accession	2899	0.202	0.402	0	1
Signatures	2310	1924.048	3090.859	0	10000
Deposit	2596	2412.051	5540.07	0	16597
Direct	2362	0.597	0.491	0	1
Indirect	2596	0.824	0.381	0	1
Transition democracy	2899	0.577	0.494	0	1

As the theory of political learning posits I expect the level of party system convergence to be also affected by institutional constraints such as legal regulations on the amount of signatures required to allow a party to compete for the national legislature, the amount of monetary deposit required in order to contest, or the provision of public funding available to political parties participating in the national parliamentary elections. My expectation is that higher hurdles to electoral competition will result in fewer contestants and thus higher level of party system convergence. The reason for this expectation is that as the legal requirements for contestants increase it becomes more costly for parties to compete and some potential entrants may be deterred, thus fewer parties will enter the race. Therefore, when the required number of signatures or deposits that parties need to present increase, the number of parties that go to election is likely to decrease. At the same time, the expected effect of public funding, direct and indirect, runs in the opposite direction. I expect that if the amount of public funds available to parties wishing to compete is higher, this will encourage more parties and thus have an adverse effect on the level of party system convergence. The reason for this expectation is that public funding decreases the cost for contesting and thus when more funding is available we can expect to see more parties. It is precisely this logic that prompts Katz and Mair's (1995) argument about the cartelization of politics.

The coding of signatures is straight forward. The variable accounts for the number of supporting signatures that a political party wishing to take part in a national election needs to collect and present to electoral authorities. The amount of signatures required ranges from 0 to 10000 with an average of a little over 2800 (this is not taking into account the weighing of the number of districts each country has, which is why the mean figure for signatures in Table 2 is lower). To collect the data I have cross-checked two sources - the ACE project at the Idea Institute (http://aceproject.org/epic-en) and the Inter-Parliamentary Union PARLINE database (http://www.ipu.org/parline-e/parlinesearch.asp). Figure 3 presents an overview of the signatures required in the countries included in my sample.

Figure 3. Pre-electoral signature requirement



Note: The data signifies the number of signatures a party needs to secure in order to compete in national elections and is presented at the constituency level.

The deposit variable reflects the amount of money each party wishing to compete in national elections has to pay. The data comes from the ACE project and the IPU database. For matter of standardization all figures are converted to Euros[6]. The average deposit that parties need to

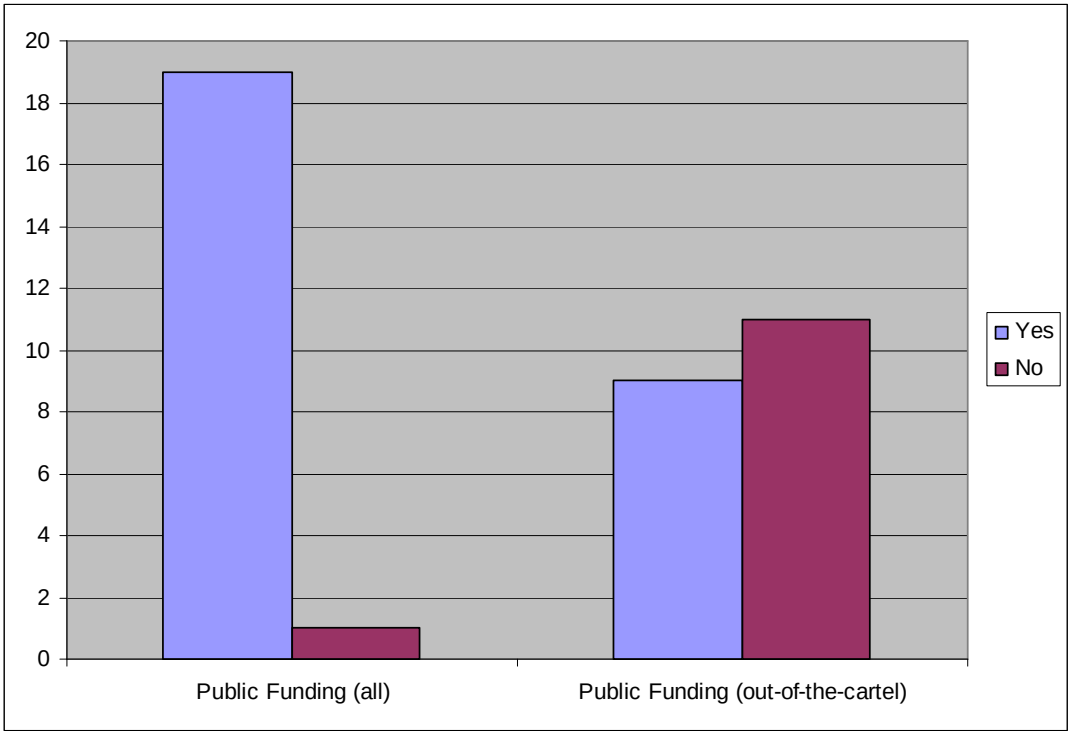
[6] As with the signatures, the deposit scheme is different in different countries, which further complicates any attempt for comparison. Therefore, for countries which specify a deposit amount per constituency I have taken that (in electoral systems designed like this, the competition of a political party in one constituency is independent from its competing in another), while for countries which specify an amount altogether without specifying whether it is per constituency or not, I code it at the constituency level with the logic that regardless of whether a political party competes at one or ten districts it will still have to pay the same deposit (i.e. competition in one district is not independent of competition in another).

