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MOBILE POLITICIANS: OPPORTUNISTIC CAREER MOVES AND MORAL HAZARD

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Mobile Politicians:
Opportunistic Career Moves and Moral Hazard

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We exploit the randomness generated by a seat allocation mechanism utilized in Parliamentary elections that determines those politicians who get elected from a given district by a small margin, and those who lose. Using detailed information on personal attributes of more than 2,000 elected Members of the Parliament (MPs) and the votes received by each political party in every district and each of the five consecutive Parliamentary elections in Turkey between 1991 and 2011, we show that elected MPs are more likely to switch parties after an election if they faced electoral uncertainty and experienced a narrowly-won victory. The tendency to switch parties goes up as it becomes more lucrative to hold the post of MP. The impact of election uncertainty on party-switching is greater for younger MPs, and for those who are less educated. The propensity to switch due to uncertainty is higher if the MP is a member of the governing party, but only if the seat is valuable (if the majority of the party in the Parliament is slim). Politicians switch parties after an election to improve their *ex-ante* re-election probability in the following election. Although switching parties during a legislative session (between elections) for personal career concerns creates moral hazard, we find that party-switching MPs are more likely to get elected in the next election. These results point to forward-looking opportunistic behavior of politicians regarding their strategy to win future elections, and they indicate that politicians switch parties primarily for career concerns and for financial benefits that are associated with longer tenure in the Parliament. The results also signify that competition between political parties continues after the election, in the form of gaining seats in the Parliament *post- election* by transferring elected representatives of competing parties. This constitutes another dimension of the political agency problem.

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Mobile Politicians: Opportunistic Career Moves and Moral Hazard

I. Introduction

There are significant returns to serving as an elected member of the legislative branch of the government. For example, in the UK, being a member of the Parliament triples the probability that a Conservative Party member of the Parliament serves as a director of a publicly traded firm, and doubles the wealth of such members (Eggers and Hainmueller 2009). Dal Bó, Dal Bó and Snyder (2009) show that legislators who were successful in getting re-elected to the U.S. Congress are more likely to have their relatives entering Congress in the future, suggesting a self-perpetuating power structure. Fisman, Schulz and Vig (2013) and Bhavnani (2012) analyze Indian elections and find that assets of elected Indian politicians grow faster than the runners-up, suggesting that winning an election is associated with wealth accumulation. In addition to financial rewards, holding an elected office also provides non-pecuniary benefits such as the prestige and various perks of the office and the ability to impact public policy.[1]

An incumbent's goal of getting re-elected, however, does not always coincide with the interest of their constituents; and this creates a political agency problem. Politicians' desire to remain in office may generate moral hazard, because such desire could motivate them to make decisions and implement policies that may not be in the best interest of voters, although such actions may enhance politicians' re-election prospects. Based on this premise, a branch of political business cycle studies investigates the extent to which incumbents manipulate voters by higher spending and larger budget deficits in election years. (Drazen and Eslava 2010, Malley et

[1] Whether or not politicians stay in politics in reaction to these parameters has been analyzed theoretically and empirically (Keane and Merlo 2010, Besley 2004, Diermeier, Keane and Merlo 2005).

al. 2007, Shi and Svensson 2006, Brender and Drazen 2005, Alesina, Roubini and Cohen 1997, Rogoff 1990).

In this paper we implement a different approach to test elected politicians' moral hazard. We have a direct measure of dishonest behavior of elected politicians, which undeniably conflicts with voter interests. As we explain in detail in the next section, we investigate politicians' decision to switch parties *after* they have won a general election and have become a Member of the Parliament. In parliamentary systems with proportional representation and no split-ticket voting, voters cast their votes for a political party, and not for any particular candidate. If an elected Member of the Parliament (MP) changes party affiliation after being elected, s/he essentially offers his/her seat in the Parliament to another (destination) party. This means that voters who have voted for the original party of the party-switching MP have lost their voice in the Parliament. A switch of an MP from one party to another after an election results in the weakening of the parliamentary power of the party which lost that MP's seat in the Parliament, and can even result in the change of governments. Heller and Mershon (2009) report several such instances. Although a switch of an MP from one party to another after an election may be considered a betrayal of the votes entrusted in that MP, such moves are not uncommon (O'Brien and Shomer 2013).[2]

There are two hypotheses that can explain the transfer of an MP from one party to another. The first hypothesis is that the MP decides to switch to another party after the election because his/her political philosophy and views on economic and social priorities for the country do not line up any longer with the original party and its voters s/he was elected to represent. Alternatively, the switch to another party is made because of the expected benefits and rents this

[2] O'Brien and Shomer (2013) document that one third of the 239 parties in 20 countries in their analysis experienced at least one defection.

move would generate. If the former conjecture is the primary reason behind the MPs' decisions to switch parties, MPs' concerns for their re-election prospects and benefits associated with staying in office should have no influence on switching parties. On the other hand, if the MPs switch parties during a Parliamentary term to increase their chances of re-election to the Parliament in the next election (by being affiliated with another political party), this would indicate that it is self-interest, rather than political ideology that is the primary driver of this behavior.

Politician behavior is important to investigate, perhaps more so in emerging democracies and in developing countries, for two reasons. First, the behavior of politicians and voters in these settings may be different from those in developed countries and mature democracies (Brender and Drazen 2005). Second, voter disenfranchisement and distrust in democracy due to political agency problems can have serious political and economic consequences. Consequently, researchers are increasingly interested in analyzing politician and voter behavior in developing countries and young democracies. Examples range from studies on Paraguay (Finan and Schechter 2012) to Brazil (Da Silveira and De Mello 2011), from Russia (Akhmedov and Zhuravskaya 2004) to India (Khemani 2004).

In this paper we use a new and unique data set from Turkey, which is a middle-income developing country. The data contain detailed information on personal attributes, including age, education, field of study (undergraduate major, or graduate field of study), gender, and political party affiliation of each of the more than 2,000 politicians elected in each district (typically, a city) in five consecutive parliamentary elections between the years of 1991 and 2011. We combine this information with the number of votes received by each party in each district in these elections, and make use of an interesting feature of the official d'Hondt seat-allocation

formula that determines the winners and the winning margins in election districts. In the application of this formula,[3] a small shift in the distribution of votes between parties in an electoral district has implications on who gets elected. In other words, the number of seats won by each party in a given district is sensitive to small changes in the vote shares of political parties in that district. This feature of the d'Hondt method introduces an element of randomness to the process of who gets elected to the Parliament from a given district and who loses by a small margin. Thus, it creates election uncertainty. We explain below in detail the specifics of the d'Hondt method and the electoral uncertainty generated by it.

We show that politicians are more likely to switch parties after the election (despite the fact that they won a seat in the Parliament) if they faced election uncertainty. In other words, politicians who had a narrow victory are more likely to switch parties. This result is very robust to various measures of election risk, and accounting for the potential impact of unobservables. In addition, we find the tendency to switch parties rises in MP salaries. Also, the propensity of an MP to jump ship and transfer to another party is higher if the MP is a member of the governing party, but only if the majority of the government in the Parliament is slim (fewer than 25 seats out of 550). Election uncertainty prompts party switching among the less-educated (no graduate degree) and younger MPs. Controlling for the earnings potential of the MPs by their college or post-graduate field of study, or by the quality of the university they graduated from, does not change these results. However, we find that for the MPs whose education is a college degree or lower, electoral uncertainty prompts party switching when the quality of the MP's alma mater is low.

[3] d'Hondt method is used in many other countries as well, including Austria, Argentina, Bulgaria, Japan, Paraguay, Colombia, Poland, Israel, Belgium and Finland. This method is equivalent to the Jefferson method, devised by Thomas Jefferson in 1792.

We further show that politicians switch parties to improve their *ex-ante* re-election probability in the following election. Specifically, we find that the party-switching politicians are nominated by their new (destination) parties in the next election in districts and/or ranks on party tickets that are more favorable to their re-election chances. We find that party switchers change parties so that they move towards the median voter on the ideological spectrum.

Barro (1973) and Ferejohn (1986) suggested that voters (principals) can minimize the moral hazard of the elected representatives (agents) through re-election decisions.[4] In models of retrospective voting, voters can evaluate the performance of the incumbent and vote in the next election to retain or replace the incumbent (Persson et al. 1997).[5] Thus, retrospective voting is a vehicle through which democratic accountability can be established (Besley 2006).[6]

We investigate whether dishonest politicians, who betrayed their voters and switched parties, get reprimanded by voters in the next election. If voting is a mechanism through which citizens select leaders who will govern honestly (Fearon 1999), then voters should oust politicians who abuse the trust of voters. In other words, elections could be a discipline device for the incumbents. For example, Ferraz and Finan (2008) show that in Brazil, publicly releasing audit reports of municipalities had a significant impact on election outcomes of incumbents, indicating that the politicians who violated the public trust are punished by voters.

[4] Efficiency wages may be another device that can be used to align voter and politician interests (Becker and Stigler 1974). Recent research has investigated the impact of politician salaries on their work effort and quality (Gargliarducci and Nannicini 2013, Mocan and Altindag 2013, Caselli and Morelli 2004, Besley 2004).
[5] Repeated voting can also be a mechanism whereby voters evaluate and select better-performing politicians (Ashworth 2005).
[6] The standard approach is to investigate whether voters consider improvements in macroeconomic conditions as indicators of the quality of the elected politicians decide by retrospective voting on whether to re-elect or replace them (Nordhaus at al. 1989), and whether voters "vote by the pocketbook" (Brender and Drazen 2008, Lewis-Beck, Nadeau and Elias 2008, Markus 1988, Fair 1978).

We find that party-switching politicians are slightly *more likely* to get re-elected in the next election. This suggests that dishonesty is being rewarded, rather than punished by voters. However, it should be kept in mind that the voters who are rewarding the party-switching politicians are those who are the supporters of *the destination party* (the party to which the MP has switched).

In complementary analyses, we investigate how the vote share of each political party changes between elections in each district. Consistent with the finding that party switchers are more likely to get elected, we find that in the election for an upcoming Parliamentary term, if a party's ticket contains a politician who has served as an MP *for another party* in the immediately preceding Parliamentary term, the vote share of that party in that district *increases* in comparison to the previous election, holding constant other determinants. This could be because voters consider the addition of the transferred politician to their party's ticket as a sign of quality or power of their party. It could also be due to the electoral system: voters can only vote up-or-down for the entire ticket. Thus, another interpretation of this last result could be that voters of the destination party *do not* abandon their party to punish the politician who switched to the destination party, presumably because the utility obtained from their party's success in the election outweighs the disutility of voting for the party-switching politician.

To account for the potential impact of unobservables, we implemented the procedures suggested by Altonji et al. (2005) and Oster (2014). The results confirmed our findings and demonstrated that, if anything, our reported estimates may be an underestimate of the true impact of election uncertainty of party switching. Finally, an RDD analysis produced the same conclusion.

These results point to forward-looking behavior of politicians regarding their strategy to win future elections, and show that politicians switch parties primarily for career concerns and the financial benefits that are associated with longer tenure in the Parliament. The results also signify that competition between political parties continues *after the election*, in the form gaining seats in the Parliament by transferring politicians who have won elections as representatives of competing parties. This constitutes another dimension of the political agency problem.

Section II provides information on the structure of the election system, and Section III describes the empirical framework. Section IV presents the data, Section V includes the results. Section VI is the conclusion.

II. The Structure of the Election System

Proportional representation is the most prevalent election system in the world. It is being used in 38 countries in Europe, from Austria to Iceland, from Italy to Switzerland; and in 16 countries of the Americas, from Argentina to Colombia, from Brazil to Chile.[7] If the electoral rule in proportional representation is based on close-list or party list system, each party submits a list of "N" candidates (ordered from 1 to N) in a given district prior to the election, where "N" is the number of contestable seats in that district. Voters cast ballots for a particular party, not for any given candidate. Using a seat-allocation formula based on vote-shares of parties, the number

[7] The European countries that use proportional representation are: Albania, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Cyprus (North), Czech Republic, Denmark, Estonia, Faroe Islands, Finland, Greece, Greenland, Iceland, Italy, Kosovo, Latvia, Liechtenstein, Luxembourg, Macedonia, Moldova, Montenegro, Netherlands, Netherlands Antilles, Norway, Poland, Portugal, Russia, San Marino, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey. Central and South American countries using this system are: Argentina, Aruba, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Guyana, Honduras, Nicaragua, Paraguay, Peru, Suriname, Uruguay. The countries in Africa, Asia and Oceania using proportional representation are: Algeria, Angola, Benin, Burkina Faso, Burundi, Cape Verde, Equatorial Guinea, Guinea-Bissau, Morocco, Namibia, Rwanda, Sao Tome and Principe, South Africa, Togo, Tunisia, Bhutan, Cambodia, Fiji, Indonesia, Iraq, Israel, Kazakhstan, Kyrgyzstan, Mongolia, Palestine, Sri Lanka,Timor-Leste.

of seats won by each party ranges from 0 to N. Once the number of seats won by each party is determined in each district, parties send their winning candidates from their list to the Parliament in descending order.

Turkish elections are based on closed-list proportional representation system with a 10% national threshold for representation.[8] During elections, political parties compete in 85 electoral districts. A district is typically a city although some big cities, such as Istanbul and Ankara, are divided into two or three districts. Each district is allocated a certain number of seats, and the candidates who win these seats become the MPs to represent that district in the Parliament.

Before the elections, in each district every political party determines and officially announces the ranking of its candidates on the party ticket. For example, if a given district is allocated 7 seats in the Parliament, then each party nominates 7 individuals as candidates from that district. Each party ranks these 7 candidates in descending order, where candidate Number 1 is the first person who would be an MP from that party from that district, candidate No. 2 would be the second person to be sent to the Parliament from that party, and so on. After the votes are counted in the district, the d'Hondt formula allocates the 7 available seats between the parties based on the distribution of votes in that district. For example, if a party is entitled to 2 seats in a district that will send 7 MPs to the Parliament, then the first- and second-ranked candidates from that party's list become MPs to represent the party, but the candidate ranked 3rd on the Party list is not elected; nor are the candidates ranked 4th, 5th, 6th and 7th.

In the d'Hondt method, the number of votes obtained by each party in the district is divided by consecutive positive integers up to, and including, the total number of seats in that district. Parties with the largest quotients win seats. Consider the hypothetical example of a

[8] That is, only those parties that have obtained at least 10% of the nation-wide vote are represented in the parliament, regardless of the outcome in any particular district.

district with 100 voters. Assume that there are 7 seats to be allocated and five competing parties: A, B, C, D and E. Suppose that in the election these parties have obtained 10, 13, 19, 25, and 33 votes, respectively. d'Hondt method divides each party's votes by 1, 2, 3, 4, 5, 6 and 7. Parties with the 7 largest quotients win seats. This is illustrated in Panel 1 of Table 1. The seven biggest quotients (highlighted in bold) are 33, 25, 19, 16.5, 13, 12.5 and 11. The quotients 33, 16.5 and 11 are associated with party E. Therefore party E wins 3 of the 7 available seats. The quotients 25 and 12.5 belong to Party D, so Party D wins two seats; and Parties B and C win 1 seat each. As a result, party B's and party C's top ranked candidates are elected as MPs. Party D sends its top 2 candidates to the Parliament, and party E's top 3 candidates are elected as MPs. Party A does not win a seat.

This allocation mechanism has important properties. First, *small changes in the distribution of votes can impact the number of seats won by each party*. For example, as Panel 1 of Table 1 demonstrates, party B has received 13% of the votes (13 votes out of 100) and qualified for 1 seat, while Party A has not qualified even though its vote share (10%) is only 3 percentage points lower than that of Party B.

A better demonstration of this point can be made by comparing the vote distributions depicted in Panels 1 and 2 of Table 1. In both cases, there are 100 voters, and in both cases parties B, C and E received the same number of votes. The only difference between the election results shown in Panels 1 and 2 is that in panel 2, Party D received 23 votes (instead of 25); and these 2 voters moved from Party D to Party A. The resultant d'Hondt calculation is also presented in Panel 2, which shows that the 2% loss suffered by Party D did not impact the number of seats of Party D (party D still qualified for two seats). On the other hand, this 2% vote loss of Party D produced a seat in the Parliament for Party A at the expense of a seat for

Party E. More specifically, this slight shift of votes from Party D to Party A cost one MP to Party E, while Party A gained one seat.

As shown in Panel 3 of Table 1, if 2 more individuals had voted for party A instead of D, the election outcome would have been more different yet: In that case, parties A, B, C and D would qualify for one seat each, while party E would have 3 MPs.

Importantly, because candidates are elected based on *their rank* on their parties' list, *even marginal changes in vote distribution may lead to alterations in who is elected from a given party*. For example, under the vote distribution presented in Panel 1 of Table 1, the first-ranked candidates of parties B and C (denoted by B1 and C1), the first- and second-ranked candidates of party D (D1 and D2), and the first three candidates of party E (E1, E2 and E3) will be elected as MPs.

The top panel of Table 2 replicates the election outcomes generated by vote distribution displayed in the top panel of Table 1. The elected candidates, based on this distribution, and their corresponding quotients are re-displayed in the bottom panel of Table 2. Once again, the district sends 7 MPs to the Parliament; thus the politician who ends up with the 8^{th} largest quotient does not qualify to be an MP. The quotient of candidate E3 (the third ranked candidate of party E) is 11, and it is the 7^{th} largest quotient. So, candidate E3 has won the 7^{th} and the last seat of the district by beating A1 (who is the first-ranked candidate of party A). On the other hand, A1 has the 8th largest quotient (which is 10) in the district, and therefore did not qualify for a seat.

The bottom panel of Table 2 also displays the margins of victory (MV) for each elected MP. MV is the difference between the quotients of each elected candidate and the candidate who just missed qualifying for the last seat from that district. For example, the person who won

the 7th and the last seat in this district is candidate E3, and her margin of victory is 1 (the difference between the E3's and A1's quotients). Candidate E1 is the first-ranked candidate of party E; her quotient is 33 and therefore her MV is 23. In some specifications we will use the margin of victory as an (inverse) measure of electoral uncertainty faced by the politician.

The bottom panel of Table 2 also identifies the "last candidate elected" from each party in the district. This person is the lowest ranked candidate who won a seat from that party's ticket. For example, Party E won three seats from the district and therefore the 3rd –ranked candidate of that party (E3) is the last candidate of that party who secured a seat. Similarly, D2 is the last candidate from party D who won a seat from this district. C1 is also the last person elected from her party's list. She is the 1st- ranked candidate of party C, but she is also the last one elected on that party's ticket. In some specifications we will employ being "the last person elected" as a measure of electoral uncertainty faced by the elected MP.

