District Magnitude and Women's Representation
Evidence from Two Natural Experiments in Argentina

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Abstract

Most pieces in the literature on gender representation have assessed that a well designed quota and PR with closed lists are the best known devices to maximize the descriptive representation of women. However, determining whether the relationship is causal is problematic because electoral rules often covary with other factors that may also increase women's representation. In this piece, we study the role of one central feature of electoral systems, district magnitude, to test whether increases in the size of lists really augments the chances of women being elected. To deal with the identification problem, we exploit variation induced by the electoral calendar on elections to the Argentine Chamber of Deputies between 1985 and 2015. Argentine provinces elect half of their congressional delegation every two years, and thus districts with an odd number of representatives have varying magnitudes in different election years. Furthermore, whether a province elects more representatives in midterm or concurrent years was decided by lottery in 1983. We find that higher district magnitudes increase the probability that at least one woman will be elected as well as the total number of women elected. However, the effect is limited to the post-1993 period, when the country adopted a generous quota.

Keywords: women's representation – electoral systems – district magnitude – natural experiment – Argentina

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1 Introduction

As extensively documented in the literature, a wide array of countries recognized during the last decades the needs of overcoming asymmetries in political representation, and adopted the best known institution to promote the election of women in collective bodies: gender quotas. Once consensus on the efficacy of quotas over gender representation has been reached (Htun 2004), debates shifted to discussing what specific features of those quotas are more likely to make female representation come true. Of course, it is acknowledged, gender quotas do not perform in a vacuum. Rather, their expected effects are the product of interactions with other mechanisms that rule the electoral process, especially electoral systems. The joint effects of quotas and electoral rules have been a salient topic in the discipline, and there is evidence about what institutional settings tend to maximize the representation of women (i.e. proportional representation with closed lists) However, there is a specific component whose effects still deserve additional certainty: district magnitude. While there is consensus about the positive effect between high district magnitude and the election of women, the literature has not fully explained how systematic increases in the number of seats affects the election of a female legislator. Aside from simple known arguments (when there are quotas, more available seats are likely to boost the election women), the relationship is neither monotonic nor static. In fact, the literature also demonstrates (Taagepera and Shugart 1989) that there is a positive relationship between district magnitude and party fragmentation. In other words, higher district magnitudes also tend to foster the entry of new competitors who may win a few seats that are allocated to men; which might have been awarded to female candidates, had they been won by larger lists. Therefore, there is still space to learn much more about this complex relationship among quotas, district magnitude, and the election of women.

Moreover, even agreeing with previous findings, identifying the effect of electoral rules on women's representation is problematic in practice because such rules often covary with other factors that also have an impact on the election of women. For example, consider the effects of district magnitude on electoral outcomes: the number of available seats in a district may affect results, but districts that elect more representatives tend to be more urbanized and more socially diverse, which may shape voters' willingness to support certain kinds of parties (Gerring et al. 2015; Kedar, Harsgor and Sheinerman 2016; Monroe and Rose 2002). Comparing elections for different offices within the same polity — i.e., lower- and upper-house elections that follow the same district boundaries (Blais et al. 2011; Cox 1997, ch. 2; Jones 2009; Lago and Martínez 2007; Lago 2012) — is also problematic because behavior in both tiers may be correlated, for example, if citizens cast a straight-party vote, or if small parties systematically nominate their best candidates in the most competitive tier (Fiva and Folke 2016; Lago and Montero 2009), or if electoral rules other than district magnitude also vary between tiers.

To deal with these issues, we exploit here a natural experiment, the election of Argentine deputies, where partial renewal by halves implies that provinces that elect an odd number of representatives alternate their magnitudes every two years (e.g., between 2 and 3 for provinces that elect five deputies, 3/4 for those that elect seven, and so on). Moreover, the choice of which provinces would elect a larger number of representatives in concurrent or midterm years was decided by lottery in 1983, when half of the incoming deputies in that year's election were randomly assigned a shortened two-year mandate instead of a four-year one (Dal Bó and Rossi 2011). This allows us to systematically assess the impact of marginal changes in district magnitude over women's representation while ensuring that potentially confounding factors — such as history, attitudes towards women, or the structure of the party system — are kept constant.

Moreover, by restricting the analysis to within-district variation in Argentina, we stack the deck against finding any results. First, while several authors have argued that district magnitude should increase women's representation, focusing on within-district variation means that we could only examine modest changes in district magnitude. Second, the combination of quotas and placement mandates used in Argentina implies that a good deal of the variation in women's representation in the country will be driven by these factors rather than district magnitude per se. To put it differently, finding any results would mean that *even* in a setting with low average magnitudes, strong quotas and placement mandates, a modest change in district magnitude can make a difference on the proportion of women getting elected.