make prior to electoral participation is 2412 Euros; however more countries require signatures than deposits. It should be noted that the data on signatures and deposit requirements was not readily available in a systematically comparable form in that for some countries these constraints were provided at the constituency level, for others at the national level. In addition countries were covered in different time frames and deposit requirements were reported in different currencies. In order to put together data that is consistent among countries and can therefore be easily compared I adopted the following coding rule: if data for signatures and deposit requirements were available at the constituency level I used them as they were, if they were provided at the national level I divided that number by the number of constituencies[7].

The availability of public funding is divided into two variables - direct public funding (monetary support given to competing parties) and indirect public funding (non-monetary support such as free media time, access to billboards and others). Direct public funding is coded 1 if funding was provided to parties based on current participation and 0 based on previous participation. The coding procedure for direct public funding is called for by the fact that all countries in my sample except Switzerland provide public funding to political parties and the variation is only in the rules of who is entitled to receive such funding. The increasing provision of public funding to political parties as a phenomenon which alters the relationship between the parties and the state is also discussed by van Biezen (2008) who shows that out of 29 European democracies (new and established ones) only three countries do not offer such support, Switzerland, as I find, being one of them. Figure 4 clearly shows what is given and who gets it graphically.

[7] Some cases have a more complicated scheme, where in order for a political party to compete it has to provide X amount of signatures, from Y amount of constituencies, with no less than Z amount of signatures per constituency (Romania is an example here). In cases like these, I assumed the whole figure X to be the number of signatures required at the constituency level, since in order to compete in even one constituency a party would have had to collect the entire amount of signatures asked for.

Figure 4. The availability of public funding to political parties – who does it go to?



This coding conveniently allows us to test the link between the cartel thesis (Katz and Mair 1995) under the assumption of which parties in power change the rules of the electoral game only as much as to safeguard a continual gate-keeping and the number of parties. In my sample 11 out of 20 countries make public funding available based on previous performance (usually only to the cartel parties or the parties which have been represented in the previous parliament) and just 9 give away funding based only on current performance. Under the assumption of the cartel thesis we should expect that there is a positive and significant relationship between available funding and the number of parties, meaning that as funding available based on current performance decreases (which is what a cartel will want to do – keep the money only in the circle of parties that are already in) so will the number of contesting political parties. Indirect public funding is simpler than that because countries either provide such funding or don't. The variable takes a value of 1 when indirect public funding is available and 0 otherwise. Interestingly, the cartel parties are not as protective about indirect funding as they are of direct

since only 3 of the countries (Austria, Estonia and Ireland) which base their direct public funding on previous electoral performance do not give away indirect public funding, i.e. indirect public funding seems more dispensable. The data comes from the ACE project and the IPU database.

The second set of variables which I expect affect party system convergence are exogenous to the national electoral competition. These are factors related to participation in supranational affairs, in this case EU politics. I expect the number of parties to increase around years with EU-related events, which will result in a negative impact on the level of party system convergence in these years. The idea behind this expectation is that additional incentives (new issues, new level of representation) for parties to compete during national election years coinciding with European Parliament elections or EU entry or accession may stimulate more parties to contest. We have already seen this expectation in the literature as scholars have noted that EP elections are often considered second-order elections (Reif and Schmitt 1980; Hix and Marsh 2007) and that they are often used as trial elections by the opposition, as well as by smaller or more extreme parties some of which have not participated in national legislative elections thus far but are likely to do so in the event of EP elections. At the same time, one can expect that during or around the years of EU entry and EU accession incentives for additional party formation also come from the fact that the EU-level opens new issues to compete on.

The variable for European Parliament elections is coded as a dichotomous variable which takes the value of 1 if there was an EP election during the year of election for national parliament or if an EP election preceded the national legislative election. If an EP election took place during the year of the national legislative election or during the years before but after the previous national election the variable has a value of 1. If no EP election took place since the last national election or during the year of the current national election the variable takes a value of 0. From the summary statistics table we see that EP elections took place about a quarter of the

time. The other two EU variables – EU entry and EU accession – are also coded as dichotomous variables and account for the timing of a country's entry or accession to the European Union. The variables are coded 1 if the year of EU entry or accession coincides with a national legislative election year, or if they do not coincide, I code the year of the first national election following membership or accession to the European Union. For all other election years the variables take a value of zero. The data for the EU-related variables come the European Union server (http://europa.eu/abc).