Finally, the rank of the candidate on his party's ticket and the number of contested seats in his district allow us to determine the necessary proportion of votes that should be received by that candidate's party for him to have a chance (positive probability) to get elected. Similarly, the sufficient proportions of votes (the percentage of votes that should be received by the party to guarantee a seat for that candidate) are calculated for each candidate. These measures are alternative indicators of election uncertainty faced by the candidates. The details of these measures are explained below.

III. Empirical Framework

Consider politician (*m)* from party (p) who won an election at time *(t)* from city *(c)* to become a Member of the Parliament (MP). Let *Party Switch*$_{mcpt}$ be an indicator to represent whether the MP has switched to another political party during the parliamentary term which started after the election at (*t*). That is, *Party Switch*$_{mcpt}$ =1 if the MP switched to another political party after winning a seat in the election at time (*t*), but before the following election. The probability of switching parties can be estimated as

$$(1) \qquad Party\ Switch_{mpct} = \beta\ Election\ Uncertainty_{mpct} + \boldsymbol{MP\ Benefits_{mct}}\ \boldsymbol{\Omega} + \boldsymbol{X}_{mt}\boldsymbol{\Psi} + \lambda_c + \pi_t + \xi_p + \varepsilon_{mpct}$$

$Election\ Uncertainty_{mpct}$ stands for electoral uncertainty faced by the MP in the most recent election. It is a measure of how easily the MP was elected from city c after being nominated by party p at election t. If the MP has won his/her seat after a competitive race, this indicates that he/she could have lost; and this represents electoral uncertainty in the next election if nothing changes (i.e. if the MP is re-nominated by the same party, from the same district, at the same party rank). We use several measures for electoral uncertainty. For example, we use the *Rank* of the MP on their party's list when they entered the Parliament for term t. Candidates ranked lower on their party list, although they won a seat, had faced smaller probabilities of election. In some regressions, we include *Rank* as a continuous variable or as a set of indicator variables (e.g. *Ranked Second*, *Ranked Third*, etc.). We also use the margin of victory in the election (see Table 2) as an (inverse) measure of electoral uncertainty faced by the politician. In other specifications we use an indicator to represent whether the MP was the last person (lowest ranked) who won a seat from his/her party's ticket.

We also calculate the necessary and sufficient conditions for each candidate in each district to win a seat. Following the formulation provided by Palomares and Ramirez (2003), the *minimum* proportion of votes required for guaranteed election of each candidate is calculated as:

$$(2) \qquad \%\, vote\ for\ guaranteed\ election = 100 \times \frac{Rank}{Seats+1}$$

where *Rank* is the rank of the candidate on his/her Party's list and *Seats* represents the number of seats contested in the electoral district. For example, if a party competes in a district with 3 contested seats, then, the first-ranked candidate of the party will be elected for sure if the party receives more than 25% of the votes ($100 \times {}^{1}/_{4}$). In another district with 12 seats, the party has to obtain more than 23% of the votes in order for its *3rd* ranked candidate to be elected (3/13=0.23), and so on. The formula in Equation (2) provides the *sufficient* share of votes to get elected for each candidate in each election district. Obtaining a vote share above this threshold guarantees election of the candidate, regardless of the votes obtained by other parties.[9]

For each candidate, we also calculate *the minimum share of votes* (the necessary share) above which his/her election probability becomes positive, using the formula below:

$$(3) \qquad Minimum\ \%\ vote\ for\ Prob(Election) > 0 = 100 \times \frac{Rank}{Seats-1+Parties}$$

where *Parties* represents the number of parties competing in the district. For example, consider a district with 2 contested seats, and 3 competing parties in this district. In this case, no party that obtains less than 25% of the votes will win any seats in this district. In other words, even for the

[9] Of course, some candidates could be elected even if their party receives votes below this calculated threshold. This is because, the threshold calculated by Equation (2) only differentiates between election probabilities of 1 versus less than 1. For instance, in the example demonstrated in Table 1 under Distribution 2 (five parties competing for seven seats), the minimum vote share for guaranteed election for a first-ranked candidate is 12.5% (as $\frac{1}{7+1} = 0.125$). In other words, to receive 12.5 % of the votes would be sufficient for any first-ranked candidate in that district to secure a seat, but in that example Party A's first-ranked candidate is still elected, even though party A received 12% of the votes.

first-ranked candidate of a party to have any chance of election, her/his party has to obtain at least 25% of the votes. In another district with 12 seats and 3 parties competing, a party has to gather at least 21% of the votes for their 3rd ranked candidate to have a chance of getting elected. This is the *necessary* condition for each third-ranked candidate to have a shot at being elected.

The vector $\boldsymbol{MP\ Benefits_{mct}}$ in Equation (1) represents the monetary and psychic benefits associated with being an MP. We use the relative MP salary as a measure of financial benefit to being an MP. Nominal MP salaries are increased by the Parliament regularly, typically twice a year. The rate of increase in salaries, however, varies from year to year. [10] We employ the ratio of MP salaries to per capita income of the city from which the MP was elected. Thus, the measure of salary exhibits variation both over time and across MPs.

If the MP is a member of the party that has formed the government, the MP's seat is more valuable to the opposition parties because a transfer of the MP to one of the opposition parties weakens the power of the government, and increases the power of the opposition. Thus, we control for whether the MP is the member of party (parties) that runs the country (*Member of Government Party).*

The vector $\boldsymbol{X_{mt}}$ stands for personal attributes of the MP. Some of these attributes, such as age at the time of election, may impact the probability of switching parties because they are related to the discounted future benefits of staying as an MP (Alesina et al. 2015). Other variables, such as gender, may have an impact if females are systematically different from males in terms of the honesty of their actions. For example, holding constant other determinants,

[10] For example, in 1991, the monthly real MP salary (indexed to 2010 prices) was equivalent to TL14,397 Turkish Lira (TL). In 1995 it was TL 6,005, but went up to TL12,669 in 1999. Monthly MP salaries were TL12,629 in 2002 and TL10,447 in 2007. In 2010 one USD was equivalent to 1.5 TL.

criminal propensity of women are lower than that of men (Mocan and Rees 2005, Jacob and Lefgren 2003), and women are shown to be different than men in other dimensions, such as risk aversion (Croson and Gneezy 2009).

$\boldsymbol{X_{mt}}$ includes the level of education of the MP because education determines outside options. Education can also impact values and preferences, which can influence the decision to switch parties and betray the voters. Following Besley et al. (2011), schooling is measured by whether the MP has a master's degree or a doctorate (*MA/PhD*), and whether the MP has obtained a college degree outside of the country (*School Abroad*). We also utilize information on undergraduate major or the area of graduate study of the MP.

Party-electoral district level control variables are the share of votes obtained by the MP's party in the MP's electoral district (*Party's Vote Share*) and the number of contested seats in that district (*Seats in District*). We also control for whether the MP was elected for the first time (*Freshman*) because the tendency to switch parties may be impacted by networks that may be generated through the experience in the Parliament.

When nominating their candidates, party leadership may rank them according to the candidates' perceived loyalty to the party's cause (Galasso and Nannicini 2014). If parties nominate more loyal candidates at higher ranks on the list, or nominate loyal candidates in districts that are more favorable for their election, and if the probability of party switching decreases with loyalty, then our estimated effect of party rank may partly capture the effect of party loyalty. We include a variable to indicate whether the MP was *Elected from the same party* in a previous election. Longer tenure in a party represents an individual's loyalty to that party's cause. We also control for whether the MP is a member of the Cabinet (a Minister of the Government). Being a *Cabinet Member* provides additional prestige and visibility, as well as

opportunities for networking that can be turned into future financial rewards. These positions are usually afforded to individuals who have long-term affiliations with the party. It is also possible that party leadership ranks a candidate lower on the ticket if the candidate is perceived to be too ambitious for his/her career. We collected data to proxy the "ambition" of the MPs. Specifically, we controlled for the extent of the visibility of the MP in the Parliament, measured by the number of activities, such as speeches delivered, and questions asked in the Parliament.

Culturally, voters in some cities may be more or less tolerant about politicians' switching parties and the same may be true for the supporters of certain political parties. These unobserved city and party attributes will be controlled for by including city and party fixed-effects (λ_c). We also add parliamentary term fixed effects (π_t), and political party fixed effects (ξ_p).

We hypothesize that higher uncertainty about re-election prospects under the current party affiliation would prompt the MP to switch to another party and be nominated from that new (destination) party in the next election. In other words, if the MP perceives his/her chances of being re-elected as low with the current party, the propensity to switch alliance to another party is higher. This assumes that, from the point of view of the MP, a condition for the switch is the assurance that the new party would nominate the MP at a district and/or position on the party list that would provide *ex-ante* a higher chance of election during the next (upcoming) election in comparison to the election he/she just won. So, a testable hypothesis is whether those MPs who switched parties are being nominated at positions for the following election so that their *ex-ante election probabilities* are higher in comparison to what they have experienced in the preceding election. We test this hypothesis and provide strong support for it. Specifically, we investigate the electoral consequences of party switching for the MP in the following election, using the specification below:

(4) $$Next\ Election\ Outcome_{mpct+1} = \beta Party\ Switch_{mpct} + \boldsymbol{MPBenefits}_{mct}\,\boldsymbol{\Omega} + \boldsymbol{X}_m\boldsymbol{\Psi} + \lambda_c + \pi_t + \xi_p + \varepsilon_{mpct}$$

where *Next Election Outcome*$_{mpct+1}$ stands for the election outcome of the MP (*m)* pertaining to the next parliamentary term in election year (t+1). The analyses, based on Equation (4), allow us to investigate how future election outcomes are different between those MPs who switched parties (*Party Switch*$_{mpct}$=1), and those who did not. We use several variables for $Next\ Election\ Outcome_{mpct+1}$. For example, we consider whether party switchers are more likely to run for re-election, how favorable the switchers are ranked by the new (destination) parties in the next election, and whether they are actually re-elected in the next election. The variables included in the vector $\boldsymbol{X}$ are same as those used in equation (1).

Finally, we also analyze how a party's election success in a district is impacted by having on the ticket an MP who was transferred from another party. In these regressions the unit of observation is a city-election-party. Specifically, consider Equation (5) below

(5) $$\%\,Vote\ in\ District_{pct} = \gamma\,\%National\ Vote_{pt} + \theta Gov'tParty_{pt} + \lambda_c + \pi_t + \xi_p + \upsilon_{pct}$$

where the proportion of votes received by party (*p*) in city (*c*) in election year (*t*) is depicted by %*Vote in District* $_{pct}$, which is a function of the nation-wide success of the party (% *National Vote*$_{pt}$) and whether the party entered the election as the Governing Party (*Gov't Party*$_{pt}$). The political sentiment in the city, which impacts the number of votes received by the party, is captured by city fixed effects λ_c. Election year fixed-effects are captured by π_t, and party fixed-effects are represented ξ_p.

Writing Equation (5) for the next election year *t+1* and taking the first-differences, we estimate Equation (6) below

(6) $$\Delta\ \%Vote\ in\ District_{pct} = \gamma\ \Delta\ \%\ National\ Vote_{pt} + \theta\ \Delta\ Gov'tParty_{pt} + \varphi\ MPs\ Gained_{pct} + \delta_t + \mu_c + \tau_p + u_{pct}$$

where Δ stands for the change in the relevant variable between the two consecutive elections.[11] Although district fixed-effects and party fixed-effects drop out from equation (6), we nevertheless keep them to absorb any residual unobserved variation. In equation (6) the variable $MPsGained_{pct}$ stands for the number of MPs who switched to party *(p)* from other parties between the two elections, and are now nominated from party (*p*). Thus, we analyze how the vote share of party (*p*) changes from one election to another and whether this change is impacted by whether or not the party's ticket in that election in that city contains an MP who was transferred from another party.

IV. Data

Our data set is composed of individuals who are elected as members of the parliament (MPs) in the Grand National Assembly of Turkey in parliamentary terms 19 to 23 (1991-2011). We analyze five consecutive elections for which complete data are available. Our outcome variable *Party Switch* denotes whether an MP's beginning-of-term party is different from their end-of-term party. In our data set, out of 2,208 MP-term observations that entered into our regressions, there are 254 party switches (12%).[12] The distribution of MPs by their beginning-of-the-term and end-of-the-term parties is presented in Appendix Tables 1 and 2, respectively. The

[11] More accurately, elections take place 4 years apart, and the change in a variable Y between elections (ΔY_t) represents $Y_t - Y_{t-4}$

[12] Some MP-term observations are omitted. Specifically, the MPs who passed away before the end of the term are not in the analysis, so are the MPs who resigned from their party but remained as independent (not affiliated with any party) or who were forced to resign by the constitutional court. An MP's switch to another party is not counted as a party switch if their initial party is shut down by the constitutional court. Some parties changed their names. Such name changes are also not considered as party switches either.

number of MPs who switched parties and their share in the parliament are presented in Table 3 for each parliamentary term.

Party switch information is obtained from three sources: 1. Parliamentary Bulletin (Meclis Bulteni) – the official monthly journal of the Turkish Parliament; 2. meclishaber.gov.tr – the official news web site of the Turkish Parliament. For the 23rd term (2007-2011), information on whether an MP has switched parties was not available in these sources. Therefore, for this particular Parliamentary term, we determined each MPs party affiliation using the latest roll-call voting data.

We obtained the rank of each MP as he/she was listed on the party list before an election from the official gazette of the Parliament (Resmi Gazete). Based on this information, we constructed the variable *Rank* which is the rank of an MP on the party's list of candidates in the electoral district. This variable is continuous. We also generated variables that indicate whether the MP is ranked *Second*, *Third*, *Second or Lower*, *Third or Lower* and *Fourth or Lower* on their party list. 42% and 24% of the MPs were ranked as first- and second-highest candidates in their party list, respectively. The remaining 34% were listed as third-ranked or worse.

We augment our data set with MPs' personal characteristics and their party's election results. Variables *Female*, *Age>50* and *MA/PhD* indicate whether the MP is female, older than 50 years old and has completed a degree beyond college. *School Abroad* indicates whether the MP has obtained a degree from a school outside Turkey. This variable potentially captures both the quality of education an MP has received and personal wealth of the MP, as getting schooling abroad is costlier than going to school in Turkey. *Cabinet Member* denotes whether the MP also served as a minister in the cabinet in the parliamentary term. *Freshman* takes the value of one if the MP has not been elected to the Parliament previously, and zero otherwise. *Seats in District*

measures the number of seats contested in the electoral district that the MP is representing. *Party's Vote Share* is the share of votes obtained by the party of the MP's electoral district. The data source of personal characteristics is the profiles of the MPs in Turkish Parliament web site. Election results data are obtained from the official gazette (Resmi Gazete). The summary statistics and the descriptions of the variables are presented in Table 4.

V. Results

Determinants of Party Switching

The results, obtained by estimating Equation (1) by probit are presented in Table 5. The entries are marginal effects, and standard errors are clustered at the MP level. The outcome variable is *Party Switch*. This variable takes the value of one if the MP switched to another party after being elected. In addition to the variables listed in the table, regressions include indicators for MPs' initial party affiliation, parliamentary term fixed-effects and city (which is the same as election districts, with the exception of three largest cities which are divided into 2 or 3 district) fixed-effects.

In the model reported in column (1) of Table 5, electoral uncertainty faced by the MP is measured by the variable *Rank*, which is the rank of the MP on the party's election list. MPs with higher values of *Rank* were ranked lower on their party's list of candidates. Thus, they had smaller chances of being elected, and faced greater uncertainty in comparison to a candidate from the same party but who was ranked higher on the list. Column (1) shows that the MPs who were ranked towards the bottom of their party list are more likely to switch to other parties before the end of the Parliamentary term, in comparison to those who are ranked higher.

Forty-two percent of the MPs are ranked at the top of their ticket. This means that having been ranked as the second or the third candidate on the ticket is associated with substantial uncertainty about election prospects.[13] In columns (2) to (4) of Table 5, we use indicator variables instead of a continuous measure of party list rank. For example, the variable *Ranked 2nd or Lower* takes the value of one if the MP was ranked second, third or lower on the party ticket. The results show that MPs who were ranked second, third, or lower are more likely to defect from their original party and switch to another party in comparison to the top ranked candidates on their parties' lists. For example, column (3) shows that, compared to their counterparts who are ranked first, second-ranked MPs are 2.3 percentage points more likely to switch parties, and the MPs who got elected as the 3rd ranked candidate or lower, are 2.9 percentage points more likely to switch.

In columns (5) and (6), we utilize the vote thresholds in the district implied by the d'Hondt method as alternative measures of election uncertainty faced by the MP. As explained in Section II, we calculate the threshold vote share above which a candidate is definitely elected (*the sufficient* share of votes for that candidate in that particular rank to be elected), and the threshold vote share above which the candidate has non-zero probability of election (the *necessary* proportion of votes for this candidate to be elected). Because these thresholds incorporate the number of contested seats and the number of competing parties, they allow for a comparison of election uncertainty of MPs across districts and over time.[14] *Higher* values of

[13] This of course in not true in very large districts, such as in Istanbul, where a district produces on average 17 MPs. Even in such mega-districts, the median of Rank of the elected MPs is 3.

[14] For example, to have a non-zero probability of election, the party of a second ranked candidate has to obtain at least 20% of the votes in an electoral district, say District 1, where 6 parties are competing for 5 seats. In another district, District 2, where the same number of parties competes for 6 seats (one more compared to District 1), a party has to obtain at least 18% of the votes in order for their second ranked candidate to have a shot at election. Notice that, holding party-list rank constant, in District 1, where there are fewer available seats, the candidate's chance of

these threshold variables signify *greater uncertainty* and tightness of the election the MPs have faced. The coefficient of *Min % Vote for Guaranteed Election* in column (5) of Table 5 suggests that a 10 percentage point increase in the threshold vote share MP has faced in the election increases the probability of his/her switching parties by 1 percentage point. Similarly, an MP who faced a higher threshold for non-zero election probability is more likely to switch parties (coefficient of *Min % Vote for Election prob>0* in column 6).

In column (7), we measure electoral uncertainty by the *Margin of Victory* (MV) of the MP. As demonstrated in the bottom panel of Table 2, MV is the distance between the elected MP's quotient (determined by the d'Hondt formula) and the quotient of the cutoff candidate, who just missed getting elected. A larger value of the MV indicates that the MP has won the election with a larger cushion. Consequently, as Table 5 shows, a larger margin of victory reduces the propensity to jump ship and switch parties after the election.