Our results show that even marginal changes in district magnitude can affect women's representation, but this effect is conditional on the presence of (well-designed) gender quotas. Specifically, we find that a one unit increase in district magnitude raises both the probability that a woman will be elected to the chamber, as well as the total number of woman elected. In as much, our findings have also strong policy implications: if Argentina's electoral calendar was simplified so that all provinces elected their entire delegation simultaneously, the proportion of women elected would be increased by about 10 percentage points and ensure that all districts elect at least one woman in every election. However, these results are not driven by changes in district magnitude alone, but rather by the *combination* of variation in magnitude with a well-designed gender quota: before Argentina introduced its quota (i.e., between 1985 and 1991), the effect of district magnitude is not only statistically insignificant, but also much smaller in size — by a factor of 2 to 3 — than in the post-quota era (1993-2015). Finally, preliminary results suggest that district magnitude matters because it increases *party* magnitude, i.e. the total number of seats actually received by those parties that won representation.

The literature

Gender Quotas and the Election of Women. As the product of long periods of struggles, lobbies and vindications, gender quotas landed in multiple democratic and non-democratic countries, and it seems that they are here to stay.[1] Year after year, more polities tend to design mechanisms to promote the election of women to legislative (and also executive) positions in very dissimilar political settings. Up to the date, more than one hundred countries have incorporated mechanisms to improve gender balance in elected bodies. As made clear by (Htun 2004), gender quotas are the typical devices used to promote gender equality, while reserved seats tend to be utilized to represent ethnic, linguistic, or religious minorities. Abounding literature has demonstrated that quotas, in fact, have been an effective technology to promote the descriptive representation of women. Beyond a few skeptical contributions about the efficacy of quotas (Reynolds 1999; Kunovich and Paxton 2005; Tremblay 2007), most scholarly work makes consistent arguments about the usefulness of these devices to improve gender representation (Htun and Jones 2002; Franceschet and Piscopo 2008; Schwindt-Bayer 2010).

Even though quotas have had a positive impact, they are far from being a sufficient condition to grant women's access to public office. Variation in components of quotas may outweigh the existence of such devices, indeed, and make their effects sterile. Authors point out that the size of quotas (Jones and Navia 1999; Schmidt and Saunders 2004; Schwindt-Bayer 2009), mandate placements for women (Jones 1996; **?**; Htun and Jones 2002; Gray 2003; Baldez 2004; Langston and Aparicio-Castillo 2011), ballot design (Caul 1999; Matland 2013) and credibility and enforcement (Htun and Jones 2002; Dahlerup and Freidenvall 2005; Larserud and Taphorn 2007; Tripp and Kang 2008; Matland 2013) are powerful factors affecting the effectiveness of quotas. In comprehensive tests of the mentioned factors, Jones

[1]See Krook (2007) for an excellent review on the many determinants of quota implementation worldwide

(2009) and Jones, Alles and Tchintian (2012) conclude that well designed quotas (understood as using a placement mandate with strict enforcement) are the most fundamental attribute in predicting a better representation for women in Latin America. However, there is a crucial component that plays a central role in studies of electoral rules, but has been treated as just another covariate in most pieces on gender and politics: district magnitude. Variation in the number of seats at stakes in each district, we argue, may play a role that has been underestimated in the specialized literature.

Electoral Rules, District Magnitude and Gender Quotas. Electoral rules are anything but neutral devices. Decades of studies have demonstrated how variation in features and components of these institutions are likely to affect multiple dimensions of political life. Aside from the almost obvious consequences of the use of majoritarian or proportional rules over the degrees of fragmentation of collective bodies, many other empirical aspects tend to covary with electoral rules, including party discipline and cohesion (Ames 1995; Carey and Hix 2011), the propensity to deviate from the party line (Mayhew 1974), personal vote and constituent-based activities (Cain, Ferejohn and Fiorina 1987), public spending and taxation (Persson, Roland and Tabellini 2007; Milesi-Ferretti, Perotti and Rostagno 2002), protection of human rights (Cingranelli and Filippov 2010), campaigning strategies (Iaryczower and Mattozzi 2013), and legislative committee structure (Martin 2011), among others.