In the following section, I proceed with specifying the model and discussing the methodology I employ. Below I include a correlation matrix to ensure that no issues with collinearity can occur in the estimations (see Table 3 below for details).

Table 3. Correlation Matrix

Variable	Age	EP	Entry	Access	Sign	Deposit	Direct	Indirect	Trans
Age	1.00								
EP	0.536	1.00							
Entry	0.142	0.358	1.00						
Accession	-0.261	-0.302	-0.108	1.00					
Signatures	-0.177	-0.241	0.022	0.065	1.00				
Deposit	-0.307	-0.288	-0.105	0.213	0.382	1.00			
Direct	-0.322	-0.091	-0.013	0.055	0.237	-0.168	1.00		
Indirect	-0.415	-0.186	-0.059	0.105	0.209	0.156	0.293	1.00	
Trans	-0.887	-0.581	-0.043	0.294	0.192	0.349	0.181	0.280	1.00

The correlation matrix shows that the variables are independent of each other and therefore give confidence that the regression coefficients would be reliable indicators of each variable's individual effect on the dependent variable. The dummy variable for transition democracies, which I include in order to single out the effect of democratic maturity on party system convergence between developed and developing democracies, shows a high correlation with age of democracy however this is expected given the design of the transition variable.

4. Model Specification and Methodology

From the data statistics presented in Sections 2 and 3, the heterogeneity in the variables, and especially in the variable I am trying to explain, is obvious. The level of party system

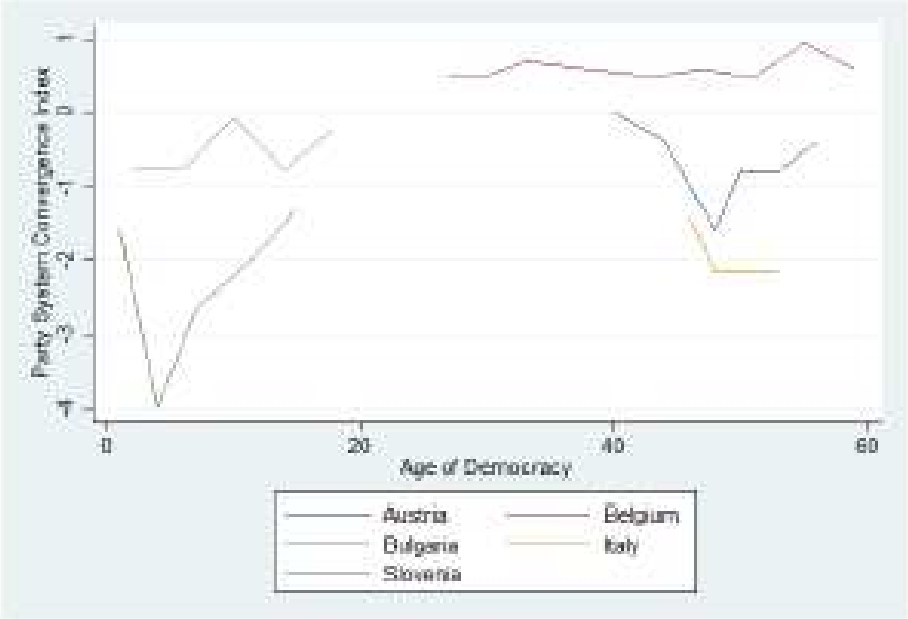
convergence varies from -6.8 to 0.40 among countries (see Figure 1), and from -15.66 to 1 among electoral districts (Table 2). This means that we are dealing with variation among districts between and within countries in addition to the country unit variation which we would normally expect. Further, as Figure 2 showed, the level of party system convergence is subject to time, or the amount of experience with democracy elite members have. Pooled cross-section time series models, often just referred to as panel models, are designed to deal with the temporal dependence of the outcome and the heterogeneity of the parameters unique to each unit explaining that outcome whether these are factors that we know and can include in the estimation procedures or they are unobserved factors we don't know about yet we still want to control for.

The common models used to deal with temporal dependence and heterogeneity are fixed or random effects panel models where a 'unit effect' captures the differences between units caused by unobserved variables that are stable over time. In this way the temporal dependence is modeled through the unobserved heterogeneity across units. The latter however, is present at all waves of observation leading to some correlation between the value of the dependent variable at time t, and subsequent values. Therefore, the unit effect can be thought of as necessary to model the fact that observations in longitudinal analysis are not independent over time. Two ways to handle this are adding an auto correlated idiosyncratic disturbances ε_{it} estimator to fixed or random effects models, which in essence controls for the unobserved covariation that causes Y_t and Y_{t-1} to be related independently of the X variables in the model, or using dynamic models with a lagged dependent variable, which put temporal dependence in the core of the model.