Column (8) of Table 5 presents a different specification. Here, the model includes a dummy variable *Elected as the Last Person on the Ticket*, which takes the value of 1 if the MP was the last person elected from his party's ticket in that district. For example, in the example of the bottom panel of Table 2, the first-ranked candidate of party B (B1) is elected as an MP, and he is also the lowest ranked person elected from his party, because he is the only one elected from party B. So, for him, *Elected as the Last Person on the Ticket*=1. On the other hand, in that same table we observe that Party E produced three MPs. Therefore *Elected as the Last Person on Ticket* takes the value of 1 only for E3, the 3rd-ranked MP of party E.

Consistent with other specification, column (8) shows that if the MP is the *last* person elected from his party's ticket in a district, he/she is 2 percentage points more likely to switch

election is smaller compared to that in District 2 which has more available seats. Larger thresholds indicate worse election chances. The construction of these variables is explained in Data section.

parties after the election in comparison to another MP who was elected from the same district, in the same election but not as the last person elected.

These results demonstrate that electoral uncertainty, regardless of how it is measured, has a positive impact on the politicians' propensity to jump ship and switch parties, despite winning elections.

The variable, titled "*Relative Salary*" is the ratio of real MP salary to the per capita income in the city from which the MP was elected. MP salaries are periodically adjusted upwards by the Parliament, and there is variation in per capita income between cities. Thus, *Relative Salary* varies both over time and between cities. Table 5 shows that an increase in MP salaries in comparison to per capita income has a positive impact on the propensity to switch parties, likely because an increase in salary makes the MP's post more attractive.

Members of the Parliament who are also members of the cabinet are less likely to switch to another party. This is arguably because, *Cabinet Members* have access to government resources, and defecting from their current party may reduce opportunities to obtain governmental pork (Desposato 2006). Members of the Parliament who were 50 years of age or older when they were elected, are less likely to switch parties. This could be because it may not pay off to switch parties and start off anew at a different party when time left to retirement is shorter. This finding is consistent with Alesina et al. (2015).

Freshman parliamentarians are less likely to switch parties. These MPs are elected to the parliament for the first time, and presumably because of this, they did not have enough time to network and make connections with competing parties to be able to switch their party affiliation. Those MPs who have received a college or graduate degree outside Turkey are less likely to switch parties. To receive a college degree abroad could be an indicator of wealth, or superior

academic performance in high school. MPs who obtained a degree abroad are more likely to be a member of a wealthy family compared to MPs who went to college in Turkey, because attending school abroad is more expensive compared to obtaining a degree in the country. Alternatively, an MP could obtain a degree abroad with the support of a scholarship thanks to their superior academic performance in school. In either case, wealthy or academically successful MPs have better outside options in the labor market. Those who are elected multiple times from the same party (and have not switched parties) are more likely to be loyal to the party. The coefficient of *Elected from the Same Party Before* is negative and significant in all specifications, but omitting this variable, which captures party loyalty, has no impact on other coefficients.

An interesting result in Table 5 is the impact of *Member of the Government Party*. This variable takes the value of one if the MP's party is the governing party in the Parliament, either as the majority party or as part of a coalition government. The results show that if MP is the member of the majority party (the governing party), then his/her probability of switching parties is seven percentage points larger. This is likely because it is a more attractive proposition for the MP to transfer to another party if he/she is a member of the majority party, because such a move weakens the government, and strengthens the opposition. Furthermore, it is expected that the *impact is larger* when the margin of the majority of the government is *smaller*.[15] We estimated the model in column (2) of Table 5 by interacting *Member of Government Party* with the *Size of*

[15] For example, if the Parliament consists of 550 seats, then for a party to be the government, it has to have won more than 275 seats. Consider two scenarios. In both cases, a particular party won the election, but assume that in the first scenario it secured 285 seats in the Parliament, whereas in the second case it gained 300 seats in the election. The difference in seats between the government party and the opposition is narrower in the first case. More specifically, if only 10 MPs of the governing party switch sides and transfer to the opposition, there government would fall as it does not maintain the majority any longer. This suggests that the impact on party switching of being an MP of the governing party should be larger, the narrower is the majority of the governing party.

the Majority, where the latter is measured by ($Number\ of\ seats\ of\ the\ government\ party - Total\ seats\ in\ parliament/2$). The impact of *Member of Government Party,* evaluated at different majority levels, is presented in Figure 1.[16] The solid line demonstrates the marginal effects and the dashed lines represent the 95% confidence internal. MPs have a larger propensity to change party allegiance if the majority of the government is narrow. If the government has a majority cushion of at least 25 seats in the Parliament, then being a member of the governing party has no impact of party switching. In other words, the value of an MP who belongs to the governing party is zero when the government has 50% of the seats + 25 or more votes in the Parliament.

Recall that Margin of Victory (MV) is the distance between the elected MP's quotient, calculated by the d'Hondt formula and the quotient of the Cutoff candidate (see Table 2). A smaller value of MV signifies a greater uncertainty of election. We re-estimated the models for the probability of switching parties, shown in Table 5 using only the MPs who got elected with MV≤5 and alternatively, with MV≤3. The MPs who got elected with such small margins have experienced particularly noisy elections that could have resulted differently. The results are presented in Table 6 for selected specifications. As before, having a low ranking on the party ticket increases the propensity to change parties after the election, but unsurprisingly, the impact of rank is larger among this group of MPs, compared to the whole sample analyzed in Table 5.

Alternative Specifications

In Table 7 we present alternative specifications to investigate the robustness of the results. In column (1) of Table 7 we include a dummy variable to indicate if the MP was ranked

[16] Using other specifications reported in Table 5 provided almost identical results.

2nd or lower on the ticket, another dummy to indicate if he/she was the last person elected from that party ticket in that district and the interaction of these dummies, along with all other controls. Panel A of the table reports the marginal effects of the rank variable, and Panel B reports the difference of the marginal effects of the rank variable evaluated when the MP was/wasn't elected as the last person (Elected as the last person=1 and =0). The results show that holding constant the rank of the MP on his/her party's ticket, he/she is more likely to switch parties if he/she was elected as *the last person on the ticket*.

Are the politicians who were listed at the top of the party ticket different?

It can be argued that the politicians who were listed at the top of the party ticket in an election district could be different than those who were listed lower. More specifically, those who were listed at the top of the ticket could be more loyal to the party than those ranked lower on the ticket. In that case, it is the party loyalty, rather than election uncertainty would be the reason for party switching. Columns 3-5 of Table 7 report models estimated by *excluding* MPs who are ranked at the *top of their party tickets*. Thus, this sample contains those who are elected as 2nd or lower-ranked candidates. The left-out category in these models is those who are ranked 2nd on their party ticket. Column (3) shows that, the propensity to switch parties is higher for those MPs who are ranked fourth of lower in comparison to those who are ranked third or second (which is the left-out category). Columns (4) and (5) show that as the difficulty of winning the election goes up (represented by *Min % Vote for Guaranteed Election*, and *Min % Vote for Election Prob>0*) the probability of switching parties goes up, although the coefficient is not significant at conventional levels in column (5).

Finally, columns (6) and (7) of Table 7 display the models that are estimated *using only the sample of first-ranked candidates*. These are the MPs who were listed at the top of their party list in their district. These individuals may be listed as the top candidates because they may have stronger ties to the party and they may be perceived as more loyal (less likely to jump ship) by party leaders. Still, even in this group, election uncertainty, represented by an increase in the proportion of votes necessary for election has a positive impact on the propensity to switch parties.

Ambition?

It is possible that more ambitious politicians are more likely to switch parties. Ambition is not observable, but a politician's ambition about his/her political career may be correlated by his/her activities in the parliament. We collected data on the number of speeches on the floor, oral or written questions delivered, motions and proposals submitted in each parliamentary term. This variable, titled *Effort,* is included to the models as an additional control. The mean of this variable is 42. The results are presented in Table 8. The effort of the politicians in the parliament (after the election) is positively related to the propensity to switch parties, although mostly statistically insignificant[17]; but the effect of election uncertainty on the propensity to switch parties is not impacted by accounting for effort.

Unobservables?

[17] The variable *Effort* in Table 8 is re-scaled as Effort/100.

These findings provide evidence for a positive causal effect of election uncertainty on party switching. It could be argued, however, that politicians are selected into situations of election uncertainty (ranks on the ticket) because of unobservables. In other words, those MPs who faced higher election uncertainty might be different from other MPs in unobservable ways. We applied the procedures suggested by Altonji et al. (2005), and Oster (2014) to investigate this premise. The results, presented in Appendix 2, show that our reported estimates may be an underestimate of the true impact of election uncertainty of party switching. We also implemented an RDD (reported in Appendix 3), which confirmed the results obtained from other analyses.

Does Election Uncertainty Impact the Propensity to Switch Parties Change by Age?

In Table 5 we reported that switching parties is less likely for politicians older than 50. To further investigate the extent to which politician behavior is impacted by age, we estimated various versions of the model by measuring age in different ways. We only report results where electoral uncertainty is measured by whether the MP was ranked 2nd or Lower on the party ticket. The results are reported in Table 9. Column (1) replicates the model reported in column (2) of Table 5. In column (2) age is measured as a continuous variable, and in column (3) it is measured by a sequence of dichotomous indicators. In each case, age has a negative impact on the propensity to switch parties, and the specification in column (3) suggests that the effect is monotonic.

In columns (4) and (5) of Table 9, we run the models by dividing the sample into two groups: politicians younger than 50, and those who are 50 or older. We find that electoral uncertainty, measured by the rank on the party ticket, has no impact on the propensity to switch

parties for the politicians who are 50 or older (column 5). The point estimate is practically zero. On the other hand, having been ranked low on the party list has a significant impact on party switching among politicians who are younger than 50.

Parliamentarian salaries (*Relative Salary*) have a positive impact on the propensity to switch parties for those MPs who are younger than 50, but salary does not impact the propensity to switch parties for those who are 50 or older. Being a *Member of Cabinet* reduces the propensity to change party allegiance, but this is driven by politicians younger than 50. These results indicate that younger politicians behave in a more opportunistic way to increase their re-election prospects, and they are consistent with Alesina et al. (2015) who analyzed data on Italian mayors and reported that younger mayors attract larger transfers from higher levels of government and increase investment spending in pre-election periods, thus creating a political business cycle.

Does Electoral Uncertainty Impact the Propensity to Switch Parties by Educational Attainment?

To investigate whether electoral uncertainty has a differential impact on those MPs who are highly educated in comparison to those who are less educated, we divided the sample into two groups: those who have a graduate degree (a Master's or a PhD) versus those who have at most a college degree. About 1/3 of the sample has graduate degrees. Of those who have no graduate degree, 87 percent have a college degree. Table 10 summarizes the results. Interesting regularities emerge. Among the sample of MPs with an MA or PhD degree (columns 1 and 2 of Table 10), having faced a close election has no impact on the propensity to change parties after the election. On the other hand, the impact of electoral uncertainty on party switching is

significant among the MPs whose terminal degree is a college diploma or lower (columns 3 and 4 of Table 10).

As columns (1) and (2) of Table 10 indicate, if a highly-educated MP is a cabinet member, this reduces his/her propensity to switch parties. On the other hand, cabinet membership does not deter an MP from switching parties if the MP is relatively low-educated. This is not because of lack-of variation in cabinet membership among the lower-educated group. In this group, the mean of Cabinet Member is 0.10 (it is 0.17 among the group with graduate degrees). Interestingly, the impact of gender exists only among those MPs who are relatively less educated. Female MPs are more likely to switch parties if they are less educated (no post-graduate degree).

To investigate whether outside financial options of the MPs have an impact on the probability of switching parties, we obtained information on undergraduate major of each MP who has a college degree, and the graduate fields of study for those who have a graduate degree. The field of study is broadly correlated with income. For example, engineers have higher earning power than teachers; those who have a law degree differ in potential earnings from those who have a science degree, and so on. Using information obtained from official Parliamentary records, we classified MPs into 10 categories as follows. Those who have a degree in 1) Basic Sciences (Chemistry, Physic, Biology, etc.) 2) Computer Science, Electrical Engineering, Math 3) Other Engineering 4) Health Sciences (MD, Veterinarian, Pharmacist) 5) Education (Teachers) 6) Economics and Management 7) Law School 8) Social Sciences (sociology,

psychology, etc.) 10) Other fields of study including ex-military and police.[18] The details of specific majors included in each category are provided in the notes to Table 11.

Results of the models that control for field of study are reported in Table 11. Columns (1) and (2) report the results obtained from the whole sample. In this specification the left-out category includes those who have no college degree (high school degree or lower). The impact of electoral uncertainty of switching parties is not influenced by controlling for the differences in earnings potential, and the field of study has no impact on the propensity to switch parties.

Columns (3) and (4) display the results that use the sample of MPs who have graduate degrees. Those who have a college degree or lower are dropped from this sample. The results show that, as before, among the group of MPs with a graduate degree, electoral uncertainty has no impact on party switching. Columns (5) and (6) present the results in the sample of MPs for whom the terminal education is a college diploma. The results show that, consistent with previous findings, in this sample of relatively-low educated MPs electoral uncertainty impacts party switching.

Finally, we control for the quality of the university the MP has attended. There exists substantial variation in educational quality between universities and there is higher demand by students for high quality institutions. Prospective college students (typically high school seniors) take a centralized nation-wide university entrance exam. The scores on this exam determine the placement of students to universities and academic departments. We measured university quality by the average university entrance exam score of students admitted to that university. A higher

[18] The means of the variables are as follows: Sciences: 0.04, Computer Sci/Elect Eng/Math: 0.03, Other Eng: 0.16, Health Sci: 0.11, Education: 0.05, Econ/Management: 0.22, Law: 0.18, Social Sci: 0.09, Military/Police: 0.01, Other: 0.02, High School Degree or Lower: 0.09

score represents a more selective university.[19] The results, which are reported in Appendix 1-Table 2, are consistent with those reported in Tables 10 and 11. Those MPs who graduated from better universities are less likely to switch parties, but electoral uncertainty impacts party switching only among those who are relatively less educated.

We ran a specification where the dummy that identifies if the MP was ranked second or lower on the party ticket is interacted with the quality index of the university he/she graduated from. The index of university quality is, as before, the average score of students admitted to that university following the university entrance exam. The marginal effect having been ranked as second or lower on the party ticket, evaluated at different quality levels of the university, is presented in Figure 2 (for those who have no post-graduate degree). The impact of electoral uncertainty on party switching is positive if the MP is a graduate of a less-selective university (the quality index of the institution is lower than 350.) [20] In other words, the threat of losing an election prompts the MPs to switch parties if their level of education is not higher than a college degree, and if they attended a less-competitive (lower quality) university.

Electoral Consequences of Party Switching

The previous section has shown that elected Member of the Parliament switch parties when they face greater election uncertainty. These defectors should have switched parties to enhance their chances of re-election as a member of their new party in the next election. In this section we investigate the consequences of switching parties in terms of candidacy and electoral

[20] To give a few examples about the quality variation between universities, the average score of the admitted students to Suleymen Demirel University is 250. Ankara University has a score of 300, and Hacettepe University's average score is 350. Marmara University has a score of 400. ITU, ODTU and Bogazici universities have a score of 450.

chances of MPs in the *subsequent* elections by estimating equation (4). Tables 12 and 13 present the results.

In Table 12 the outcome variable in column (1) is *Ran for re-election*, which measures whether the MP ran as a candidate in the next election. The coefficient of *Party Switch* in Table 12 is not statistically different from zero, suggesting no difference between switchers and non-switchers in terms of their propensity for running for re-election.

In columns (2) to (5), the outcome variables are the thresholds that the MP has faced in the *next election* based on their rank on the party list and the district in which they are nominated. In these regressions, we use the sample of MPs who ran in subsequent elections. The dependent variable in column (2) is *Min % Vote for Guaranteed Re-election.* Recall that the value of this variable for each politician is calculated based the number of parties that compete in the election in that district and the number of seats available in the district (see Equation 2). A larger value of this variable implies a higher threshold for being elected. Thus, a lower value of *Min % Vote for Guaranteed Re-election* implies more favorable election prospects for the MP. The coefficients of *Party Switch* are negative and significant in regressions reported in columns (2) and (3). This means that after switching parties, the MPs are nominated in districts and/or on ticket ranking such that they need their new party to receive a smaller share of votes for them to secure re-lection. In other words, *conditional on running, MPs who had switched parties are nominated by their new parties at ranks or districts that increased their ex-ante chances of re-election in comparison to the previous election (when they were elected under a different party).*[21]

[21] Since we can only observe the rank and district of MPs who ran for re-election, samples in columns 2-5 of Table 12 regressions are estimated over the MPs who ran for re-election. To guard against the potentially confounding selection effect, we use the inverse-probability-weighting (IPW) procedure Wooldridge (2002). IPW gives less

The coefficient of *Party Switch* is about -5 in columns (2) and (3) of Table 12. The interpretation is the following: the advantage gained in the next election (by switching parties between elections) is akin to being nominated as a second-ranked candidate as opposed to being the third-ranked candidate in a district with 19 seats, or equivalent to being nominated as the third-ranked candidate in a district with 13 seats instead of being nominated in a district with 10 seats.

Columns (4) and (5) of Table 12 presents the results where the dependent variable is the *Minimum % of votes needed for re-election probability to be positive* (See Equation 3). The coefficient of *Party Switch* is negative and statistically significant, indicating that party switchers are being nominated by their new parties at positions that allow them to be elected by smaller percentage of votes cast for the party. In other words, their new parties treat them favorably by nominating them at ranks that are associated with better chances of winning. These results mean that the MPs decision to switch parties has paid off ex-ante.

The results in Table 12 also show that MPs who were members of the cabinet are more likely to run in the next election (column 1), and at the same time they are nominated at ranks and districts that are highly favorable for their re-election (columns 2-5). On the other hand, those who served the first time as an MP in the previous parliamentary term (*Freshman*) are less likely run for a second-term, and conditional on running, they are nominated in positions that are less favorable for their re-election prospects.

Those MPs who have obtained a degree abroad are nominated by their parties at more advantageous positions. Specifically, these individuals face 2% (1%) smaller threshold for their

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weight to observations from MPs who are more likely to be in the sample (more likely to run for re-election). The weights are the inverse of the predicted probability of running in the re-election (column 1 of Table 12). Results without IPW are almost identical to those presented in Table 12.

guaranteed re-election (for non-zero re-election probability) compared to those who went to school in Turkey. That is equivalent to about half a rank improvement in their nomination in a district with 10 seats.

In summary, the results of Table 12 reveal that those MPs who switched parties after winning an election, are in fact treated favorably by their new parties and they are listed as candidates in the next election in districts and at party list ranks that are ex-ante more favorable for their election chances in comparison to the treatment they received by their previous party.