In fact, in studies of electoral rules, district magnitude has been considered a central factor. Seminal pieces (Taagepera and Shugart 1989; Carey and Shugart 1995) consider it the main determinant (*the "decisive factor"*) of proportionality and the pursuit of a personal, individualized vote; findings reinforced by empirical contributions like Benoit (2001), Crisp et al. (2004), Heitshusen, Young and Wood (2005), Shugart, Valdini and Suominen (2005) and Crisp, Jensen and Shomer (2007). Other authors have linked variation in district magnitude with relevant dependent variables. Carey and Hix (2011) relate low district magnitudes with the simultaneous goals of representativeness, moderate fragmentation, and

simpler coalition formation patterns. Chang and Golden (2007) find that district magnitudes above 15 are associated with higher levels of corruption. Edwards and Thames (2007) associate low district magnitudes with higher government expenditures. Kedar, Harsgor and Sheinerman (2016) find a relationship between changing district magnitudes and representational equality. From another perspective, André and Depauw (2013) show that district magnitude increases the time representatives spend on some constituency-oriented actions.

In a related vein, the relationship between district magnitude and the election of women, holding quotas and other attributes constant, is mixed. While some pieces in the literature find a direct positive relationship (Rule 1987; Engstrom 1987; Salmond 2006; Schwindt-Bayer 2010), others are more skeptical (Welch and Studlar 1990; Studlar and Welch 1991; Matland and Taylor 1997; Schmidt and Saunders 2004; Kittilson 2006). Within the set of contributions that associate increases in magnitude and improvement in women's election, results also vary. Schwindt-Bayer (2010) predicts a quite small increase (.012) in the share of elected women as effect of jumping from the minimum to the maximum existing magnitude in Latin America. Using party magnitude (instead of district magnitude) as a predictor, Jones (2009) and Jones, Alles and Tchintian (2012) find no significant relationship with women's representation.[2] Yet most of these studies rely on observational data, and most make cross-sectional comparisons, which makes it harder to disentangle the effect of district magnitude form that of other factors that may affect women's representation. Most obviously, both electoral rules and attitudes toward women vary between countries; and within countries, larger districts tend to coincide with more populated (and urbanized) regions, which may affect both women's and voters' behavior. To alleviate this problem, Jones (2009) and

[2]The alleged reason to prefer this variable is "*the lack of any strong theory specifying the functional form of the relationship between party magnitude and the election of women... and [party magnitude] is correlated* .57 *with district magnitude*" (pp. 65); which is, in fact, what we are trying to disentangle in the current piece.

Jones, Alles and Tchintian (2012) include district fixed effects in their specifications, which in practice means that they end up comparing elections for the Lower House and the Senate within the same country. This wash away the problem of attitudes toward women within districts, but introduces others, notably the fact that House and Senate elections are unlikely to be independent – for example, placing a women at the top of the Senate list may make a party more likely to place a men at the top of the House ticket –, and furthermore electoral rules often differ between chambers. In sum, there is space for a contribution that isolates the effect of district magnitude over the election of women in consistent manner. In this sense, a natural experiment seems to be the solution to many of the pitfalls described above.

Research design and data

The Argentine electoral calendar.[3] In order to identify the effect of district magnitude on women's representation, we exploit the fact that the rules governing the composition of the Argentine Chamber of Deputies provide two natural experiments with which to identify the short-term effect of district magnitude on electoral outcomes. First, the use of a scattered electoral calendar means that district magnitude varies regularly within provinces (see Table 1). Specifically, the chamber is elected by closed-list PR in 24 multi-member districts that are coterminous with the country's provinces.[4] Within each district, seats are distributed according to the d'Hondt formula, with a legal threshold of 3 percent of registered voters.[5] Deputies last four years in office, but according to the 1853 constitution — which the outgoing military government reinstated in 1983 — the Chamber is renewed by halves

[3]This section relies heavily on Lucardi (forthcoming).

[4]Strictly speaking, Argentina is divided into 23 provinces and one autonomous city, but the later can be considered as an additional province for seat allocation purposes.

[5]This makes little difference in practice because mandatory voting ensures that turnout is relatively high, and low magnitudes mean that parties that do not reach the threshold would not have obtained representation

every two years, with each province electing half of its representatives in each electoral turn. Thus, the 19 provinces with an odd number of representatives have higher magnitudes in some years than in others (see Table 1).