A third, and recently gaining popularity among political scientists (Plutzer 2002; Finkel et al. 2007) way to deal with temporal dependence and unit-specific parameter heterogeneity is the hierarchical growth model. This model takes Y to depend on time itself, thus Y is a function of time not of Y_{t-1} or ε_t, being dependent on ε_{t-1}. The relationship between Y_t and Y_{t-1} is produced by the progression or 'growth' (either positive or negative) of the unit through time. The goal of the analysis is to estimate parameters that determine an individual unit's developmental trajectory over time and then estimate the effects of independent variables on that trajectory.

To illustrate the need for employing a hierarchical growth model, I fit several OLS models (results summarized, but not shown in a table) which show the heterogeneity in the parameters and the limitations in explaining this heterogeneity with a one-level model. The population (mean) intercept for party system convergence is -2.68 and the population (mean) slope for the effect of time (age of democracy) on the level of party system convergence is 0.03. This means that on average, the starting point for party system convergence is -2.68, and on average every year of democracy increases the level of system convergence by 0.03. This is a rather grim result as by its calculations a country will need more than 120 years to reach its equilibrium. The good news is that it is quite uninformative as 1) it lumps all countries together claiming that each one starts at the same spot, and 2) it claims that the rate of change is the same for each country. Fitting the same OLS regression model for several different countries exposes the problems with such approach. For example, country-specific estimations show that the starting points (intercepts) for the level of party system convergence for Austria, Belgium, Bulgaria, and Slovenia, are 0.59, 1.55, -4.60, -0.92, and the slopes of the effect of the age of democracy variable are -0.03, -0.03, 0.08, 0.04 respectively. One therefore sees how heterogeneous the effect of time on party system convergence is among countries. In addition it has to be considered that district-level convergence and its respective growth curves vary within countries as well. The heterogeneity at the district-level is shown in Figure 3 where I have graphed the party system convergence growth trajectory for district 1 in 5 separate countries.

Figure 3. Growth trajectories of party system convergence



Note: Figure created in Stata 9. The trajectories represent district 1 in the following countries: Slovenia (top left), Bulgaria (bottom left), Belgium (top right), Austria (middle right), Italy (bottom right).

It is obvious that different districts have a different starting point and a different growth rate with the less developed democracies of Eastern Europe starting lower and growing faster than the more developed West-European states. The conclusion then is that we need a more complex statistical model which can account for the variation within and among countries estimating the differences in where they start and how they develop as time passes.

The most customary hierarchical models are two level models, where we look at intra-unit growth (meaning the growth within our clusters of interest) and inter-unit differences where we attempt to answer why units start at different levels of the variable we are interested in (in this case party system convergence), and why some units change more rapidly than others. There are higher level models, where the clusters themselves are nested in super-clusters, thus forming an n-level hierarchical structure. Here, I employ a three-level hierarchical growth model, with time, district, and country, corresponding respectively to level 1, level 2, and level 3. The present data consists of observations of electoral and party system variables at different occasions (in

different points in time), which are then grouped together by districts (i.e multiple occasions are associated with the same district), which are then grouped into countries (multiple districts are part of one country). Level 1 predictors display growth variance at the individual level over time, meaning that they account for the starting point and rate of change (growth) in party system convergence for each electoral district over time. Level 2 predictors show cluster-level variance, and level 3 predictors account for the super-cluster differences. This means that we study characteristics both at the cluster-level (here the district level), and the super-cluster level (the country level), which we believe cause the intercepts and growth rates (slopes) to be higher or lower[8].

I begin with the basic linear growth model, taking the following (level 1) form:

$$Y_{ijk} = \pi_{0ik} + \pi_{1ik}a_k + \varepsilon_{ijk} \quad (1)$$

where 'a' is the age of democracy for the particular observation point, and ε_{ijk} is a random error term for district *i*, country *k*, at time *j*. π_{0ik} and π_{1ik} are regression coefficients that represent individual district's growth trajectory. We may therefore say that π_{1ik} signifies the change in *y* for a change of one year in time for individual district *ik*.

The second, and third, portions of the growth model attempt to explain why some districts (nested within countries) have higher or lower coefficients. That is they seek to explain why some districts have higher or lower levels of party system convergence, and why some districts' level of party system convergence changes more rapidly than it does in others, based on level 2 and level 3 variables. In equation form, I estimate level 2 models as:

$$\pi_{0ik} = \beta_{00k} + \alpha_{0ik} \quad (2)$$

$$\pi_{1ik} = \beta_{01k} + \alpha_{1ik} \quad (3)$$

[8] When there are no specific characteristics which change over time at a given level, that level simply accounts for unobserved factors within clusters that have an effect on the intercept and slope for the particular cluster over time.

where β_{00k} is the average (fixed) population (here districts) starting point (intercept) for the growth trajectory, α_{0ik} is the residual of district *i*'s intercept from the predicted population average β_{00k}. Similarly, β_{01k} is the average population growth (slope) for the time trend, and α_{1ik} is the deviation of the district's growth trajectory from the predicted population mean.