Voter Behavior: Do Party Switchers get Re-elected in the Next Election?

Although party switchers are nominated by their new parties at positions that are more favorable for their re-election chances, ultimately voters decide whether to elect a candidate. We investigate whether party switchers are more likely to get re-elected in the next election by estimating equation (4) using the outcome variable *Re-elected*. This variable is equal to one if the MP is elected in the subsequent election. The results are presented in Table 13. Column (4) shows that party switchers are more likely to get re-elected, although the magnitude of the impact is small (0.4 percentage points). Columns (2) and (3) show that controlling for *Minimum % Vote for Guaranteed Election*, or *Minimum % Vote for Prob(Election)>0*, party switching has no direct impact on re-election chances.[22] The results of Table 12 showed that party-switchers receive preferential treatment by their new (destination) parties in terms of their rank on the party

[22] In these regressions, we use inverse probability weighting method. Specifically the weights are the inverse of the predicted probabilities estimated in column 1 of Table 13. We also estimated unweighted regressions. Their results show that there is no statistically significant difference in re-election probabilities of party switchers vs. those who did not switch.

ticket. Together these results imply that the positive impact of party-switching on re-election probability is working through its impact on better treatment by the destination party.

In column (1) of Table 13, the dependent variable is whether the party was successful in the election in gathering at least 10% of the nation-wide vote. Recall that if party cannot fetch at least 10% of nation-wide vote, it cannot be represented in the Parliament regardless of the outcome in any particular district. Column (1) shows that party switchers are more likely to switch to smaller parties: those that fail to pass the 10% vote threshold. Thus, the result of column (1) implies that MPs tend to switch to smaller, less popular parties (being a bigger fish in a smaller pond), and that these parties have a lower chance of staying above the national 10% vote threshold. Yet, as shown in column (4), despite this, in the end, the MP has a slightly higher probability of getting elected.

The results of Table 13 indicate that party switching MPs have slightly higher chances of re-election. While this finding explains why MPs switch parties, it seems to go against the prediction that voters would reprimand dishonest politicians by not re-electing them. It should be remembered, however, that in this electoral system, *voters cast votes for the entire party ticket*. In other words, even if voters are uncomfortable with having a politician on their party's ticket who was elected to the Parliament in the previous election from another party, voters may still cast their votes for their party because the utility of their party producing more MPs in the election may outweigh the disutility of electing the dishonest party-switcher.

To shed more light on this issue, we estimate regressions where we analyze the share of votes received by each party in each city in each election as shown by Equation (6). Here, the unit of observation is a city-election-party. We analyze how the vote share of the party changed

from one election to another and whether this change is impacted by whether or not the party's ticket in that election in that city contained an MP who was transferred from another party.

A party's vote share in each city can be impacted by that party's nation-wide popularity in that election. Therefore, we also control for the nation-wide vote share of the party. In addition, we include an indicator variable to account whether the party was in the government leading to the election. The models also include parliamentary-term fixed-effects, party fixed-effects and city fixed effects.

The results are reported in Table 14. The key variable is *MPs Gained,* which stands for the number of MPs who switched to the party from another party during the parliamentary term just ended. The results show that if the party's ticket contains an MP who is transferred from another party, then the proportion of votes received by that party in that city goes up by about 2 percentage points. This means that in a median city with 100,000 voters, the party has received 2,000 more votes (in comparison to the previous election) because of the transfer of the MP from another party.

Abandoning Constitutional Checks and Balances and A Potential Explanation of Voter Behavior

In order to prevent party switching of politicians and the associated moral hazard, article 84 of the Turkish Constitution, adopted in 1982, stipulated sanctions for MPs from changing parties during a Parliamentary term. Specifically, the first paragraph in article 84 laid out the procedure for impeachment of the MPs "…who join another party by resigning from their party…" This means that if an MP switches parties, he/she may lose his/her position as an MP

because the Parliament may decide to vote to expel this MP from the Parliament. In addition, the second paragraph of the article stated that "An MP who resigns from her/his party cannot be nominated in the next election by any party that existed on the day of her/his resignation." However, neither of these clauses proved to be effective. This is because, in order to eliminate the risk of impeachment, the MPs who wanted to switch parties used a procedure, implemented in two steps. First, the MP who wanted to switch to another party formed a brand-new party upon resignation from her/his current party. In the second step, s/he announced the merger of this new party with the destination party that s/he want to switch to. Thus, the MP did not technically join another party directly, and avoided the constitutional sanction. Furthermore, the clauses about party switching were eliminated from the constitution on July 23rd, 1995 by a Parliamentary vote just before end of the 19th parliamentary term (December 24, 1995).[23]

That party switching of politicians during a Parliamentary term constitutes moral hazard and that this act is salient would suggest that voters should react negatively both to the act of party switching and to the maneuvers that are implemented to bypass constitutional checks and balances. Instead, as shown above (Tables 13-14), party switchers and their destination parties are not reprimanded by voters. Does this mean that voters are clueless? Acemoğlu, Robinson and Torvik (2013) provide an explanation. They argue that in weakly institutionalized democracies, as in Turkey, checks and balances imposed on politicians can in fact reduce the rents they can extract. But these constraints (in our case, the inability to switch parties for personal benefit) make it cheaper for politicians to be influenced and bribed by the power elite. Thus, voters may tolerate the dismantling of checks and balances, as was done in Turkey, paving the way for politician rent, in order to reduce the influence of the elite on politicians.

[23] The Parliament consisted of 450 seats in 1995. 391 MPs voted (by secret ballot) on a constitutional amendment that eliminates the provision that blocked party switching. 391 (87%) voted in favor.

Where do Switchers Switch?

We have shown that elected Members of the Parliament (MPs) switch parties when they experienced electoral uncertainty (close elections) in the last election, and that a number of other factors, such as age, education, and MP salaries influence the decision to change party allegiance. Thus, opportunistic concerns determine the decision to switch parties. In this sub-section we analyze whether and how party-switchers change their political ideology.

We analyze this question by estimating the following regression.

$$(7) \quad End_Ideology_{mpt+1} = \beta Switcher_{mpt} + \gamma Begin_Ideology_{mpt} + Switcher_{mpt} \times Begin_Ideology_{mpt} + \boldsymbol{X_m}\boldsymbol{\Omega} + \omega_{mpt}$$

$Begin_Ideology_{mpt}$ is the index of the political ideology of the party from which MP_m is elected for the Parliamentary term *(t).* $End_Ideology_{mpt}$ is the index of the political ideology of party (*m*) to which MP_m switched. It signifies the ideology of the party at the end of the Parliamentary term (*t).* For those MPs who stayed with the same party and *did not* change parties during a parliamentary term, $End_Ideology_{mpt} = Begin_Ideology_{mpt}$. On the other hand, if the MP has switched parties, $End_Ideology_{mpt}$ represents the ideology of the new (destination) party, while $Begin_Ideology_{mpt}$ stands for the ideology of his original party. Thus ($End_Ideology_{mpt} - Begin_Ideology_{mpt}$) is the distance in the ideological outlook of the two parties.

One important issue is how to measure the ideological outlook of political parties. To make the concept operational, we use data on Turkey from World Values Survey (WVS) for the

years 1990, 1996, 2001, 2007 and 2011.[24] The participants were asked about the party they support: "*If there were a national election tomorrow, for which party on this list would you vote? (If the response is 'I don't know.') Which party appeals to you the most?*" They also were asked how they would self-position themselves in the political spectrum from left to right: "*In political matters, people talk of 'the left' and 'the right'. Below is a ten-point scale. '1' indicates most left, and '10' is most right. How would you place your views on this scale, generally speaking?*" The *Political Scale Index* of a party is the average of left-to-right positions of that party's voters. Analysis of data from different years shows that parties' average voter's location on the political spectrum does not vary from year to year.

Figure 3 presents the Political Scale Index of each party. A smaller (larger) value of the index represents more left-of-the center (right-of-the-center) ideology of the party. In the WVS sample, the median voter is located at the index value of 6. This is demonstrated by the vertical line in Figure 3. The percentages in parentheses are the shares of votes parties received in elections since 1991. The picture is consistent with other researchers' classifications of parties and most people's priors (Carkoglu and Hinich, 2006; Secor, 2001). For example, the social democratic party (CHP), which is known as a left-wing party, has an average rating of 4, while AKP, a right-wing party, has a rating of 7.5.

The results of estimating Equation (7) are displayed in Table 15. The dependent variable is the ideology index of the political party the MP is affiliated with at the end of the Parliamentary term. In column (1), the coefficient of the ideology of the party at the beginning of the term is 1.012. This confirms that if an MP does not switch parties during a parliamentary term (*Party Switch*=0), then his/her end-of-term party ideology is the same as his beginning-of-

[24] http://www.worldvaluessurvey.org/wvs.jsp. World Values Survey is administered to nationally representative samples that range between 1000 and 3400.

term ideology. On the other hand, for those MPs who switched parties, the direction of the ideological shift depends on the ideology of their original party (beginning of term). More specifically, the impact of party-switching on *end-of-term ideology* is equal to 3.964-0.634 x (*Beginning-of-term Ideology*). As an example, if the original party of the MP is center-right with the ideology index of 7, and if the MP switches parties, the *change* in ideology is expected to be 3.964-0.634 x (7)= -0.474. This means that his new (destination) party's ideology index will be 6.526, indicating a movement of the MP from right to left.

On the other hand, if the MP's original part was of center-left, for example with an index of 5, and if the MP switches parties, the expected change in ideology is 3.964-0.634 x (5)= +0.794, implying that the new party's level of ideology would be 5.794.

These results indicate that party switchers do not change parties randomly; rather they tend to switch parties to move towards the median voter.[25]

VI. Conclusion and Discussion

Citizens who have voted for a political party lose their voice in the political system and the governance of the country if elected politicians defect and switch to another party during a legislative session. This is particularly true in parliamentary systems with proportional representation (which is the most prevalent election system in the world), where voters cast votes for a political party, and not for particular candidates.

We show that opportunistic motives determine the behavior of the elected Members of the Parliament (MPs) in terms of switching parties after winning a general election. We utilize

[25] The location of parties on political spectrum has not moved over this time period, with one exception. One of the social democratic parties (CHP) has moved slightly to the right (from 3.5 to 5).

detailed information on personal attributes of more than 2,000 elected MPs and the votes received by each political party in each district and every election in five consecutive Parliamentary elections in Turkey between 1991 and 2011. We exploit a unique feature of the d'Hondt seat allocation formula used in Parliamentary election systems. In this method, based on proportional representation in the presence of multiple political parties, a small shift in the distribution of votes between parties in an election district has an impact on who gets elected from a party ticket. This feature of the d'Hondt method introduces noise to the process of who gets elected to the Parliament from a given district and who loses by a small margin.

We calculate (in different ways) the extent of electoral uncertainty faced by each MP during the election. We find that politicians are more likely to switch parties after an election (despite the fact that they won a seat in the Parliament) if they faced election uncertainty. That is, those MPs who had a narrow victory are more likely to switch parties after the election.

We also find that the tendency to switch parties goes up as it becomes more lucrative to hold the post of MP. A rise in MP salaries -in comparison to the average income of the city from which they are elected- increases the propensity to switch parties. The results also show election uncertainty triggers party switching for younger politicians, but not for older ones.[26] Importantly, we show that the tendency to switch party affiliation due to election risk is driven by less educated politicians, but the undergraduate college major of the MP, or the graduate-level field of study has no impact on the propensity to switch parties. On the other hand, the increase in the quality (selectiveness) of the university from which the MP has graduated mitigates the impact of electoral uncertainty on party switching.

[26] This supports the finding that young Italian mayors act more strategically for re-election and career concerns because they have a longer potential career in front of them (Alesina et al. 2015).

If the MP is a member of the governing party, then his/her probability of switching parties is greater. This is likely because in this case it is a more attractive proposition for him/her to transfer to another party. Such a transfer is more valuable for destination parties (which are in the opposition in the Parliament) as an MP's party switch to the opposition would weaken the government. Supporting this hypothesis, we find that the propensity of an MP to jump ship and transfer to another party is higher if the MP is a member of the governing party, but only if the majority of that party in the Parliament is slim (fewer than 25 seats in the 550-seat Parliament).

It could be the case that less loyal and more opportunistic politicians are placed by the their parties on party-ticket ranks that are associated with more election risk. To address this concern we control for a number of politician attributes that gauge loyalty. For example, we control for whether the MP was elected from the same party in a previous election, whether the MP as appointed as a Cabinet member, and the extent of the effort and visibility of the MP in the Parliament after the election. Importantly, the same results are obtained when we analyze only those politicians who are ranked at the top of the party ticket (those who may be considered as the most loyal by the party), as well those who are ranked 2nd or lower on the ticket.

To further account for the potential impact of unobservables, we implemented the procedures suggested by Altonji et al. (2005) and Oster (2014). The results confirmed our findings; and an RDD analysis produced the same conclusion.

In the second part of the paper we analyze the behavior of the MPs and their new parties in the following election. The results show that politicians switch parties to improve their *ex-ante* re-election probability in the following election. Specifically, we show that the party-switching politicians are nominated by their new parties in the next election in districts and/or party tickets that are more favorable to their re-election chances.

In the last section of the paper we analyze the election outcomes in future elections. Switching parties during a legislative session (between elections) for personal career concerns creates moral hazard because it disenfranchises voters who have voted for the party that MP was elected to represent. If voting is a mechanism through which citizens select politicians who will govern honestly, then voters should oust politicians who abuse the trust of voters. However, we find that party-switching MPs are more likely to get elected in the next election. We also conduct analyses at the party-district-election level and investigate how the vote share of each political party changes between elections in each district. We find that a party's share of votes in the election for an upcoming Parliamentary term goes up (in comparison to the previous election) if that party's ticket in that district contains a politician who has served as an MP *for another party* in the immediately preceding Parliamentary term. This result suggests that voters of the destination party *do not* abandon their party to punish a politician who switched to their party after having betrayed his constituents in the original party. Instead, they reward the party that harvested an MP from another party. One should keep in mind, however, that the decision about an MP's re-election is made by the supporters of the destination party (to which the MP has switched) in the next election. It is also important to remember that in this electoral system voters cast votes for the entire party ticket with no split-ticket voting. Thus, we cannot test whether voters enjoy moral hazard imposed on their competitors by the party-switching MP, or they do not appreciate having a dishonest politician on their party's ticket but nevertheless vote for their party because their party's election success is important to them.

Finally, combining our data with data from World Values Survey, we analyze the change in political ideology of the MPs who switch party affiliations. We find that party switching MPs

do not change parties randomly; rather they tend to switch parties to move towards the median voter.[27]

These results point to forward-looking opportunistic behavior of politicians regarding their strategy to win future elections, and they indicate that politicians switch parties primarily for career concerns and the financial benefits that are associated with longer tenure in the Parliament. The results also signify that competition between political parties continues after the election in the form of gaining seats in the Parliament *post- election* by transferring politicians who have won elections as representatives of competing parties. This constitutes another dimension of the political agency problem.

[27] These results cannot be explained away by the hypothesis of "elected politicians finding a better ideological match for themselves after the election." Under the hypothesis of ideology matching, party switching could occur for any MP, and it would not depend on election uncertainty. Furthermore, if ideology matching were the primary driver of party switching, ex-ante re-election probability would not be impacted by party switching, and party-switchers would not move towards the median voter.

Figure 1
The Effect of Being a Member of Governmental Party on Party Switching
(by the Strength of the Government)