The number of seats per province has remained almost constant since 1983. That year, the outgoing military government established that each province would receive one seat per 161,000 population (or fraction larger than 80,500), but added three additional provisions. First, each province would receive three additional seats regardless of population. Second, no province could have less than five deputies. And thirdly, no province could have fewer deputies than it had at the moment of the military coup of March 24th, 1976. The initial allocation of seats was based on the 1980 census; Congress was supposed to reapportion the number of seats per province in subsequent censuses (1991, 2001 and 2010), but it has not done so. The only district to gain representation since 1983 was Tierra del Fuego, which elected two deputies until becoming a province in 1990, and five afterwards. Thus, the Chamber had 254 members between 1983 and 1991, and 257 since 10 December 1991.

The other natural experiment is that whether a province has a higher magnitude in years with concurrent executive elections was decided randomly in 1983. Since executive officials — presidents, governors and mayors — are elected every four years,[6] some legislative elections take place in years with executive elections ("concurrent years"), while others take place during midterms ("midterm years").[7] To the extent that variations in magnitude

anyway. The threshold is only relevant in the province of Buenos Aires (magnitude = 35), which is not included in the analysis because it has an even number of representatives.

[6]The president was originally elected for a six-year term, but the 1994 constitutional reform reduced it to four years. Thus, since 1995 all presidential elections took place in concurrent years.

[7]Concurrent years are 1983, 1987, 1991, 1995, 1999, 2003, 2007, 2011 and 2015. Midterm years are 1985, 1989, 1993, 1997, 2001, 2005, 2009 and 2013. In Corrientes and Santiago del Estero the electoral calendar was displaced by two years due to political turmoil. Thus, beginning in 1993 and 2005 respectively, concurrent years in these provinces correspond to midterm years in others, and vice versa. Note that we speak of

Table 1: *Delegation sizes and district magnitudes in Argentina, 1985-2015*

province	in sample?	delegation size	magnitude (midterm)	magnitude (concurrent)
Catamarca La Pampa Neuquén San Luis Santa Cruz	Yes	5	3	2
Chubut Formosa La Rioja Río Negro Tierra del Fuego*	Yes	5	2	3
Jujuy San Juan	No	6	3	3
Chaco	Yes	7	4	3
Corrientes† Misiones Salta Santiago del Estero‡	Yes	7	3	4
Entre Ríos	Yes	9	5	4
Tucumán	Yes	9	4	5
Mendoza	No	10	5	5
Córdoba	No	18	9	9
Santa Fe	Yes	19	9	10
Ciudad de Buenos Aires	Yes	25	13	12
Buenos Aires	No	70	35	35
Total	19/24	257	127	130
mean median		10.7 6.5	5.3 3.0	5.4 3.0

Note: Midterm years are 1985, 1989, 1993, 1997, 2001, 2005, 2009 and 2013. Concurrent years are 1987, 1991, 1995, 1999, 2003, 2007, 2011 and 2015. (*) Elected only 2 deputies before 1991 (in midterm years). (†) The ordering of midterm and concurrent elections is reversed after 1993, when the subnational electoral calendar changed. (‡) The ordering of midterm and concurrent elections is reversed after 2005, when the subnational electoral calendar changed.

are collinear with concurrent or midterm years — for example, if higher magnitudes always coincided with midterms —, disentangling the effect of magnitude from that of concurrency would be impossible. This is a serious consideration, because nomination and entry decisions are unlikely to be independent across offices, which may affect the pool of candidates. In particular, more experienced candidates are more likely to run in concurrent elections (Lucardi and Micozzi 2016); to the extent that women are less politically experienced than their male peers (Franceschet and Piscopo 2014) may push them toward midterm elections.

Fortunately, not all provinces have higher or lower magnitudes in concurrent or midterm years (see Table 1). Moreover, whether a province ended up electing more representatives in midterm or concurrent years was decided by lot in 1983. That year, every province elected its entire congressional delegation, but subsequently half of each district's representatives received a two-year mandate instead of a four-year one. To decide which legislators would receive a full term, each party-province-delegation had to divide its members into two groups of equal size, group #1 and group #2.[8] Party-province-delegations that had an odd number of representatives had to coordinate with another provincial delegation from the same party that also had an odd number of representatives. A random draw determined that legislators belonging to group #1 would receive a four-year mandate, implicitly deciding which provinces would elect a larger number of representatives in concurrent and midterm years (Dal Bó and Rossi 2011:1243-4).

Gender quotas. An additional advantage of studying the Argentine case is that it allows us to determine whether the effect of district magnitude is conditional on the presence of gender

concurrent *years* rather than concurrent *elections* because even if executive and legislative elections take place in the same year, they need not take place in the same day: in some provinces the constitution bars concurrent elections explicitly, while in others the governor can set the date of provincial elections on the basis of short-term political considerations.