Level 3, which analyzes districts nested in countries, is estimated by:

$$\beta_{00k} = \zeta_{000} + \zeta_{001} n_k + \delta_{00k} \quad (4)$$

$$\beta_{01k} = \zeta_{010} + \zeta_{011} n_k + \delta_{01k} \quad (5)$$

where ζ_{000} and ζ_{010} are the mean (fixed) population (here countries) starting points for the growth trajectory; ζ_{001} and ζ_{011} represent the average effect of whether a country is a transition country or not, n_k, on the district's predicted intercepts β_{00k} - β_{01k}; δ_{00k} - δ_{01k} represent the deviations of the country's growth trajectories from the predicted population means.

What this means for the context of the current project is that district-level specificities influence the magnitude of the intercept and slope of the effect of time on party system convergence, and this effect in itself is affected by country-level characteristics. The model of equations (1 - 5) thus represents a hierarchy of nested data, or as it is otherwise called, it constitutes a multilevel model. It is also known as a 'mixed' model as it contains both "fixed" and "random" effects where the fixed portion of the model presents average fixed predicted values for the entire population, i.e. every unit gets the same β, while the random part tells us the spread of the deviation from the average fixed values across the observed population. Here, for example, I let the estimation of the age of democracy to 'vary' by including it both within the fixed and the random part of the model - thus, I am able to infer what the mean effect of age of democracy on party system convergence is but also how much this effect deviates from the

mean across the population. The benefit of the 3 level model is that I can trace the effects of the independent variable in multiple forms - without constraints, constraining by district, or by country, or further-more, constraining by both, which is the full hierarchical growth model. The following section contains the estimation results.

5. Empirical Results

In the preceding section I introduced the model and the estimation method. As was argued there, hierarchical growth model techniques are best suited for the types of nested data that I am dealing with here. The main hypothesis that I seek to test is about the different effect of democratic maturity (here operationalized through age of democracy) on party system convergence in developed and developing democracies, as well as its effect overall. I hypothesize that experience with democracy will have a positive effect on level of party system convergence in new democracies and its effect will be stronger than in older, more established, democracies (H1). This means that I expect the impact of the time variable on party system convergence to be larger i.e. the growth rate to be steeper in new democracies than in developed ones. Further, I expect that age of democracy will have a positive, but diminishing effect overall, i.e. the effect will decrease as age gets very high (H1a). I test these relationships in several different specifications with the effect of age of democracy being 'fixed' or adding a random effect with its influence being studied on different levels (the country, the district, or both). The complex nature of the mixed model's error term causes the ordinary least squares assumptions that errors are independent, normally distributed, and with constant variance, to be inherently violated, therefore the model is estimated via iterative maximum likelihood procedures, designed to deal with this problem in hierarchical linear models. The results follow in table 4.

[table 4 about here]

Models 1 through 1b test the general, 'fixed' effect of age of democracy on party system convergence at different level specifications. Model 1 shows the effect of age of democracy on

party system convergence combining all three levels, while model 1a and model 1b provide the effect of age of democracy in two-level models accounting for between country variance and between district variance, respectively. The most interesting result that these different specifications provide is the finding that democratic maturity positively affects the level of party system convergence at the district level (model 1b) as the theory of political learning predicts. At the same time, there is a large variation between districts within the same countries (model 1a) and among different districts and different countries (model 1) as the effect of democratic maturity changes direction. Substantively, this means that there is a lot of variance among districts within a single country in addition to which there is large variance amongst different countries as well, which explains the different sign when both of these variances are incorporated into the model. The important piece of information here however, is the fact that at the district level, which is the unit of interest and where party system convergence is measured, the effect of democratic maturity is positive and significant. The coefficient of 0.016 which is reported in column 4 (model 1b) means that with one additional year of democracy, the level of party system convergence increases by 0.016. Given that the highest level of convergence attainable is equal to 1 and that levels above 0.5 reflect high convergence, this means that on average a district which started out with party system convergence index equal to 0, will take 25 years to reach a PSCI of 0.5. Further, when the same model is fitted only on developing democracies, the coefficient for age is 0.08 (results not shown) which means that party system convergence in developing democracies increases on average 4 times faster than it does in models where developed and developing democracies are studied together (the difference in the effect of age of democracy in young and mature democracies is demonstrated in models 3 and up). We should also bear in mind the fact that different districts start at different levels and have different growth rates; therefore, some districts may reach this level faster than others. From the output of model 1b we see that the average estimated starting point for party system convergence for all 686 districts is -2.497, however the standard deviation among districts is

1.718 and the standard deviation among occasions within districts (same district at different points in time) is 1.206, which suggests that many districts have lower, as well as higher, initial points of party system convergence.