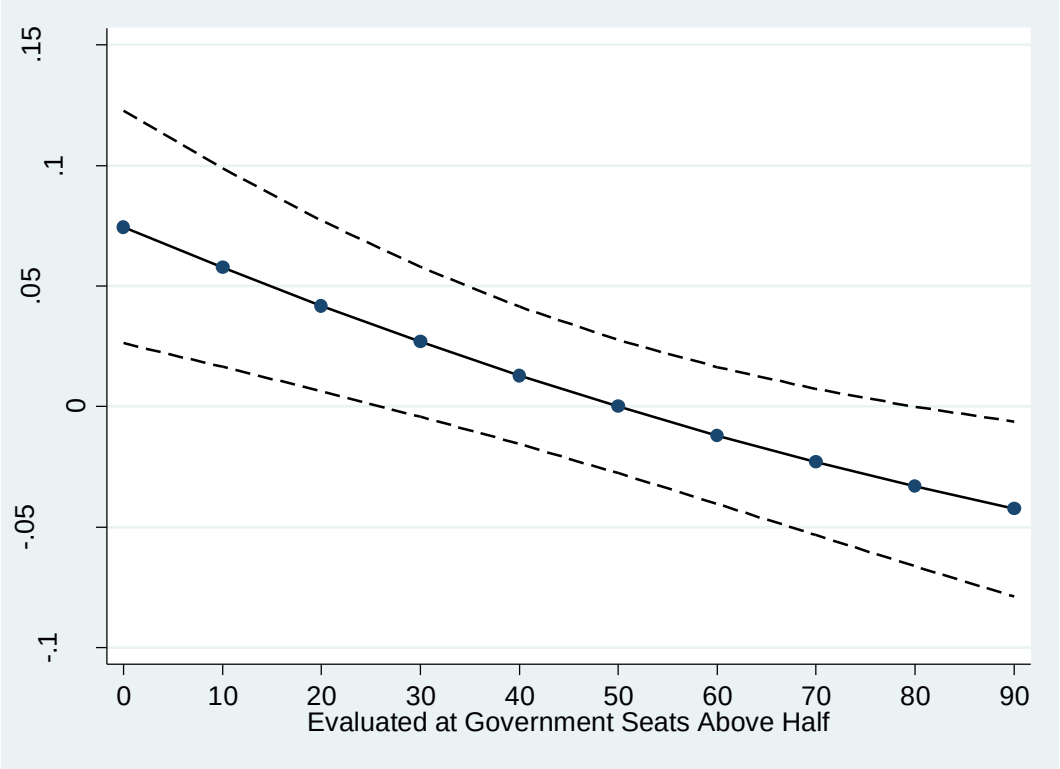
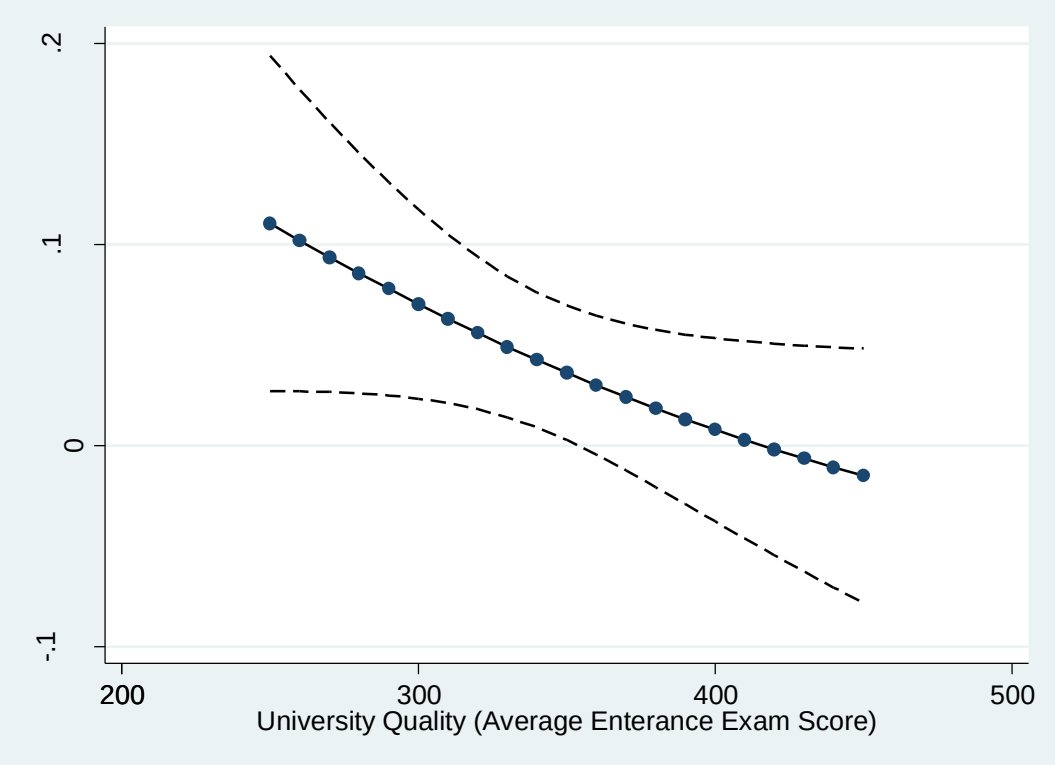
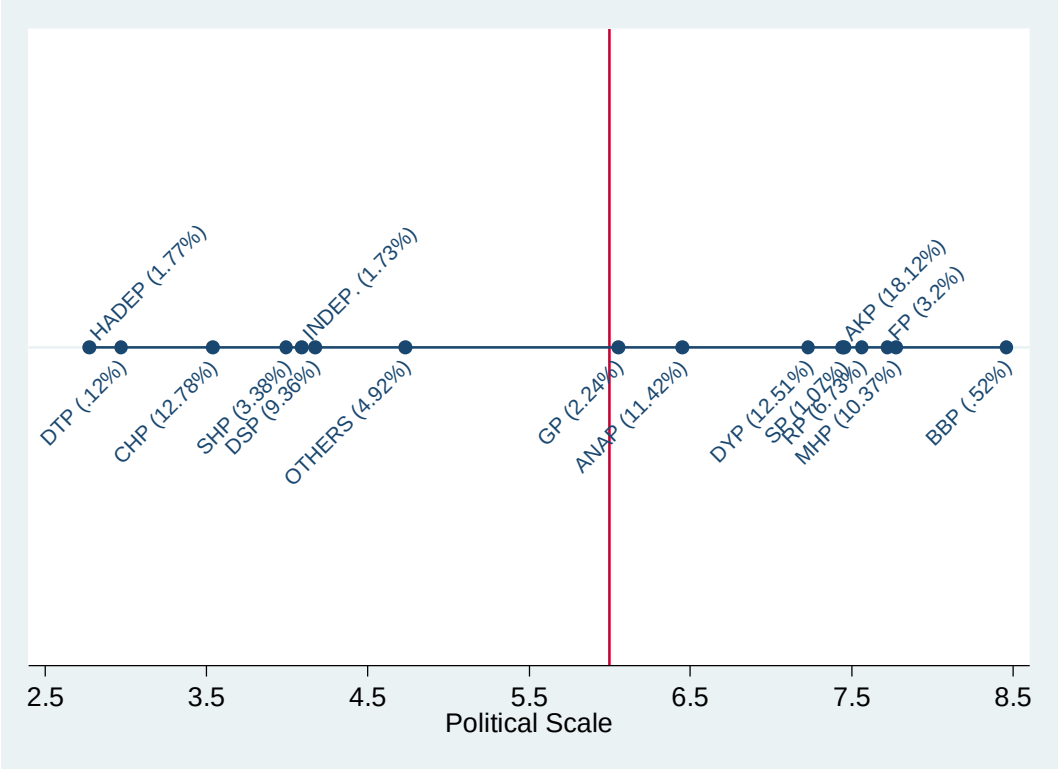


Figure 2
The impact of Electoral Uncertainty on Party Switching
Evaluated at various Levels of University Quality (from which the MP graduated)



We estimate a probit regression of the form $P(Party\ Switch = 1) = \Phi(\beta_1 2nd\ or\ Lower + \beta_2 Quality + \beta_3 2nd\ or\ Lower \times Quality + \boldsymbol{X\beta_4} + \varepsilon)$ where $Quality$ is the average university entrance exam score of the MP's university. Greater $Quality$ implies higher student quality in the university. Solid connected line represents the marginal effect of $2nd\ or\ Lower$ evaluated at various $Quality$ levels. Dashed lines are two standard error confidence intervals.

Figure 3
Political Parties on Political Spectrum



The figure presents the positioning of parties in the political scale that ranges between 1 (most left) and 10 (most right). The value for a party is obtained by averaging the political scale index of the supporters of that party. In parentheses, the vote shares of the party in elections since 1991 are presented. The vertical line represents the median voter (6).

Table 1
Hypothetical D'Hondt Example of Votes Shares and Seat Allocations

Panel 1 – Vote Distribution 1

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	10.0	5.0	3.3	2.5	2.0	1.7	1.4
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**25.0**	**12.5**	8.3	6.3	5.0	4.2	3.6
E	**33.0**	**16.5**	**11.0**	8.3	6.6	5.5	4.7

Panel 2 – Vote Distribution 2
(2 individuals vote for A instead of D)

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	**12.0**	6.0	4.0	3.0	2.4	2.0	1.7
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**23.0**	**11.5**	7.7	5.8	4.6	3.8	3.3
E	**33.0**	**16.5**	11.0	8.3	6.6	5.5	4.7

Panel 3 – Vote Distribution 3
(4 individuals vote for A instead of D)

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	**14.0**	7.0	4.7	3.5	2.8	2.3	2.0
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**21.0**	10.5	7.0	5.3	4.2	3.5	3.0
E	**33.0**	**16.5**	**11.0**	8.3	6.6	5.5	4.7

The table presents three examples of how seats in a district with seven seats are allocated to five parties using d'Hondt method. Each panel depicts a separate vote distribution. There are 100 votes cast, so votes = vote shares. The number of votes received by each party is shown in the column (Votes/1) in each panel.
d'Hondt method divides each party's votes by consecutive integers up to the number of seats in the district (N). In this example, N=7. The columns "Votes/1", "Votes/2",… , "Votes/7" in the table present the resultant quotients. The parties with the largest N quotients win the seats. In the examples above, the bold and underlined numbers represent the largest seven quotients. Parties win as many seats as the number of largest quotients they have. For example, under vote distribution 1, parties B and C win one seat, D wins two seats, and E wins 3 seats.

Table 2
Hypothetical Example of Vote Shares and Seat Allocations
In a District with 7 Seats and 5 Competing Political Parties

Quotients (Q) of each of the 7 candidates nominated by each of the 5 Parties Based on the Vote Distribution in the District

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	10.0	5.0	3.3	2.5	2.0	1.7	1.4
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**25.0**	**12.5**	8.3	6.3	5.0	4.2	3.6
E	**33.0**	**16.5**	**11.0**	8.3	6.6	5.5	4.7

Entries highlighted by bold represent the quotients (Q) of each of the 7 winning candidates

Calculation of the Margin of Victory

Panel 1 – Vote Distribution 1

	MPs from the District	Elected Candidate	Q	Margin of Victory	Last Candidate Elected from a Party's List
Winners	1	E1	33	33 - 10 = 23	0
	2	D1	25	25 - 10 = 15	0
	3	C1	19	19 - 10 = 9	1
	4	E2	16.5	16.5 - 10 = 6.5	0
	5	B1	13	13 - 10 = 3	1
	6	D2	12.5	12.5 - 10 = 2.5	1
	7	E3	11	11 - 10 = 1	1
	8	**A1**	**10**		

Notes: Q stands for the quotient of each candidate. They are the entries in the cells in top panel of table, pertaining to the candidates with the highest 8 quotients. For example, candidate E1 is the first-ranked candidate on party E's list. Because there are 7 seats, the candidate with the 8th highest quotient is *not* elected (in this example, this candidate is A1). Such candidates, who barely missed being elected are the *Cutoff Candidates*, and their quotients are the *Cutoff Quotients*. *Margin of Victory* is the difference in quotients between the winning candidates from that district and the quotient of the Cutoff Candidate.

Table 3
The Number of MPs and Party Switchers by Parliamentary Term in the Grand National Assembly of Turkey

Term	Starts with election on	MP Observations*	Party Switchers
19	October.20.1991	386	70 (18.1%)
20	December.24.1995	509	75 (14.7%)
21	April.18.1999	522	91 (17.4%)
22	November.3.2002	523	29 (5.5%)
23	July.22.2007	532	30 (5.6%)

The table demonstrates the distribution of party switchers across parliamentary terms in our sample. Party switchers are those members of the Parliament (MPs) whose party affiliation at the end of the parliamentary term is different from their affiliation at the start of the term. The 23rd term ended with elections on June 12, 2011. MP observations is the number of MPs whose party affiliations are known both at the beginning and the end of the Parliamentary terms. The circumstances in which this may not be true include the cases where the MP has died during the term, the MP is an independent MP (not affiliated with a party), or resigned from the Parliament during the term.

Table 4
Summary Statistics

Variable	Description	Mean	Std. Dev.
Party Switch	=1 if MP's initial party affiliation is different from the end-of-term affiliation	0.12	0.32
Rank	Rank of the MP in their party's list	2.56	2.13
Ranked Second	=1 if the MP is ranked second in their party's list	0.24	0.43
Ranked Third	=1 if the MP is ranked third in their party's list	0.14	0.35
Ranked Fourth or Lower	=1 if the MP is ranked fourth or lower in their party's list	0.21	0.41
Min % vote for guaranteed election	The threshold vote share in the district over which election of the candidate is guaranteed	26.70	18.25
Min % vote for election prob>0	The threshold vote share in the district over which probability of election of the candidate is non-zero.	11.93	9.17
Margin of Victory (MV)	Difference in quotient of the MP and the largest of the quotients of candidates who are not elected.	8.96	10.24
Elected as the last person on the ticket	=1 if the MP was the last person elected from his party's ticket in that district.	0.42	0.49
Member of the government party	=1 if the MP is elected as a member of the parties that formed the government.	0.60	0.49
Elected from same party before	=1 if MP was elected before from his current party.	0.35	0.48
Relative Salary	Ratio of real salary of the MP to the per capita income in the district where MP is elected	1.49	0.94
Party's Vote Share	Share of votes that MP's party obtained in MP's district	30.14	15.24
Seats in district	Number of seats MP's district is represented in the parliament	9.65	5.97
Cabinet Member	=1 if MP is also a member of the cabinet	0.12	0.32

Table 4 (concluded)

Variable	Description	Mean	Std. Dev.
Freshman	=1 if MP has never served in the parliament in prior terms	0.59	0.49
Age≥50	=1 if MP is older than 50	0.44	0.50
Female	=1 if MP is female	0.05	0.21
School Abroad	=1 if MP obtained a degree outside of Turkey	0.08	0.27
MA/PhD	=1 if MP obtained a master's degree or a doctorate	0.31	0.46
Ran for re-election	=1 if the MP ran for office in the next election	0.67	0.47
Min % vote for guaranteed re-election	The threshold vote share in the district over which probability of election of the candidate is non-zero in the subsequent election.	23.47	17.25
Min % vote for re-election prob>0	The threshold vote share in the district over which probability of election of the candidate is non-zero in the subsequent election.	9.67	7.44
Re-elected	=1 if MP is re-elected in the next election.	0.37	0.48
> 10%	=1 if MP's party obtained at least 10% of the votes nationally.	0.71	0.45

Table 5
The Effect of Electoral Uncertainty on the Probability of Party Switching

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rank	0.010*							
	(0.005)							
Ranked 2nd or lower		0.025**						
		(0.011)						
Ranked 2nd			0.023*	0.023*				
			(0.012)	(0.012)				
Ranked 3rd				0.024*				
				(0.015)				
Ranked 3rd or lower			0.029**					
			(0.013)					
Ranked 4th or lower				0.035**				
				(0.018)				
Min % vote for guaranteed election					0.001**			
					(0.000)			
Min % vote for election prob>0						0.001*		
						(0.001)		
Margin of victory (MV)							-0.001*	
							(0.001)	
Elected as the last person on the ticket								0.020*
								(0.010)
Member of the government party	0.074***	0.070***	0.070***	0.070***	0.071***	0.072***	0.078***	0.074***
	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)
Elected from same party before	-0.098***	-0.092***	-0.092***	-0.092***	-0.093***	-0.094***	-0.089***	-0.093***
	(0.021)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)

Table 5 (concluded)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Relative Salary	0.039**	0.035**	0.035**	0.035**	0.037**	0.038**	0.027*	0.036**
	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Party's Vote Share	-0.001	-0.001	-0.001	-0.001*	-0.001	-0.001	-0.001	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Seats in district	-0.006**	-0.005**	-0.005**	-0.005**	-0.004*	-0.005**	-0.005**	-0.004*
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)
Cabinet member	-0.032**	-0.031**	-0.030**	-0.030*	-0.031**	-0.032**	-0.032**	-0.035**
	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.016)
Freshman	-0.125***	-0.117***	-0.118***	-0.118***	-0.118***	-0.117***	-0.113***	-0.116***
	(0.023)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)
Age ≥ 50	-0.024**	-0.022**	-0.022**	-0.022**	-0.022**	-0.023**	-0.020**	-0.024**
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Female	0.038	0.040*	0.039*	0.038	0.037	0.038	0.027	0.038
	(0.026)	(0.023)	(0.024)	(0.024)	(0.023)	(0.024)	(0.022)	(0.024)
School Abroad	-0.044*	-0.042*	-0.042*	-0.041*	-0.041*	-0.042*	-0.039*	-0.045*
	(0.025)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)	(0.024)
MA/PhD	-0.005	-0.005	-0.005	-0.005	-0.005	-0.006	-0.007	-0.004
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Observations	2208	2208	2208	2208	2208	2208	2091	2198

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. In addition to the variables listed, regressions include indicators for MPs' party affiliation at the beginning of the parliamentary term, city fixed effects and parliamentary term dummies. Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 6
Effect of Electoral Uncertainty on Party Switching in Very Tight Elections

	Margin of Victory ≤ 5			Margin of Victory ≤ 3		
	(1)	(2)	(3)	(4)	(5)	(6)
Ranked 2nd or lower	0.075**			0.109**		
	(0.032)			(0.047)		
2nd Ranked		0.074**	0.074**		0.109**	0.106**
		(0.032)	(0.033)		(0.047)	(0.048)
3rd Ranked			0.078**			0.109**
			(0.036)			(0.051)
Ranked 3rd or lower		0.078**			0.110**	
		(0.036)			(0.051)	
Ranked 4th or lower			0.076*			0.093
			(0.045)			(0.060)
Observations	904	904	904	590	590	590

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. Columns 1 to 3 (4 to 6) are obtained from the sample where MPs are elected with a quotient margin less than 5% (3%). Regressions include the whole set of control variables as in Table 5. Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 7
Effect of Electoral Uncertainty on Party Switching
Alternative Specifications

	Whole Sample of Candidates		Candidates Ranked 2nd or Lower			First Ranked Candidates	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Panel A – Marginal Effects							
Ranked 2nd or lower	0.021*						
	(0.011)						
Ranked 2nd		0.023					
		(0.015)					
Ranked 3rd or lower		0.025					
		(0.016)					
Ranked 3rd			0.011				
			(0.013)				
Ranked 4th or lower			0.030*				
			(0.016)				
Elected as the last person	0.011	0.011					
on the ticket	(0.011)	(0.011)					
Min % vote for				0.001*		0.003***	
guaranteed election				(0.001)		(0.001)	
Min % vote for					0.001		0.014***
election prob>0					(0.001)		(0.005)
Panel B – Interaction Effects							
Ranked 2nd or worse &	0.037*						
Elected as last person	(0.019)						
Ranked 2nd &		0.043[a]					
Elected as last person		(0.030)					
Ranked 3rd or lower &		0.047*					
Elected as last person		(0.027)					
Observations	2198	2198	1252	1252	1252	824	824

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Panel A presents the marginal effects obtained from probit regressions. Panel B shows the interaction effects of the rank variables and Elected as last person. The interaction effects are the difference of marginal effects of the rank variables at Elected as last person=1 and =0. Estimates in columns 1 and 2 are obtained from using the whole sample. Results in columns 3-5 (6-7) pertain to the sample of MPs whose rank is 2nd or lower (who are first ranked).The whole set of control variables as in Table 5 are included in the regressions. Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.
[a] p-value=0.15

Table 8
The Effect of Electoral Uncertainty on the Probability of Party Switching Conditional on MP's Effort

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Rank	0.009*							
	(0.005)							
Ranked 2nd or lower		0.024**						
		(0.011)						
Ranked 2nd			0.022*	0.022*				
			(0.012)	(0.012)				
Ranked 3rd				0.023				
				(0.014)				
Ranked 3rd or lower			0.027**					
			(0.013)					
Ranked 4th or lower				0.033*				
				(0.017)				
Min % vote for guaranteed election					0.001**			
					(0.000)			
Min % vote for election prob>0						0.001*		
						(0.001)		
Margin of victory (MV)							-0.001*	
							(0.001)	
Elected as the last person on the ticket								0.018*
								(0.010)
Effort	0.013*	0.013	0.013	0.013	0.013	0.013	0.014*	0.013
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
Member of the government party	0.075***	0.071***	0.071***	0.071***	0.072***	0.073***	0.079***	0.074***
	(0.017)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)	(0.016)