[8]The two representatives from Tierra del Fuego were placed in group #2.

quotas. A pioneer in the quota implementation at the national level, in 1991 the Argentine Congress approved a landmark piece of legislation that first entered into effect in the 1993 legislative election. Basically, the legislation establishes that no party list may contain more than two-thirds of candidates of the same gender.[9] Alongside, a placement mandate states that for every three candidates, only two can be men or women. This ensures that female candidates will not be relegated to the bottom of the list, thereby increasing their likelihood of being elected. The impact of the quota has been impressive. Between 1983 and 1991, no more than 4% of Argentine legislators were woman; immediately after the introduction of the quota, this number jumped to 14% and kept growing ever more afterwards, never dropping below 30%.[10] By splitting the sample between the pre- and post-quota periods (1985-1991 and 1993-2015, respectively), we can assess whether larger magnitudes make a difference in the presence of quotas, or rather constitute a substitute for them.

Specification. These considerations suggest employing a difference-in-differences approach in which the treatment of interest — having a higher district magnitude — is switched on and off every two years within each province. Identification using a difference-in-differences design depends on the parallels-paths assumption, i.e. the treatment and control groups would have followed parallel paths in the absence of treatment (Angrist and Pischke 2009, ch. 5). The fact that district magnitude varies periodically within provinces with an odd number of representatives is reassuring in this regard, as it ensures that the results cannot be attributed to the fact that a change in magnitude in a province happened to coincide with some secular demographic change or a realignment of the party system.

[9]When district magnitude equals two, lists must include a man a woman, regardless of the order. In addition, the Courts recommend that a women be nominated at the top of the list if a party is renewing just one seat, and that outgoing representative is a man

[10]See Table 2 as well as Franceschet and Piscopo (2008) and Htun, Lacalle and Micozzi (2013) for further analyses.

Nonetheless, the parallels paths assumption would be violated if higher magnitudes coincided with concurrent (or midterm) years in all provinces, because in that case having a higher magnitude would be perfectly collinear with (non-)concurrency. It is here that the second natural experiment kicks in: since higher magnitudes coincide with concurrent years in some provinces but not in others, and since a province's electoral calendar was randomly determined, the effect of concurrency will cancel out in the aggregate. To put it differently, while simply comparing a province with itself at different moments in time would violate the parallel paths assumption — because, within provinces, higher magnitudes are always (or never) collinear with (non-)concurrency —, provinces that have a higher magnitude in midterm years are, as a group, comparable to those that have a higher magnitude in concurrent years, and thus the parallel paths assumption is reasonable.

Formally, we fit models of the form

$$Y_{pt} = \gamma \cdot Magnitude_{pt} + \mu_p + \delta_t + \varepsilon_{pt}, \quad (1)$$

where Y_{pt} is the outcome, $Magnitude_{pt}$ is the district magnitude of province p in year t, μ_p and δ_t are province and year fixed effects, and ε_{pt} is the error term. The sample is restricted to provinces with an odd number of representatives. Since the model includes province fixed effects and *Magnitude* only varies by increments of one within provinces, this is equivalent to including a dummy indicating whether a province had a higher magnitude in a given year. To understand whether the effect of magnitude depends on gender quotas, we report three sets of estimates: (a) for the entire sample; (b) for the pre-quota period (1985-1991); and (c) for the post-quota period (1993-2015).

Data. We look at three outcomes. *Women share* is simply the proportion of women elected in a district. Given the small magnitudes that predominate in Argentina, elections in which no women are elected at all are relatively common: before the introduction of gender quotas,

no woman was elected in a whopping 86% of elections, and in the post-quota era about 21% of district-elections returned all men (see Table 2). Thus, *Woman elected* is a dummy that takes the value of 1 if at least one woman was elected in a district, and 0 otherwise. Finally, # *Women elected* is the total number of women elected in a district. We expect *Magnitude* to have a positive effect on all three variables.

To identify the channels through which district magnitude may affect women's representation, we focus on the role of *party* magnitude, i.e. the total number of seats received by parties that received representation. Given the combination of strong placement mandates and small magnitudes present in Argentina, the fact that a list receives an additional seat may sharply increase the probability that this list goes to a woman (Jones 2009). Conversely, if higher magnitudes encourage party entry or make voters more likely to support small parties (which is the case in Argentina; see Lucardi forthcoming), we may end up with more lists receiving seats, but without necessarily increasing the number of seats per list. Party magnitude is straightforward to measure for single lists; however, since our unit of observation is the district rather than the list, we employ three alternative measures to check the robustness of our results to alternative definitions of this variable: *Party magnitude (mean)* is the average number of seats received by all parties that received at least one seat in the election; *Party magnitude (weighted)* is similarly defined, but with parties weighted by their seat share; finally, *Party magnitude (median)* is the median party magnitude for all lists that received at least one seat in the election.