To eliminate the contamination effect of some of the variance among different districts in different countries I include a random slope of age of democracy, allowing districts in different countries to differ in their overall convergence rate. The log-likelihood increases by over 41 for one extra parameter providing evidence that random slopes are needed (compare model 1 and model 2). The estimated random slope standard deviation is 0.163, however both the coefficient of age of democracy and the intercept in the fixed part of the model lose their significance which leads to the result being inconclusive. To further refine the model and account for as much of the variance in the data as possible I include a transition dummy, which allows me to test for differences in the impact of age of democracy on the level of party system convergence at different stages in the democratic life of a country. Models 3 and 4 show the results of these estimations differing only in the random portion of their specifications – model 3 allowing just a random intercept, model 4 allowing random slopes as well. In both models we see that the effect of age of democracy on party system convergence in transition democracies is positive (0.04, 0.13, and 0.04 respectively) and statistically significant. The standard deviation of the learning slope (the coefficient for age of democracy in the random part of the model, model 4) is 0.199, which means that for transition countries the increase of party system convergence can be as high as 0.33 (0.13+0.199), leaving even the very mature democracies which on average are negatively affected by age of democracy with a small positive growth of 0.002 (-0.197+0.199) in certain cases. Here, the overall fit of the models also improves attested by the increase of the log-likelihood statistic. Overall, the results presented in table 4 provide evidence that age of democracy has a positive and more pronounced effect on party system convergence in younger, transition democracies, confirming H1, and further it shows a positive effect on the level of party system convergence at the district level. The latter result is not sustained however once the country level variance is included, hence the evidence towards H1a is mixed and inconclusive.

In addition to testing the effect of time on party system convergence, I also study the effect of country-level variables (both time-varying and time invariant) on the initial level of convergence and on the convergence growth rate (positive or negative) in different districts during the observed period. As section 3 explains, I expect that the level of party system convergence will be affected by endogenous to the national electoral race institutional factors such as the legal requirements for the number of signatures a party needs to present in order to compete, the amount of the monetary deposit due, and whether and how much public funding is available to political parties competing for the national legislature. I expect that when the requirement for signatures is high, this will reflect in higher levels of party system convergence, as there will be an incentive for fewer parties to compete (H2). Similarly, I expect the effect of the monetary deposit to increase party system convergence because as the dues for competing in an election increase, as in H2, fewer parties will find it cost-effective to compete (H3). Public funding on the other hand is expected to have an opposite effect on the level of party system convergence - when public funding, direct or indirect, is available, I expect lower levels of system convergence because its availability is expected to stimulate more parties to compete and emerge (H4). Table 5 presents the estimation results.

[table 5 about here]

The results for the effect of domestic institutional factors show clear findings: legal regulations on the amount of signatures and deposits which parties wishing to compete need to present have a significant and positive impact on the level of party system convergence as they constrain party formation (H2 and H3 are confirmed). The regulation on the number of required signatures proves to have the strongest and most consistent effect on party system convergence - the coefficient remains positive and significant, improving slightly in different model specifications (see models 5 and 7 in table 5, and model 11 in table 6). The evidence suggests that increasing the signature requirement by 1000, increases party system convergence by at least 0.34. This is a powerful finding given that the mean signature requirement across the

countries in the sample is 1924, with standard deviation of 3090 and a maximum value of 10000 signatures. Similarly, from model 6 we learn that increasing the deposit that parties need to pay prior to election by 1000 Euros (recall that all deposit amounts were standardized in Euros so that they can be easily compared), increases party system convergence by 0.14. This also proves to be a significant finding as the mean required deposit is 2412 Euros with some countries requiring as little as no deposit, while others asking for as much as over 16000 Euros. When evaluated together the deposits variable loses its significance (see models 8 and 9). A correlation test ruled out possible collinearity between the variable which leaves us with the explanation that since fewer countries require monetary deposits from the political parties wishing to compete the impact of this factor is undetectable when signatures is entered in the equation. While the results show strong support for the thesis that regulation on legal requirements of parties wishing to compete has a substantial impact on the number of parties in the party system, the availability of public funding is shown not to matter. The coefficient for the effect of public funding is insignificant in model 8 and although the standard errors improve relative to the estimated coefficients in subsequent specifications (see models 9a and 10, table 6) the impact of the variable remains insignificant. This tells us that the restricted availability of public funding does not deter potential entrants from competing at the electoral game. We saw in the discussion in Section 3 that there are grounds for a cartelization effect since the availability of funding is conditional on whether one is or not in parliament and the countries which provide funding based on previous performance outnumber the ones that give funding based on current performance. However, the analysis shows that the fact that cartelization may indeed control who gets the money does not affect the number of contestants we see. This is an important finding for the study of possible conditions under which the cartel can be broken, as it excludes public funding as a necessary condition which keeps a cartel intact.