Table 8 (concluded)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Elected from	-0.097***	-0.091***	-0.091***	-0.091***	-0.092***	-0.092***	-0.087***	-0.091***
same party before	(0.022)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)	(0.020)
Relative Salary	0.039**	0.035**	0.035**	0.035**	0.037**	0.037**	0.027*	0.036**
	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Party's Vote Share	-0.001	-0.001	-0.001	-0.001	-0.001	-0.001	-0.000	-0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Seats in district	-0.006**	-0.005**	-0.005**	-0.005**	-0.004*	-0.005**	-0.005**	-0.004*
	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.003)	(0.002)
Cabinet member	-0.032**	-0.031**	-0.030**	-0.030**	-0.031**	-0.032**	-0.032**	-0.034**
	(0.016)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)	(0.015)
Freshman	-0.124***	-0.116***	-0.117***	-0.117***	-0.117***	-0.116***	-0.112***	-0.115***
	(0.023)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)	(0.021)
Age ≥ 50	-0.024**	-0.022**	-0.022**	-0.022**	-0.022**	-0.023**	-0.020**	-0.024**
	(0.011)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)	(0.010)
Female	0.040	0.041*	0.040*	0.039*	0.039*	0.039*	0.028	0.039
	(0.025)	(0.023)	(0.024)	(0.023)	(0.023)	(0.023)	(0.022)	(0.024)
School Abroad	-0.048**	-0.046**	-0.046**	-0.046**	-0.045**	-0.046**	-0.044*	-0.049**
	(0.024)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)	(0.023)
MA/PhD	-0.005	-0.005	-0.005	-0.004	-0.005	-0.005	-0.006	-0.004
	(0.012)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Observations	2207	2207	2207	2207	2207	2207	2090	2197

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. Variable *Effort* measures the number of activities of the MP (such as speeches, written and oral question in the parliament) in a parliamentary term. In addition to *Effort*, the whole set of control variables as in in Table 5 are included in the regressions. Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 9
The Effect of Electoral Uncertainty on the Probability of Party Switching *by MP's Age*

	Whole Sample			Age < 50	Age ≥ 50
	(1)	(2)	(3)	(4)	(5)
Ranked 2nd or lower	0.025**	0.023**	0.024**	0.039**	-0.001
	(0.011)	(0.011)	(0.011)	(0.017)	(0.016)
Age		-0.002***			
		(0.001)			
Age 40-49			-0.045***		
			(0.013)		
Age 50-59			-0.054***		
			(0.014)		
Age ≥ 60			-0.072***		
			(0.020)		
Age ≥ 50	-0.022**				
	(0.010)				
Member of Gov't Party	0.070***	0.070***	0.069***	0.072***	0.077***
	(0.016)	(0.016)	(0.016)	(0.023)	(0.027)
Elected from same	-0.092***	-0.092***	-0.092***	-0.118***	-0.064**
party before	(0.020)	(0.020)	(0.019)	(0.040)	(0.026)
Relative salary	0.035**	0.035**	0.035**	0.062***	0.007
	(0.015)	(0.015)	(0.015)	(0.023)	(0.022)
Party's Vote Share	-0.001	-0.001	-0.001	-0.001*	0.000
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Seats in district	-0.005**	-0.005**	-0.005**	-0.010***	-0.003
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)
Cabinet member	-0.031**	-0.029*	-0.029*	-0.055**	-0.026
	(0.015)	(0.015)	(0.015)	(0.025)	(0.020)
Freshman	-0.117***	-0.122***	-0.121***	-0.154***	-0.083***
	(0.021)	(0.020)	(0.020)	(0.040)	(0.025)
Female	0.040*	0.034	0.032	0.095***	-0.021
	(0.023)	(0.023)	(0.023)	(0.036)	(0.030)
School Abroad	-0.042*	-0.040*	-0.043*	-0.045	-0.049*
	(0.024)	(0.024)	(0.024)	(0.044)	(0.027)
MA/PhD	-0.005	-0.003	-0.003	-0.034*	0.025
	(0.011)	(0.011)	(0.011)	(0.018)	(0.016)
Observations	2208	2208	2208	1185	786

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. Columns 1 to 3 present results obtained from the whole sample. The results in columns 4 and 5 pertain to MPs who age younger than 50 years old and older than 50 years old, respectively. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 10
The Effect of Electoral Uncertainty on the Probability of Party Switching
by MP's Education

	MPs *with* MA or PhD		MPs *without* MA or PhD	
	(1)	(2)	(3)	(4)
Ranked 2nd or lower	0.014		0.031**	
	(0.024)		(0.015)	
Margins of Victory (MV)		-0.000		-0.002**
		(0.002)		(0.001)
Member of Gov't Party	0.043	0.050	0.090***	0.100***
	(0.032)	(0.031)	(0.021)	(0.023)
Elected from same	-0.075	-0.078	-0.105***	-0.102***
party before	(0.048)	(0.051)	(0.024)	(0.024)
Relative salary	0.113*	0.072	0.041**	0.034*
	(0.066)	(0.074)	(0.018)	(0.019)
Party's Vote Share	0.000	0.001	-0.001*	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)
Seats in district	-0.002	-0.004	-0.008***	-0.007**
	(0.004)	(0.005)	(0.003)	(0.003)
Cabinet member	-0.084***	-0.081***	-0.014	-0.014
	(0.033)	(0.031)	(0.019)	(0.019)
Freshman	-0.082*	-0.086*	-0.142***	-0.140***
	(0.047)	(0.049)	(0.025)	(0.025)
Age ≥ 50	0.018	0.019	-0.046***	-0.044***
	(0.021)	(0.021)	(0.013)	(0.013)
Female	-0.044	-0.050	0.069**	0.051*
	(0.037)	(0.036)	(0.032)	(0.031)
School Abroad	-0.032	-0.031		
	(0.026)	(0.025)		
Observations	462	437	1492	1411

Notes: The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. Columns 1 to 2 present results obtained from the sample of MPs who have graduate degrees. The results in columns 3 and 4 pertain to MPs who have college degrees or less. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 11
The Effect of Electoral Uncertainty on the Probability of Party Switching
***by MP's Education* (Conditioning on MP's Area of Study)**

	Whole Sample		MPs *with* MA or PhD		MPs *without* MA or PhD	
	(1)	(2)	(3)	(4)	(5)	(6)
Ranked 2nd or lower	0.024**		0.013		0.031**	
	(0.011)		(0.023)		(0.015)	
Margins of Victory (MV)		-0.001*		-0.000		-0.002**
		(0.001)		(0.002)		(0.001)
Member of Gov't Party	0.069***	0.078***	0.045	0.051	0.090***	0.099***
	(0.016)	(0.016)	(0.031)	(0.032)	(0.021)	(0.023)
Elected from same party before	-0.090***	-0.088***	-0.064	-0.070	-0.104***	-0.101***
	(0.020)	(0.020)	(0.046)	(0.049)	(0.024)	(0.024)
Relative salary	0.035**	0.026*	0.110*	0.076	0.041**	0.034*
	(0.015)	(0.015)	(0.062)	(0.073)	(0.018)	(0.019)
Party's Vote Share	-0.001	-0.001	0.000	0.001	-0.002**	-0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)	(0.001)
Seats in district	-0.005**	-0.005**	-0.002	-0.003	-0.008***	-0.007**
	(0.002)	(0.003)	(0.004)	(0.004)	(0.003)	(0.003)
Cabinet member	-0.029*	-0.031**	-0.086***	-0.080**	-0.010	-0.012
	(0.015)	(0.015)	(0.031)	(0.032)	(0.019)	(0.019)
Freshman	-0.117***	-0.114***	-0.079*	-0.083*	-0.144***	-0.142***
	(0.020)	(0.020)	(0.046)	(0.048)	(0.025)	(0.025)
Age ≥ 50	-0.020**	-0.019*	0.023	0.022	-0.043***	-0.042***
	(0.010)	(0.010)	(0.019)	(0.019)	(0.014)	(0.014)
Female	0.038	0.024	-0.051	-0.053	0.065**	0.045
	(0.024)	(0.022)	(0.033)	(0.033)	(0.033)	(0.032)
School Abroad	-0.042*	-0.044*	-0.052**	-0.053**		
	(0.023)	(0.023)	(0.025)	(0.025)		
MA/PhD	-0.010	-0.007				
	(0.012)	(0.012)				
Basic Sciences	-0.028	-0.028	0.011	0.003	-0.022	-0.023
	(0.028)	(0.028)	(0.064)	(0.061)	(0.036)	(0.035)
Comp Sci, Elect Eng	0.028	0.029	0.043	0.037	0.020	0.019
	(0.031)	(0.030)	(0.075)	(0.070)	(0.038)	(0.037)
Other Engineering	-0.009	-0.012	-0.031	-0.030	0.002	-0.005
	(0.018)	(0.017)	(0.053)	(0.049)	(0.021)	(0.020)
Health Sciences	0.018	0.002	0.030	0.005	0.029	0.012
	(0.020)	(0.020)	(0.052)	(0.050)	(0.026)	(0.027)
Education	0.010	0.013	-0.010	-0.016	0.005	0.007
	(0.022)	(0.023)	(0.072)	(0.069)	(0.027)	(0.027)

Table 11 (concluded)

	Whole Sample		MPs *with* MA or PhD		MPs *without* MA or PhD	
	(1)	(2)	(3)	(4)	(5)	(6)
Economics/Management	0.009	0.011	0.047	0.045	-0.001	-0.000
	(0.017)	(0.016)	(0.050)	(0.047)	(0.020)	(0.019)
Law	-0.021	-0.019	-0.024	-0.034	-0.024	-0.021
	(0.018)	(0.017)	(0.068)	(0.065)	(0.020)	(0.020)
Social Sciences	-0.005	-0.001	0.036	0.028	-0.019	-0.009
	(0.020)	(0.020)	(0.052)	(0.049)	(0.028)	(0.027)
Other	0.008	0.015			0.041	0.058
	(0.029)	(0.029)			(0.037)	(0.037)
Observations	2205	2088	440	415	1489	1408

The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Basic Sciences – graduates who major in sciences such as chemistry, physics, biology, astronomy, geology. **Comp Sci, Elect Eng** – graduates who major in computer engineering, electric or electronics engineering, and mathematics, statistics **Other Engineering** –engineering in all other fields such as industrial engineering, civil engineering, mechanical engineering, chemical engineering, agricultural engineering, forestry engineering, and architecture. **Health Sciences** – dentistry, medical doctors, pharmaceutics, veterinarian. **Education** – teachers, foreign languages, Turkish language, physical education majors, graduates of fine arts schools and conservatories. **Economics/Management** – graduates from departments of economics, management, marketing, accounting, finance, banking, trade, tourism management and graduates of related schools. **Law** – graduates of law school. **Social Sciences** – graduates from departments of geography, history, sociology, philosophy, and other social sciences, theology, political science, international relations, public administration, journalism. **Other** – graduates with other majors, undeclared/unknown majors, and graduates of military schools and police academy.

Table 12
The Effect of Party Switching on *Ex-ante* Re-election Chances in the Next Election

	(1)	(2)	(3)	(4)	(5)
	Whole Sample	Conditional on running in the next election			
	Ran for ***re-election***	Min % vote for guaranteed ***re-election***	Min % vote for guaranteed ***re-election***	Min % vote for ***re-election*** prob>0	Min % vote *for* ***re-election*** prob>0
Party Switch	-0.047	-4.170***	-4.951***	-1.741***	-1.964***
	(0.036)	(1.085)	(1.128)	(0.528)	(0.540)
Min % vote for guaranteed election			0.358***		
			(0.042)		
Min % vote for election prob>0					0.293***
					(0.043)
Member of the governmentl party	-0.096**	-1.346	-1.723	-0.172	-0.300
	(0.040)	(1.281)	(1.272)	(0.529)	(0.534)
Elected from same party before	-0.068	1.129	1.244	0.450	0.476
	(0.049)	(1.619)	(1.458)	(0.742)	(0.668)
Relative Salary	-0.029	-1.870	-0.987	-1.100**	-0.713
	(0.037)	(1.250)	(1.217)	(0.521)	(0.507)
Party's Vote Share	0.002*	0.295***	0.145***	0.115***	0.066***
	(0.001)	(0.046)	(0.046)	(0.019)	(0.019)
Seats in district	0.013**	-0.219	-0.138	0.043	-0.085
	(0.005)	(0.169)	(0.166)	(0.091)	(0.091)
Cabinet member	0.188***	-10.280***	-7.407***	-4.688***	-3.579***
	(0.038)	(0.959)	(0.902)	(0.421)	(0.400)
Freshman	-0.091*	5.480***	3.206**	2.343***	1.388*
	(0.048)	(1.643)	(1.501)	(0.771)	(0.713)
Age ≥ 50	-0.133***	-0.786	-0.300	-0.041	0.107
	(0.022)	(0.980)	(0.885)	(0.440)	(0.405)
Female	0.062	-1.925	-2.872*	-1.078	-1.460*
	(0.051)	(1.866)	(1.635)	(0.920)	(0.820)
School Abroad	0.022	-3.665**	-2.423	-1.638**	-1.036
	(0.042)	(1.631)	(1.492)	(0.718)	(0.672)
MA/PhD	0.040	-2.438**	-1.577	-1.133**	-0.877**
	(0.025)	(1.086)	(0.976)	(0.482)	(0.433)
Observations	2416	1632	1632	1632	1632

The outcome variable in column 1 is an indicator for whether the MP ran for a seat in the parliament in the subsequent election. The outcome variables in columns 2 and 3 (4 and 5) are the threshold vote share for guaranteed election (threshold for non-zero re-election probability) in the subsequent election. Column 1 presents marginal effects obtained from probit estimated over the whole sample. Columns 2 to 5 are estimated with OLS over the sample of MPs who ran for re-election. Inverse of the predicted probabilities of running for re-election are used as weights (inverse probability weights) in regression 2 to 5. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 13
Effect of Party Switching on the Probability of Re-Election

	(1)	(2)	(3)	(4)
	>10% Threshold	Re-elected	Re-elected	Re-elected
Party Switch	-0.166***	0.002	0.002	0.004***
	(0.021)	(0.001)	(0.001)	(0.001)
Min % vote for guaranteed election		-0.000***		
		(0.000)		
Min % vote for election prob>0			-0.001***	
			(0.000)	
Member of the governmental party	0.041	-0.002	-0.002	-0.002
	(0.025)	(0.001)	(0.001)	(0.001)
Elected from same party before	0.019	-0.002	-0.002	-0.001
	(0.027)	(0.002)	(0.002)	(0.002)
Relative Salary	-0.005	0.005***	0.005***	0.006***
	(0.008)	(0.001)	(0.001)	(0.001)
Party's Vote Share	-0.001*	0.000	0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Seats in district	-0.001	-0.000**	-0.000	-0.000
	(0.001)	(0.000)	(0.000)	(0.000)
Cabinet member	0.053***	0.003**	0.003**	0.005***
	(0.015)	(0.001)	(0.001)	(0.001)
Freshman	0.017	-0.002	-0.002	-0.002
	(0.025)	(0.002)	(0.002)	(0.002)
Age ≥ 50	-0.025*	-0.002	-0.002*	-0.002
	(0.013)	(0.001)	(0.001)	(0.001)
Female	-0.002	-0.001	-0.002	-0.001
	(0.021)	(0.002)	(0.002)	(0.002)
School Abroad	0.044*	0.005**	0.005**	0.006***
	(0.023)	(0.002)	(0.002)	(0.002)
MA/PhD	-0.020	0.000	0.001	0.001
	(0.013)	(0.001)	(0.001)	(0.001)
Observations	1632	1630	1630	1630

Notes: The outcome variable in column 1 is an indicator for whether the MP's party has passed the 10% national election threshold in the subsequent election. The outcome variable in columns 2 to 4 is an indicator for whether the MP is re-elected in the subsequent election. Table presents marginal effects obtained from probit regressions over the sample of MPs who ran for re-election. Inverse of the predicted probabilities of passing the 10% threshold are used as weights (inverse probability weights) in regressions 2 to 4. The variable of interest, *Party Switch*, takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 14
***The Change* in the Proportion of Votes Received by Parties (in Consecutive Elections)**

	(1)	(2)	(3)
MPs Gained$_t$	1.718**	1.846**	2.073**
	(0.698)	(0.728)	(0.950)
Δ National Vote Share$_t$	0.827***	0.828***	0.832***
	(0.024)	(0.024)	(0.024)
Δ Government$_t$	-0.563**	-0.564**	-0.592**
	(0.233)	(0.235)	(0.230)
Observations	3377	3377	3377
Term FE	Yes	Yes	Yes
Party FE	Yes	Yes	
City FE		Yes	
Party×City FE			Yes

Notes: Dependent variable is the change in party's city-wide vote share (%) from the previous election. $MPs\ Gained_t$ is the number of MPs representing city c switched to party p in the parliamentary term prior to the elections. $\Delta\ National\ Vote\ Share$ is the change in the national vote share of party p in elections at t from their national vote share in the previous elections at $t-1$. $\Delta Government_t$ is the change in an indicator that takes the value of if party p was part of the government at the day of elections. Robust standard errors clustered at the city level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Table 15
The Relationship between Party Switching and Ideological Change

	(1)	(2)
	Ideology (End-of-term)	
Party Switch	3.964***	4.030***
	(0.485)	(0.468)
Ideology (Beginning-of-term)	1.012***	1.015***
	(0.001)	(0.004)
Party Switch×Ideology	-0.634***	-0.642***
	(0.075)	(0.073)
Member of Gov't Party		-0.074***
		(0.028)
Elected from same party before		0.103
		(0.077)
Relative salary		-0.053
		(0.040)
Party's Vote Share		-0.001
		(0.001)
Seats in district		-0.000
		(0.005)
Cabinet member		-0.028
		(0.034)
Freshman		0.132*
		(0.077)
Age ≥ 50		0.006
		(0.021)
Female		-0.031
		(0.056)
School Abroad		-0.017
		(0.034)
MA/PhD		-0.002
		(0.023)
Observations	2,369	2,358

The outcome variable is the Political Scale Index (PSI) of the MP's party as of the end of the term. PSI measures the positioning of the MP's party in a political spectrum ranging between 1 (most left) to 10 (most right). Table presents OLS estimates. The whole set of control variables are included in the regressions (as in Table 5) except indicators for MP's beginning of the term party. Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Appendix 1- Table 1
Change in Parties' Seats in the Parliament by Parliamentary Term

Panel A: 19th term 1991- 1995

	Beginning of term	End of term
ANAP	115 (25.6%)	97 (21.6%)
DSP	7 (1.6%)	19 (4.2%)
DYP	178 (39.6%)	162 (36.0%)
RP	62 (13.8%)	38 (8.4%)
SHP	88 (19.6%)	44 (9.8%) *
Other Parties		26 (5.8%)
Independent MPs		42 (9.3%)
Not an MP anymore		22 (4.9%)
Total	450	

Panel B: 20th term 1995- 1999

	Beginning of term	End of term
ANAP	132 (24.0%)	130 (23.6%)
CHP	49 (8.9%)	51 (9.3%)
DSP	76 (13.8%)	59 (10.7%)
DYP	135 (24.5%)	89 (16.2%)
RP	158 (28.7%)	149 (27.1%) **
Other parties		31 (5.6%)
Independent MPs		34 (6.2%)
Not an MP anymore		7 (1.3%)
Total	550	

Panel C: 21st term 1999-2002

	Beginning of term	End of term
ANAP	86 (15.6%)	75 (13.6%)
DSP	136 (24.7%)	65 (11.8%)
DYP	85 (15.5%)	85 (15.5%)
FP	111 (20.2%)	84 (15.3%) ***
MHP	129 (23.5%)	123 (22.4%)
Other parties		91 (16.5%)
Independent MPs	3 (0.5%)	16 (2.9%)
Not an MP anymore		12 (2.2%)
Total	550	

Appendix 1- Table 1 (concluded)

Panel D: 22nd term 2002-2007

	Beginning of term	End of term
AKP	365 (66.4%)	352 (64.0%)
CHP	177(32.2%)	149 (27.1%)
Other Parties		22 (4.0%)
Independent MPs	8(1.5%)	20 (3.6%)
Not an MP anymore		7 (1.3%)
Total	550	

Panel E: 23rd term 2007-2011

	Beginning of term	End of term
AKP	341 (62.0%)	333 (60.5%)
CHP	112 (20.4%)	102 (18.5%)
MHP	71 (12.9%)	69 (12.5%)
Other parties		28 (5.1%)
Independent MPs	26 (4.7%)	8 (1.5%)
Not an MP anymore		10 (1.8%)
Total	550	

Notes: "Other Parties" are those that were not represented in the parliament at the beginning of the parliamentary term. "Independent MPs" are not members of any political party. MPs who lost their office because of resignation, expulsion, death, or taking another office such as the head of the state or governor of a city, are listed as "Not an MP anymore".