To construct these variables we relied on two main sources. First, we have assembled a dataset of political careers in Argentina that contains information on all individuals who were ever elected to the Chamber of Deputies, from which we identified those legislators who were female. And second, we relied on Tow (N.d.) to construct the party magnitude variables. Table 2 presents the descriptive statistics, distinguishing between the main sample as well as the pre- and post-quota era.

Table 2: *Descriptive statistics*

	Full sample (n = 302)				**Pre-quota (1985-1991)** (n = 74)				**Post-quota (1993-2015)** (n = 228)			
(a) Explanatory variables	mean	sd.*	min.	max.	mean	sd.*	min.	max.	mean	sd.*	min.	max.
Magnitude	3.88	0.52	2.00	13.00	3.91	0.58	2.00	13.00	3.87	0.52	2.00	13.00
(b) Intervening variables: Party magnitude												
Women share	0.24	0.21	0.00	1.00	0.04	0.06	0.00	0.50	0.31	0.18	0.00	1.00
Woman elected (dummy)	0.63	0.47	0.00	1.00	0.14	0.19	0.00	1.00	0.79	0.32	0.00	1.00
# Women elected	0.99	0.76	0.00	7.00	0.19	0.23	0.00	3.00	1.25	0.64	0.00	7.00
(c) Dependent variables: Women's representation												
Party magnitude (mean)	1.77	0.80	1.00	5.00	1.60	0.67	1.00	4.00	1.82	0.83	1.00	5.00
Party magnitude (weighted)	1.94	0.59	1.00	6.85	1.77	0.38	1.00	5.15	1.99	0.63	1.00	6.85
Party magnitude (median)	1.73	0.60	1.00	5.00	1.57	0.38	1.00	4.00	1.78	0.64	1.00	5.00

Note: (*) Indicates the within-province standard deviation rather than the sample standard deviation.

Results

Balance check. For the identification strategy to be valid, provinces that have a higher magnitude in midterm or concurrent years should not be systematically different in terms of their pre-treatment characteristics. Table 1 already showed that the electoral calendar does vary between provinces that elect a similar number of representatives: districts with a delegation size of 5 or 9 are evenly divided; the two largest provinces have a higher magnitude in opposite years (concurrent in Santa Fe, midterms in the City of Buenos Aires); and among provinces with a delegation size of 7, one has a higher magnitude in midterm years and the other four in concurrent years. More systematically, Figure 1 shows that whether a province was assigned to have a higher magnitude in midterm or concurrent years is not systematically associated with other provincial characteristics. Specifically, the figure reports the exact p-values for the sharp null hypothesis that receiving a higher magnitude in midterm years had no effect on the distribution of 38 pre-treatment covariates for any province.[11] Consistent with the claim that assignment to either group was randomly determined, only two differences are statistically significant at the 0.10 level: the percentage of a province's land area covered by (sub)tropical biomes and the percentage of 1983 provincial revenues that came from automatic transfers from the national government. This is unlikely to be an artifact of the small sample size: most p-values are quite large, and Table A1 in the online appendix shows that the substantive difference in means between both groups is quite small.

Main results. Table 3 shows the effect of district magnitude on different measures of women's representation. Given the small number of provinces (19) in the sample, cluster-robust standard errors may be overly optimistic (Bertrand, Duflo and Mullainathan 2004). For this reason, below each estimate we report two alternative 95% confidence intervals: the first is calculated using robust standard errors clustered by province, and adjusted on

[11] All 38 covariates were measured before 1985. See the online appendix for further details.