The theory of political learning stipulates that in addition to endogenous factors, party system convergence may also be affected by exogenous to the national electoral system factors. Here, I explore the effect of supranational entities, in particular the European Union, on the level

of party system convergence. Given the importance of the EU in European political affairs and the fact that even countries such as Norway and Switzerland who are not currently members of the Union have considered membership and even taken steps toward applying, the effect of the EU dimension needs to be included in the examination of national political competition when studying European democracies. To do that I include a set of EU variables which I believe have an impact on the level of party system convergence. I expect that in years when elections for the European Parliament are held the level of party system convergence will be lower because a EU-level competition produces additional incentives for party competition and thus the number of political parties in such years can rise. As a result we can expect that when EP elections are taking place in proximity with elections for national parliament, this will increase the number of contestants will have a negative effect on the level of party system convergence (H5). It is important to stress however, that this is a short-term effect which I do not anticipate to have a lasting impact on the party system as a whole. Likewise, I expect the party system convergence index to drop also at the time of EU entry, or at the time of EU accession (when countries first formally sign the beginning of the application process) due to similar incentives which such events create – additional issues of competition, which can result in a temporary surge in the number of parties (H6, H7).

[table 6 about here]

The results presented in table 6 show evidence in support of all the EU-level hypotheses (H5-H7). In models 9 and 9a I test the effect of European Parliament elections alone as it is the only one with recurring result among the EU factors. We see that in the event that there is a European Parliament election coinciding with the year of national elections the level of party system convergence drops on average by 0.22 points. While the amount of the impact of EP elections changes slightly as we move through different model specifications, it remains negative and significant throughout. This proves the robustness of the finding and confirms the ideas of previous scholarly work on party systems, which mentions that we are to see more and additional smaller parties appear during EP elections (Hix and Marsh, 2007). Model 10 adds the

effect of the date of EU entry to the model and also proves to have a negative and statistically significant impact as predicted. In model 11 I include the date of EU accession, as well as all the institutional factors examined thus far. The results prove EU accession to have a very large and negative impact, which also contributes to the loss of statistical significance of the EU entry coefficient. This is logical when we think about the magnitude of the impact of the two events - since the official signing of beginning the process toward EU membership is the first, and most awaited step toward joining the Union, it is not surprising that when the two events are tested together, EU accession prevails over the actual entry. All other variables retain their signs and level of significance.

6. Conclusion

In this paper I empirically test the theory of political learning which posits that elites learn how to play the electoral game and how to play it more efficiently as they gain experience. Most notably, I test the effect of age of democracy on the level of party system convergence and show the different impact in both the starting point and the growth trajectory of party system convergence between developed and developing democracies. To do that I use a hierarchical growth model. My results show not only that developed and developing democracies start at very different levels of party system convergence, but also that young democracies tend to converge at a higher rate than mature democracies do. In addition, the models and data presented here show the variation that exists among countries, but also among districts within the same country, as well as among the same district taken at different points in time. Some useful findings are that institutional factors, such as legal regulations for signatures required from political parties wishing to compete for the national legislature have a very strong constraining effect on the number of parties which in the end compete, while, contrary to our intuition and previous suggestions public funding produces no significant impact at all. These results are telling for political engineers as they show what type of effect on the party system particular institutions can have. Furthermore, the tests carried out here show that exogenous to

the national electoral competition factors such as the participation in EP elections or the accession and entry in a supranational entity as the European Union also have an effect on the domestic political arena. Political engineers can then choose whether, when, and what tools to use if they want to control the direction of party system development.

My analysis and theory build on the extensive work done by Gary Cox, Lijphart, Ordeshook and Shvetsova, and Ken Benoit, to name a few, aiming to extend our understanding of the causes of party system change and, hopefully, equip us with better tools for comparison, and evaluation, of where party system development stands.

Table 4: The Effect of Democratic Maturity on Party System Convergence

Dependent Variable: PSCI	**Model 1**	**Model 1a**	**Model 1b**	**Model 2**	**Model 3**	**Model 4**
Fixed part						
Age of Democracy	-0.025***	-0.027***	0.016***	-.0054	-0.026***	-0.197***
	(0.003)	(0.004)	(0.002)	(0.038)	(0.004)	(0.049)
Age*Transition						
Transition Democracy						
Constant	-0.589	-0.497	-2.497***	0.019	-1.164*	2.376***
	(0.529)	(0.545)	(0.084)	(0.712)	(0.637)	(0.574)
Random part						
(Level-3, country) Effect on (Level-1), Intercept	2.292	2.342		3.078	2.690*	2.039***
	(0.376)	(0.389)		(0.508)	(0.439)	(0.362)
Effect on (Level-1), Slope Age of Democracy				0.163		0.199***
				(0.029)		(0.036)
(Level-2, district) Effect on (Level-1), Intercept	0.952		1.718***	1.008	0.968*	1.011***
	(0.376)		(0.057)	(0.035)	(0.037)	(0.035)
Residual (Level-1)	1.165	1.501	1.206***	0.966	1.106*	0.950***
	(0.018)	(0.020)	(0.019)	(0.015)	(0.017)	(0.015)
Observations	2735	2735	2735	2735	2735	2735
N (countries)	20	20		20	20	20
N (districts)	686		686	686	686	686
Log-likelihood	-4771.85	-5045.34	-5124.03	-4430.51	-4666.18	-4393.31

Note: Unstandardized maximum-likelihood coefficients are reported, with standard errors in parenthesis. *, **, *** denote statistical significance p<.10, p<.05, and p<.01, respectively.