* SHP and CHP merged in February 1995 under the name of CHP. 44 MPs remained in CHP as the end of the 19th term December 1995.

** RP is shut down by the constitutional court in January 1998. Ex-members of RP started and joined a new party, FP. As of the end of the 20th term in April 1999, FP had 149 seats in the parliament.

*** FP is shut down by the constitutional court in June 2001. Its ex-members started a new party, SP. At the end of the 21st term in November 2002, 84 MPs were members of SP.

Appendix 1- Table 2
The Effect of Electoral Uncertainty on the Probability of Party Switching
***by MP's Education* (Conditioning on MP's Area of Study)**

	Whole Sample		MPs *with* MA or PhD		MPs *without* MA or PhD	
	(1)	(2)	(3)	(4)	(5)	(6)
Ranked 2nd or lower	0.034***		0.016		0.039**	
	(0.013)		(0.031)		(0.016)	
Margins of Victory (MV)		-0.001		0.003		-0.002**
		(0.001)		(0.003)		(0.001)
University Quality Score	-0.003**	-0.003*	-0.003	-0.003	-0.004**	-0.003
	(0.001)	(0.002)	(0.004)	(0.004)	(0.002)	(0.002)
Member of Gov't Party	0.070***	0.087***	0.063	0.102	0.081***	0.094***
	(0.018)	(0.020)	(0.048)	(0.067)	(0.022)	(0.024)
Elected from same	-0.113***	-0.112***	-0.110*	-0.145*	-0.119***	-0.114***
party before	(0.023)	(0.024)	(0.065)	(0.080)	(0.026)	(0.026)
Relative salary	0.047**	0.047**	0.208*	0.393**	0.047**	0.041*
	(0.019)	(0.021)	(0.114)	(0.188)	(0.022)	(0.023)
Party's Vote Share	-0.001**	-0.001	-0.000	0.001	-0.002***	-0.002**
	(0.001)	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)
Seats	-0.006**	-0.007**	-0.004	-0.007	-0.008**	-0.007*
	(0.003)	(0.003)	(0.006)	(0.007)	(0.003)	(0.004)
Cabinet member	-0.024	-0.030*	-0.107***	-0.101**	-0.017	-0.019
	(0.017)	(0.018)	(0.041)	(0.047)	(0.021)	(0.021)
Freshman	-0.140***	-0.141***	-0.129**	-0.142*	-0.164***	-0.161***
	(0.024)	(0.025)	(0.065)	(0.076)	(0.028)	(0.028)
Age ≥ 50	-0.022*	-0.023*	0.014	-0.011	-0.041**	-0.039**
	(0.012)	(0.013)	(0.025)	(0.029)	(0.016)	(0.016)
Female	0.047*	0.035	-0.048	-0.068	0.072**	0.058*
	(0.026)	(0.026)	(0.041)	(0.047)	(0.034)	(0.034)
MA/PhD	-0.006	-0.003				
	(0.013)	(0.014)				
Basic Sciences	-0.006	-0.013	0.033	0.015	-0.002	-0.013
	(0.031)	(0.031)	(0.065)	(0.073)	(0.038)	(0.037)
Comp Sci, Elect Eng	0.032	0.025	0.004	0.000	0.037	0.022
	(0.033)	(0.033)	(0.084)	(0.081)	(0.041)	(0.039)
Other Engineering	0.009	-0.003	-0.031	-0.011	0.022	0.003
	(0.021)	(0.021)	(0.045)	(0.047)	(0.027)	(0.026)
Health Sciences	0.028	0.004	0.035	0.006	0.039	0.007
	(0.022)	(0.023)	(0.040)	(0.044)	(0.032)	(0.032)
Education	0.014	0.018	-0.724***	-0.722**	0.009	0.008
	(0.027)	(0.028)	(0.275)	(0.353)	(0.033)	(0.033)

Appendix 1- Table 2 (concluded)

	Whole Sample		MPs *with* MA or PhD		MPs *without* MA or PhD	
	(1)	(2)	(3)	(4)	(5)	(6)
Economics/Management	0.021	0.017	0.050	0.086*	0.021	0.012
	(0.020)	(0.021)	(0.043)	(0.052)	(0.026)	(0.025)
Law	-0.014	-0.019	0.010	0.013	-0.018	-0.025
	(0.022)	(0.023)	(0.058)	(0.056)	(0.027)	(0.026)
Observations	1594	1497	269	248	1144	1082

The outcome variable is *Party Switch* which takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. Table presents the marginal effects obtained from probit regressions. The whole set of control variables are included in the regressions (as in Table 5). Robust standard errors clustered at the MP level are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

Basic Sciences – graduates who major in sciences such as chemistry, physics, biology, astronomy, geology. **Comp Sci, Elect Eng** – graduates who major in computer engineering, electric or electronics engineering, and mathematics, statistics **Other Engineering** –engineering in all other fields such as industrial engineering, civil engineering, mechanical engineering, chemical engineering, agricultural engineering, forestry engineering, and architecture. **Health Sciences** – dentistry, medical doctors, pharmaceutics, veterinarian. **Education** – teachers, foreign languages, Turkish language, physical education majors, graduates of fine arts schools and conservatories. **Economics/Management** – graduates from departments of economics, management, marketing, accounting, finance, banking, trade, tourism management and graduates of related schools. **Law** – graduates of law school. **Social Sciences** – graduates from departments of geography, history, sociology, philosophy, and other social sciences, theology, political science, international relations, public administration, journalism. **Other** – graduates with other majors, undeclared/unknown majors, and graduates of military schools and police academy.

Appendix 2: Selection on Unobservables

In Table 6, we show that the rank of an MP on the party ticket increases his/her probability of party switching in tighter elections. In addition, our results in Table 7 suggest that election uncertainty increases the probability of party switching even among the top-ranked MPs. Although these findings support our hypothesis of a positive causal effect of election uncertainty on party switching, they do not rule out the possible bias due to selection into treatment based on unobservables.

Altonji, Elber and Taber (2005) suggested a method to account for the possible selection bias under the assumption that selection into "treatment" due to unobservable factors is equal to the selection into treatment due to observables. Specifically, they suggest estimating equations (A1) and (A2) below using bi-variate probit.

(A1) $Switch = \beta R2 + X\gamma + \varepsilon$

(A2) $R2 = X\delta + \omega$

where $Switch$ and $R2$ stand for *Party Switch* and *Ranked 2nd or Lower*, respectively. X is the MP's observed characteristics. β is the coefficient of interest. ε and ω are normally distributed, with zero mean and variance 1. Their correlation is ρ. The assumption of equality between selection due to unobservables and selection on observed factors is expressed as:

(A3) $\frac{Cov(\varepsilon,R2)}{V(\varepsilon)} = \frac{Cov(X\gamma,R2)}{V(X\gamma)}$

The left hand side of the equality (A3) is equal to ρ (as X is assumed to be not correlated with ε). Estimation is conducted iteratively. For the initial value of ρ, we estimate equations (A1) and (A2) with bivariate probit without any restrictions, and obtain an estimate for $\frac{Cov(X\gamma,R2)}{V(X\gamma)} = \rho$. We then estimate the system by imposing the restriction in (A3) using the estimated value of ρ. Each iteration provides a value of ρ to be used in the next step. After convergence is reached, the final

estimate of ρ is -0.24. The marginal effect of *Ranked 2nd or Lower* in regression (A1) is 0.09 (bootstrapped std. err.: 0.02). This suggests that our estimate reported in Table 5 (0.026) is an underestimate of the true impact under the assumption of (A3) of Altonji et al. (2005).

Another procedure in Altonji, Elber and Taber (2005) provides an informal way to assess the selection bias. Specifically, this method provides a means to evaluate the magnitude of the selection bias required for a nill effect of *Ranked 2nd or Lower*. Inserting equation (A2) into (A1) yields:

(A4) $Switch = \beta(X\delta + \omega) + X\gamma + \varepsilon = \beta\omega + X(\beta\delta + \gamma) + \varepsilon$

In this regression, the bias in the estimate of β is

(A5) $plim(\hat{\beta} - \beta) = \frac{Cov(\omega,\varepsilon)}{V(\omega)} = \frac{V(R2)}{V(\omega)}[E(\varepsilon|R2 = 1) - E(\varepsilon|R2 = 0)]$[28]

To evaluate the bias, an assumption about $[E(\varepsilon|R2 = 1) - E(\varepsilon|R2 = 0)]$ is required. Altonji, Elber and Taber (2005) suggest:

(A6) $\frac{E(\varepsilon|R2=1) - E(\varepsilon|R2=0)}{V(\varepsilon)} = \frac{E(X\gamma|R2=1) - E(X\gamma|R2=0)}{V(X\gamma)}$

which is equivalent to (A3). Assuming $V(\varepsilon) = 1$, the estimate of $E(X\gamma|R2 = 1) - E(X\gamma|R2 = 0)/V(X\gamma)$ will provide $E(\varepsilon|R2 = 1) - E(\varepsilon|R2 = 0)$. To consistently estimate γ, we estimate equation (A1) under the restriction $\beta = 0$. The bias in $\hat{\beta}$ can then be calculated using the formulation in (A5). This method leads to an estimate of -0.12 (std. err.: 0.05) of the bias on the coefficient of $Ranked\ 2nd\ or\ Lower$. In other words, if the influence of unobservables on MPs' ranks is same as the influence of the observed factors, then

[28] To see this note first that $Cov(\omega, \varepsilon) = Cov(\varepsilon, R2)$. Secondly, $Cov(\varepsilon, R2) = E(\varepsilon R2) - E(\varepsilon)E(R2) = E(\varepsilon R2) - pE(\varepsilon)$, where p is $E(R2)$. $E(\varepsilon R2) = E(\varepsilon R2|R2 = 1)p + E(\varepsilon R2|R2 = 0)(1-p) = E(\varepsilon|R2 = 1)p$. $pE(\varepsilon) = p[E(\varepsilon|R2 = 1)p + E(\varepsilon|R2 = 0)(1-p)]$. Therefore, $Cov(\varepsilon, R2) = p(1-p)[E(\varepsilon|R2 = 1) - E(\varepsilon|R2 = 0)] = V(R2)[E(\varepsilon|R2 = 1) - E(\varepsilon|R2 = 0)]$.

our estimate constitutes a *lower bound* for the effect of election uncertainty on the probability of party switching.[29]

As a further robustness check, we implement the estimator discussed in Oster (2014). Oster (2014) relaxes the assumption of the equality of selection on unobservables and on unobservables proposed by Altonji et al. (2005). Specifically, the selection on unobservables is allowed to be proportional to the selection on observed factors. This modification alters the assumption in equation (A3) as follows:

(A7) $$\frac{Cov(\varepsilon,R2)}{V(\varepsilon)} = \theta \frac{Cov(X\gamma,R2)}{V(X\gamma)}$$

where θ represents the mentioned proportionality. The unbiased estimator derived by Oster (2014) is a function of the factors below:

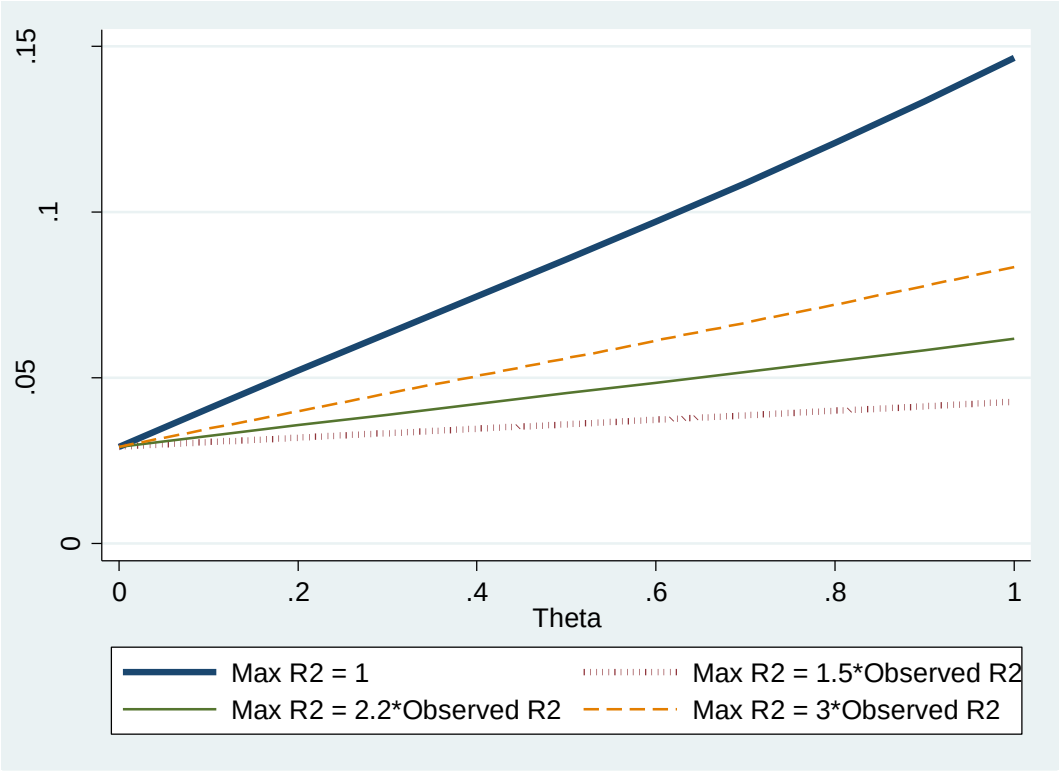
a. how the coefficient of interest changes when control variables are added to the regression
b. how R^2 of the regression changes when control variables are added to the regression
c. the maximum R^2 that could be achieved if all unobservables were also included in the regression.
d. the relative importance of selection into treatment due to unobservables versus observables (θ).

We estimated the items in factors (a) and (b) with OLS. By definition of R^2, its upper bound is 1. However, Oster (2014) makes a case that the upper bound of R^2 could be smaller in the presence of a random component or measurement error in the outcome variable. She finds that in majority of randomized trials (where selection due to unobservables is of little concern), the estimated effect does not change sign if maximum R^2 is set to 2.2 times the observed R^2. The factor (d), the relative importance of selection into treatment due to unobservables versus

[29] This means that for the true effect of election uncertainty (measured by *Ranked 2nd or Lower)* to be zero, the omitted variable bias must be positive (the opposite sign of selection on observables).

observables, requires an assumption of its value. In most cases θ is chosen to be between 0 and 1.

We estimated the bias-corrected point estimates of the effect of *Ranked 2nd or Lower* for various values of proportionality (θ) and using alternative upper bounds of R^2 using the estimator in Oster (2014). The results are presented in the figure below. The vertical axis measures the estimated effect, and the horizontal axis measures the value of θ used to estimate the effect. The four lines represent the set of estimates with different values for upper bound of R^2. Specifically, the estimates that are depicted as the thick solid line are obtained when 1 is used as the upper bound of R^2. The dashed, solid thin and dotted lines represent the sets of estimates when the upper bounds of R^2 are 1.5, 2.2 and 3 times the observed R^2 (0.19).



The upward sloping lines suggest that the true impact of election certainty on party switching gets larger as the degree of proportionality (between selection on unobservables and

on observables (θ) increases (alternatively, as the relative importance of selection into treatment due to unobservables versus due to observables gets greater). The estimator in Altonji, Elber and Taber (2005) is the special case of this picture with maximum R^2 and θ are both being 1. (This corresponds to the right-end of the thick solid line).

The analysis in this appendix section points to a positive effect of *Ranked 2nd or Lower* on party switching given that selection on unobservables and selection on observables are positively related as assumed by Altonji et al. (2005) and Oster (2014). For the true effect to be zero, selection on unobservables must move the coefficient of *Ranked 2nd or Lower* in the opposite direction of selection on observables. Furthermore, the relative importance of selection into being ranked low on the ticker due to unobservables must be at least as large as selection due to observables ($\theta \leq -1$). This is quite unlikely as the set of control variables we include in our regressions is not selected randomly. Rather it includes important determinants of both being low-ranked on the ticket and of party switching, as suggested by the previous papers. Oster (2014) argues that controlling for important confounding observables in the regression likely limits θ between 0 and 1.

Appendix 3: Regression Discontinuity Analysis

We investigate the robustness of our findings using a regression discontinuity design where we exploit the randomness introduced by the d'Hondt method. The candidates who are elected may change significantly, when the vote distribution is altered even marginally. In a subset of the districts this may lead to the election of low-ranked candidates of a party instead of the high-ranked candidates of another party (or *vice versa*). Consider the example given in Appendix 3 Table 1 (which is same as the Table 1 in the main text), where 5 parties compete for 7 seats. Under Vote Distribution 1, displayed in the top panel, the top-ranked candidates from parties B and C (B1 and C1), the top two candidates of Party D (D1 and D2), and the top three candidates of party E (E1, E2 and E3) are elected as MPs.