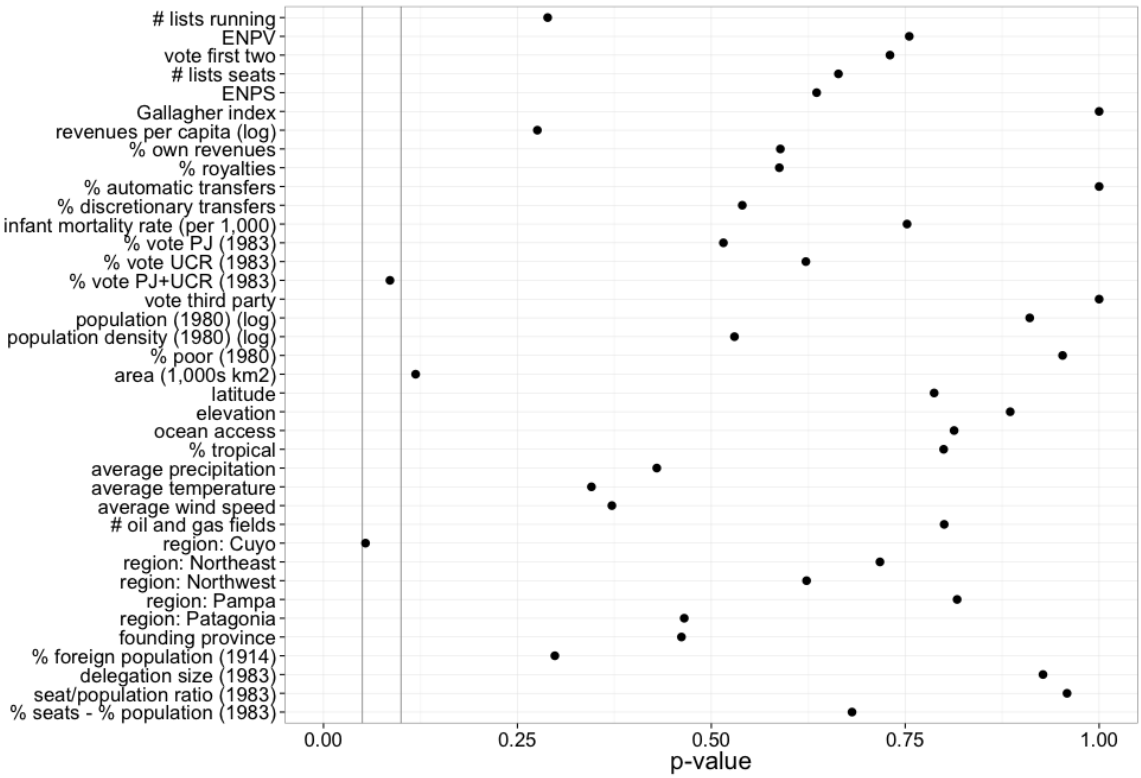

Figure 1: Checking covariate balance. The dots report the exact p-values for the sharp null hypothesis that having a higher magnitude in midterm years has no effect on any province. See the online appendix for further details.

the basis of t-scores from a Student distribution with 18 degrees of freedom rather than the usual z-scores, while the second is based on the wild-bootstrapped standard errors proposed by Cameron, Gelbach and Miller (2008) and Cameron and Miller (2015).[12] In any case, confidence intervals are almost identical in both cases, probably because the independent variable is uncorrelated by construction with the clusters (i.e., it varies equally for all provinces included in the sample).

Consider panel (a) first, which shows the results for the full sample. Model 1, which reports the pooled estimates, shows that a unit increase in *Magnitude* would increase the proportion of women elected by 1 percentage point, a small and statistically significant

[12]We calculated these intervals using the `clusterSEs` package in `R`.

effect. The next column shows that including both province and year fixed effects actually strengthens the results, suggesting that variation between provinces and over time are more important than district magnitude per se, but once these factors are accounted for, *Magnitude* also makes a difference within a given province. Moreover, the effect is substantial in size: the point estimate of 0.03 reported in column 2 implies that if Argentina simplified its electoral calendar, holding legislative elections every four years instead of two — and thus increasing median district magnitude from 3 to 6.5; see Table 1 —, the proportion of women elected to the Chamber would increase by almost 10 percentage points. Given that the proportion of women elected in the post-quota era was 31% (see Table 2), this effect is substantial. Nonetheless, the estimate falls short of statistical significance at conventional levels, possibly due to the fact that *Women share* takes the value of zero for about a third of observations.[13] Thus, models 3 and 4 replicate models 1 and 2 but employing a probit specification. The estimate becomes somewhat larger in magnitude, but still falls short of statistical significance.

The following columns examine whether district magnitude affects the probability that at least one woman will be elected in a district. This time the effect is impressive: when accounting for province-specific effects, a unit increase in *Magnitude* raises the probability that there will be one elected woman by 13 percentage points. Given that the average value of this variable is 0.63 (see Table 2), this means that simplifying the country's electoral calendar would ensure that every district elects at least one woman representative. The last two columns of Table 3 shows that the total number of women elected also increases with magnitude. Of course, some increase is to be expected given the presence of a gender quota; for that reason, it is important to point out that the point estimate of 0.35 is higher than the value we would expect if all the result were driven by the quota (0.33), and the difference

[13]The results are sensitive to specification; adding 0.001 to all observations and employing a log-log model results in significant estimates (available upon request from the authors.

becomes even stronger after the quota was passed (note that in panel (c), which restricts the analysis to the quota era, the point estimate is 0.42).