Table 5: The Effect of Institutional Factors on Party System Convergence

Dependent Variable: PSCI	**Model 5**	**Model 6**	**Model 7**	**Model 8**
Fixed part				
Age of Democracy	-0.094**	-0.134***	-0.097**	-0.103**
	(0.040)	(0.046)	(0.041)	(0.044)
Age*Transition	.103*	0.214***	0.110**	0.111*
	(0.056)	(0.051)	(0.055)	(0.058)
Transition Democracy	0.499	-1.411	0.396	0.356
	(0.982)	(0.883)	(0.962)	(1.026)
Signatures	0.00034***		0.00021	0.0003***
	(0.000)		(0.000)	(0.000)
Deposit		0.00014***	0.00006	
		(0.000)	(0.000)	
Direct Pub Funding				1.127
				(1.523)
Indirect Pub Funding				-0.334
				(1.898)
Constant	-1.755*	-0.173	-1.434	-2.084
	(0.939)	(0.750)	(0.952)	(1.815)
Random part				
(Level-3, country)				
Effect on (Level-1), Intercept	3.117*	2.039	2.936	3.021
	(0.723)	(0.511)	(0.702)	(0.731)
Effect on (Level-1), Slope				
Age of Democracy	0.135**	0.168***	0.135**	0.139**
	(0.036)	(0.035)	(0.036)	(0.039)
(Level-2, district)				
Effect on (Level-1), Intercept	1.057*	1.026	1.057	1.064
	(0.040)	(0.036)	(0.039)	(0.041)
Residual (Level-1)	0.886*	0.975	0.888	0.927
	(0.017)	(0.017)	(0.017)	(0.019)
Number of observations	2146	2432	2146	1917
N (countries)	20	20	20	19
N (districts)	654	685	654	628
Log-likelihood	-3410.65	-3999.62	-3410.39	-3140.67

Note: Unstandardized maximum-likelihood coefficients are reported, with standard errors in parenthesis. *, **, *** denote statistical significance p<.10, p<.05, and p<.01, respectively.

Table 6: The Effect of EU Factors on Party System Convergence

Dependent Variable: PSCI	**Model 9**	**Model 9a**	**Model 10**	**Model 11**
Fixed part				
Age of Democracy	-0.194***	-0.111**	-0.122**	-0.098**
	(0.049)	(0.048)	(0.049)	(0.041)
Age*Transition	0.324***	0.176***	0.197***	0.043
	(0.035)	(0.054)	(0.053)	(0.056)
Transition Democracy	-4.656***	-0.728	-1.101	1.527
	(0.552)	(0.961)	(0.943)	(1.002)
Signatures				0.00027***
				(0.000)
Deposit				
Direct Pub Funding		1.137	0.953	0.280
		(1.160)	(1.099)	(1.817)
Indirect Pub Funding		0.803	0.476	0.584
		(1.470)	(1.402)	(2.234)
EP elections	-0.220***	-0.362***	-0.220*	-0.193**
	(0.078)	(0.099)	(0.114)	(0.100)
EU entry			-0.422**	-0.165
			(0.173)	(0.159)
EU accession				-1.007***
				(0.058)
Constant	2.319***	-1.722	-1.074	-2.180
	(0.584)	(1.504)	(1.457)	(2.093)
Random part				
(Level-3, country)				
Effect on (Level-1) Intercept	2.078***	2.217	2.082	3.657
	(0.379)	(0.505)	(0.476)	(0.794)
Effect on (Level-1) Slope				
Age of Democracy	0.201***	0.162**	0.166**	0.124**
	(0.036)	(0.033)	(0.033)	(0.030)
(Level-2, district)				
Effect on (Level-1) Intercept	1.011***	1.033	1.033	1.102
	(0.035)	(0.038)	(0.038)	(0.040)
Residual (Level-1)	0.950***	1.022	1.020	0.833
	(0.015)	(0.018)	(0.018)	(0.017)
Number of observations	2726	2194	2194	1908
N (countries)	20	19	19	19
N (districts)	686	659	659	628
Log-likelihood	-4380.95	-3714.43	-3711.50	-2997.99

Note: Unstandardized maximum-likelihood coefficients are reported, with standard errors in parenthesis. *, **, *** denote statistical significance p<.10, p<.05, and p<.01, respectively.

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