The list of these candidates is presented in the top panel of Appendix 3-Table 2 in the order in which they qualified to enter the Parliament from that district, which is determined by their quotients. Notice that while A1 (the first-ranked candidate of party A) is *not* elected under this vote distribution, E3 (the third- ranked candidate of party E) *is* elected. That is, vote distribution 1 resulted in an outcome where a low-ranked candidate (E3) has beaten a first-ranked candidate (A1). However, this outcome would change if 2 voters would vote for party A instead of voting party for D.

This new outcome is shown in Panel 2 of Appendix-3 Table 1, and the winning candidates are displayed in Panel 2 of Appendix-3 Table 2. Under this second vote distribution, A1 *is* elected, beating E3. In these examples, A1 and E3 are the *marginally elected MPs* under distributions 1 and 2, respectively, and their victory over other candidates depends on a small number of votes.

In our regression discontinuity design, identification is obtained based on the assumption that the marginally elected MPs became winners due to factors that are not correlated with

unobserved determinants of party switching and that are out of candidates' or parties' control. If this is the case, the rank of the winning marginal candidate is as good as randomly assigned, and the marginally-elected MPs in different districts will constitute counterfactuals to each other. Specifically, we will be able to obtain the causal effect of the party-list rank by *comparing the party switching activity of first-ranked MPs to lower ranked MPs, both of whom are barely (marginally) elected*.

To implement this design, we first identify the *Cutoff Candidate* (the one who has the biggest quotient among those who are not elected) and the *Cutoff Quotient* (quotient of the Cutoff Candidate). In the two panels of Appendix-3 Table 2, the cutoff candidates under vote distributions 1 and 2 are A1 and E3, and the cutoff quotients are 10 and 11, respectively (see Appendix-3 Table 2). Our running variable *Margin of Victory* (MV) measures the difference between quotients of the elected candidates and the cut-off quotient. Specifically, we construct *Margin of Victory* of MP m who represents district d (MV_{md}) as follows:

(A8)

$$MV_{md} = \begin{cases} Q_{md} - CQ_d & \text{if MP } m \text{ is low-ranked on her Party's list in district } d \text{ and the Cutoff Candidate is first-ranked on his Party's list} \\ CQ_d - Q_{md} & \text{if MP } m \text{ is first-ranked on her Party's list in district } d \text{ and the Cutoff Candidate is low-ranked on his Party's list} \end{cases}$$

where Q_{md} is the quotient of MP_m who represents district d, and CQ_d is the quotient of the cutoff candidate in district d. We do not calculate MV_{md} for MPs whose ranks are same as the cutoff candidate.[30]

[30] That is, when they are both first ranked, or when they are both low-ranked in their party list.

By construction, MPs with positive (negative) values of MV_{md} are low (first) ranked. That is, in our design, zero is the discontinuity point where the treatment (*Low Rank*) turns from zero to one. MV_{md} measures how easily a low-ranked candidate is elected over a first-ranked candidate. This design is similar to the one employed by Gagliarducci and Paserman (2012), who investigated the gender impact of Italian mayors' probability of completing their elected term.

Appendix-3 Table 2 demonstrates the calculation of MV for the examples mentioned above. In the top panel of Appendix-3 Table 2, which is based on the vote distribution No:1 (presented in Appendix-3 Table 1), the margin of victory for the candidate E3 (the difference between E3's quotient and the cut-off quotient) is equal to +1. The MV for E3 is positive in this case, because E3 is a low (third) ranked candidate, and she is elected by beating a first-ranked candidate (A1). The bottom panel of Appendix-3 Table 2 is based on the vote distribution No: 2. As an example, consider the margin of victory for A1, which is equal to -1 (11-12). A1 is the first-ranked candidate on her party's list, who is elected by beating a low-ranked candidate. Notice that, for vote distribution No 1, displayed in the top panel of Appendix-3 Table 2, MV is not calculated for the first-ranked candidates (E1 and B1). This is because the cutoff candidate, A1, is also first-ranked. Similarly, MV is not calculated for low-ranked candidates in distribution 2, shown at the bottom panel of Appendix-3 Table 2, as the cutoff candidate is low-ranked as well.

To implement our design, we employ a local linear regression (Imbens and Lemieux 2008). Specifically, we first find the optimal bandwidth (*h*). This corresponds to choosing the sample of marginally-elected MPs based on their Margin of Victory. To pick the bandwidth, we use the methods suggested by Calonico, Cattaneo and Titiunik (2014) and Imbens and Kalyanaraman (2012). In the second step, we fit a regression line to both sides of the

discontinuity point using only the observations within the optimal bandwidth. Specifically, we estimate the regression depicted below

(A9) $$Party\ Switch_{m,Pt} = \beta_0 + \beta_1 Low\text{-}Rank_{m,Pt} + \beta_2 MV_{m,Pt} + \beta_3 Low\text{-}Rank_{m,Pt} \times MV + \varepsilon$$

where $Low\text{-}Rank_{m,Pt}$ is an indicator that takes the value of one if the MP is ranked 2nd or lower on her party's list, and MV is the running variable. The effect of being low-ranked on the probability of party switching is equal to the jump at the discontinuity point, and it is estimated by β_1.

RDD Results

Appendix-3 Figure 1 presents the characteristics of the sample we employ in the regression discontinuity analysis. The vertical axis measures the percentage of MPs who switched parties. The horizontal axis displays the running variable, *Margin of Victory* (*MV*) which is constructed using Equation (A8). Specifically, *MV* measures the difference in quotients of the winning candidates versus the cut-off candidate (who barely missed being elected). *MV* is positive (negative) for candidates who are elected as second- or lower- (first) ranked candidates, by beating a first- (lower) ranked candidate. The vertical line at *MV*=0 marks the discontinuity point. The dots indicate the MPs within bins of size 3% *MV*. The numbers above the dots are the numbers of MPs in the bins. For example, the dot with the number 55 just to the right of the discontinuity point indicates that there are 55 second-ranked MPs who are elected by beating a first-ranked candidate by a margin of 0 to 3%. As the vertical axis indicates, more than 20% of these MPs switched parties. Similarly, the dot with the number 88, located just to the left of the

discontinuity point, implies that there are 88 first-ranked MPs who are barely elected after beating a lower-ranked candidate by a margin of less than 3%.

In Appendix-3 Figure 1, the smooth lines to the left and to the right of the discontinuity point are local polynomial fits of party switching based on *MV*. We fit lines for first-ranked and lower-ranked candidates separately. The lines suggest that probability of party switching decreases with the absolute value of *MV*. In other words, MPs who are elected more easily, or who faced less election uncertainty are less likely to switch parties regardless of their ranks. In addition, the jump in fitted values at the discontinuity point is positive. The magnitude of the jump is about 0.06.

We implement our design by estimating a local linear regression (Imbens and Lemiuex 2008). This method involves fitting a regression line to the data around the close neighborhood of the discontinuity point. Specifically, we choose a bandwidth, *h*, and estimate equation (A9) using the observations for which *MV* is in the interval (*-h*, *h*). The choice of bandwidth corresponds to determining the marginally-elected MPs. We use the optimal bandwidth choice methods suggested by Calonico, Cattaneo and Titiunik (2014) and by Imbens and Kalyanaraman (2012). These bandwidths are calculated to be 7.45 and 10.88 for the former and latter, respectively.

In Appendix-3 Table 3, we present the results obtained from estimating equation (A9) for the specified bandwidths. In columns 1 and 2 (3 and 4), we present the results from the regression that uses bandwidth 7.45 (10.88). Regressions in columns 1 and 3 also include the control variables. The variable of interest, *Low Rank*, is a dummy variable that takes the value of one if the MP is ranked second or lower in their party list. The coefficient of *Low Rank* is the

estimate of the jump at the discontinuity point (*MV*=0). Results of all regressions show an increase in the probability of party switching at the discontinuity point.[31]

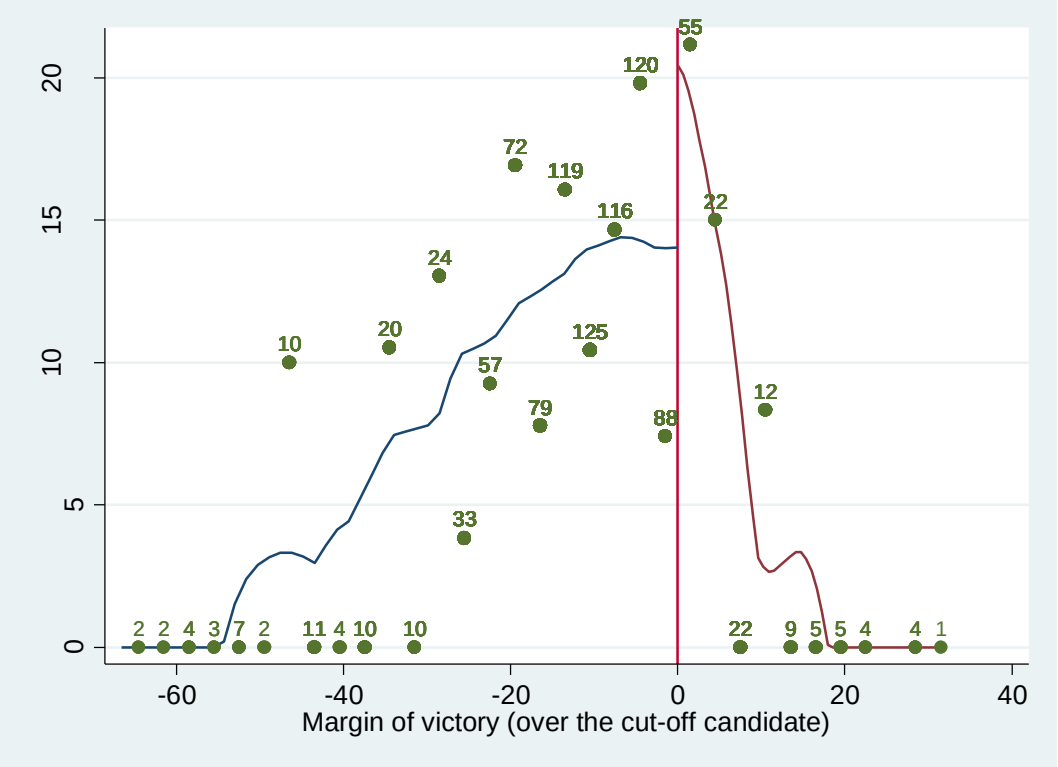
One of the conditions for internal validity of regression discontinuity estimates is the absence of the manipulation of the rating variable based on the treatment variable (McCrary 2008). This may be violated as our rating variable, *Margin of Victory*, is a function of the candidate's rank. Because of the allocation rule, first-ranked candidates have an advantage in elections over the second ranked candidates. Specifically, while each vote cast for their party increases the quotient of the first-ranked candidates by 1, it increases the quotients of the second-ranked candidates by 0.5. The advantage of the first-ranked candidates is demonstrated in Figure 1, where there are significantly more first-ranked candidates in our regression discontinuity analysis sample (to the left of the discontinuity point) in comparison to low-ranked candidates.

However, this does not constitute a problem in our design because candidates' quotients are free from *complete* manipulation, and they still incorporate a random component. Specifically, none of the candidates can fully manipulate their quotients as this would require coordination of tens of thousands of voters. McCrary (2008) suggests that designs that could involve partial manipulation of the running variable, such as ours do not suffer from identification problems.[32]

[31] All of the low ranked MPs in our regression discontinuity analysis sample are elected beating a first-ranked candidate. This implies their parties must have dominated the district. For example, if a second-ranked candidate of party A is elected beating the first-ranked candidate of party B, then party A must have obtained at least twice as many votes than party B. If parties nominate loyal candidates in districts where they dominate the votes, our estimates represent a lower bound.

[32] Complete manipulation of the rating variable may occur if individuals know the cut-off point and can fully control their rating variable. Essentially, complete manipulation leads to selection in/out of treatment. Partial manipulation occurs when the individual has some control over the rating variable, but there is some idiosyncratic component.

Appendix-3 Figure 1
Distribution of Party Switching among First Ranked versus Low-Ranked Candidates



Notes: The graph presents the sample used in the RD analysis. The vertical axis measures the proportion of MPs who switched parties. The horizontal axis is the running variable, Margin of Victory (MV), which is constructed using equation (A8). Specifically, MV measures the difference in quotients of winning candidates versus the cut-off candidate (who barely missed being elected). MV is positive for candidates who are elected as second or lower ranked candidates beating a first ranked cutoff candidate, and it is negative for candidates who are elected as first ranked candidates beating a lower ranked cutoff candidate. The vertical line at MV=0 marks the discontinuity point. The dots represent the MPs within bins of size 3% MV. The numbers above the dots indicate the number of MPs within a bin. For example, the dot with the number 55 just to the right of the discontinuity point indicates that there are 55 second-ranked MPs who are elected beating a first-ranked candidate by 0 to 3%. Smooth lines to the left and to the right of the discontinuity point are local polynomial fits of party switching based on MV.

Appendix-3 Table 1
Hypothetical D'Hondt Example

Panel 1 – Vote Distribution 1

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	10.0	5.0	3.3	2.5	2.0	1.7	1.4
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**25.0**	**12.5**	8.3	6.3	5.0	4.2	3.6
E	**33.0**	**16.5**	**11.0**	8.3	6.6	5.5	4.7

Panel 2 – Vote Distribution 2
(2 individuals vote for A instead of D)

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	**12.0**	6.0	4.0	3.0	2.4	2.0	1.7
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**23.0**	**11.5**	7.7	5.8	4.6	3.8	3.3
E	**33.0**	**16.5**	11.0	8.3	6.6	5.5	4.7

Panel 3 – Vote Distribution 3
(4 individuals vote for A instead of D)

Parties	Votes/1	Votes/2	Votes/3	Votes/4	Votes/5	Votes/6	Votes/7
A	**14.0**	7.0	4.7	3.5	2.8	2.3	2.0
B	**13.0**	6.5	4.3	3.3	2.6	2.2	1.9
C	**19.0**	9.5	6.3	4.8	3.8	3.2	2.7
D	**21.0**	10.5	7.0	5.3	4.2	3.5	3.0
E	**33.0**	**16.5**	**11.0**	8.3	6.6	5.5	4.7

Notes: The table presents three examples of how seats in a district with seven seats are allocated to five parties using d'Hondt method. Each panel depicts a separate vote distribution. The number of votes parties obtain is shown in the first column (1/1) in each panel.
d'Hondt method divides each party's votes by consecutive numbers up to the number of seats in the district (N). The columns "1/1", "1/2",… , "1/7" in the table present the quotients. The parties with the largest N quotients win the seats. In the examples above, the bold and underlined numbers are the largest seven quotients. The parties win as many seats as the number of largest quotients they have. For example, under vote distribution 1, parties B and C win one, D wins two and E wins 3 seats.

Appendix-3 Table 2
Calculation of Margin of Victory

Panel 1 – Vote Distribution 1

	District Rank	Candidate	Q	MV
Winners	1	E1	33	
	2	D1	25	
	3	C1	19	
	4	E2	16.5	16.5 – 10 = 6.5
	5	B1	13	
	6	D2	12.5	12.5 – 10 = 2.5
	7	E3	11	11 – 10 = 1
	8	**A1**	**10**	

Panel 2 – Vote Distribution 2
(2 individuals vote for A instead of D)

	District Rank	Candidate	Q	MV
Winners	1	E1	33	11 – 33 = – 22
	2	D1	23	11 – 23 = – 12
	3	C1	19	11 – 19 = – 8
	4	E2	16.5	
	5	B1	13	11 – 13 = – 2
	6	A1	12	11 – 12 = – 1
	7	D2	11.5	
	8	**E3**	**11**	

Notes: The table presents the construction of (MV) Margin of Victory variable (our running variable in the regression discontinuity analysis) for the vote distributions presented in top two panels of Appendix 3 Table 1. In both distributions, five parties (A, B, C, D, E) are competing for seven seats in a district with 100 voters. Q stands for the quotients. The candidates with highest 8 quotients are displayed. For example, E1 is the first ranked candidate in party E's list. Because there are 7 seats, the candidate with the eighth highest quotient is not elected. Such candidates who barely missed being elected are the *Cutoff Candidate*, and their quotients are the *Cutoff Quotient*.

Margin of Victory is the difference in quotients of winning low ranked candidates (ranked 2^{nd}, 3^{rd}, and so on) versus the first ranked cutoff candidate if the cutoff candidate is first ranked. If the cutoff candidate is low ranked, then the *Margin of Victory* is the difference between the cutoff quotient and the quotients of the winning first ranked candidates.

Appendix-3 Table 3
Effect of Low Ranks on Party Switching
(Regression Discontinuity Estimates)

	Bandwidth=7.45		Bandwidth=10.88	
	(1)	(2)	(3)	(4)
Low Rank	0.236**	0.203***	0.228***	0.118*
	(0.101)	(0.078)	(0.079)	(0.070)
Margin of Victory (MV)	-0.010	-0.028***	0.000	-0.001
	(0.009)	(0.010)	(0.005)	(0.005)
Low Rank × MV	-0.011	0.002	-0.023**	-0.026***
	(0.015)	(0.017)	(0.009)	(0.009)
Relative salary	0.046**		0.035**	
	(0.022)		(0.017)	
Party's Vote Share	0.001		-0.001	
	(0.002)		(0.002)	
Seats	0.007		0.003	
	(0.004)		(0.003)	
Elected from same party before	-0.168*		-0.177**	
	(0.091)		(0.085)	
Cabinet member	-0.100		-0.035	
	(0.082)		(0.063)	
Freshman	-0.222**		-0.213**	
	(0.092)		(0.086)	
Age>50	-0.074*		-0.074**	
	(0.043)		(0.031)	
Female	0.102		0.051	
	(0.109)		(0.078)	
School Abroad	0.039		0.047	
	(0.086)		(0.057)	
MA/PhD	-0.025		-0.037	
	(0.039)		(0.030)	
Observations	312	312	473	476

Notes: The outcome variable is *Party Switch*. This variable takes the value of one if the MP's party affiliation at the beginning of the parliamentary term is different from their affiliation at the end of the term. *Low rank* takes the value of 1 if the MP is ranked second or lower. *Margin of Victory* (*MV*) is the rating variable. The whole set of control variables are included in the regressions (as in Table 5 in the main text). Robust standard errors are reported in parentheses. *, **, and *** indicate statistical significance at 10%, 5% and 1%, respectively.

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