Table 3: *The effect of district magnitude on women's representation in Argentina, 1985-2015*

	Women share				***Woman elected dummy***		***# Women elected***	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(a) Full sample (provinces: 19; time periods: 16; obs:302)								
Magnitude	0.01	0.03	0.01	0.05	0.04	0.13	0.31	0.35
	[-0.00:0.01]	[-0.01:0.06]	[0.00:0.03]	[-0.01:0.11]	[0.02:0.06]	[0.05:0.20]	[0.23:0.38]	[0.20:0.50]
	[-0.00:0.01]	[-0.01:0.06]			[0.03:0.05]	[0.03:0.23]	[0.13:0.49]	[0.21:0.49]
(b) Pre-quota (1985-1991) (provinces: 19; time periods: 4; obs:74)								
Magnitude	0.01	0.01	0.05	0.16	0.04	0.06	0.11	0.13
	[-0.01:0.01]	[-0.03:0.05]	[-0.01:0.11]	[-0.17:0.50]	[-0.01:0.09]	[-0.06:0.19]	[-0.00:0.22]	[-0.05:0.31]
	[-0.01:0.03]	[-0.03:0.05]			[-0.08:0.16]	[-0.06:0.19]	[-0.22:0.43]	[-0.08:0.33]
(c) Post-quota (1993-2015) (provinces: 19; time periods: 12; obs:228)								
Magnitude	0.01	0.03	0.01	0.05	0.04	0.15	0.38	0.42
	[0.00:0.01]	[-0.02:0.08]	[-0.00:0.03]	[-0.01:0.11]	[0.03:0.05]	[0.06:0.24]	[0.32:0.43]	[0.27:0.58]
	[0.00:0.01]	[-0.01:0.07]			[0.01:0.07]	[0.02:0.27]	[0.24:0.51]	[0.29:0.56]
province FEs	no	yes	no	yes	no	yes	no	yes
year FEs	no	yes	no	yes	no	yes	no	yes
model	OLS	OLS	tobit	tobit	OLS	OLS	OLS	OLS

Note: In the second row of each panel, values in square brackets report 95% confidence intervals based on robust standard errors (HC3) clustered by province, and assuming a Student distribution with degrees of freedom equal to the number of provinces minus 1. In the third row of each panel, values in square brackets report the 95% confidence intervals based on the wild bootstrap procedure proposed by Cameron, Gelbach and Miller (2008) and Cameron and Miller (2015).

The other two panels distinguish between the effect of *Magnitude* before and after Argentina adopted its gender quota in 1991. Except in the case of the tobit specifications, the results show that, to the extent that magnitude made a difference for women's representation, such effect was restricted to the post-quota era. Of course, the post-quota estimates are more likely to be statistically significant due to sheer sample size — 74 vs. 228 —; but even after taking this into account, the size of the estimates becomes much larger after 1993. In other words, the post-1993 estimates are more likely to be statistically significant not only due to the increased sample size, but also because the magnitude of the estimates increases by a factor of two or three. This gives strong credence to the claim that larger magnitudes and gender quotas actually complement each other: even well-designed quotas may be somewhat ineffective in low-magnitude districts; similarly, when a quota is in place, its effects will be stronger in higher-magnitude districts.

Mechanisms. District magnitude may affect women's representation via two channels. When parties elect more representatives, the probability that some of them will be woman increases, especially when gender quotas are in place. When a party elects a single representative, this representative is likely to be the (local) party boss, which is most often male. But if a party elects nine or ten representatives, the opportunity of quotas to "kick in" is much higher. Alternatively, parties may be more likely to nominate women, even without quotas, when district magnitude is higher. According to this reasoning, building a party list requires choosing along a variety of trade-offs, for example between putting weightier politicians in the list and making it more representative. The larger the number of candidates to choose, the easier it is to balance these trade-offs.

Because of data limitations, here we focus on the first mechanism: the extent to which the impact of district magnitude on women's representation can be accounted for by the fact that parties that win representation tend to receive more seats on average. Specifically, we proceed in two steps. First, Table 4 shows that increasing district magnitude does increase

Table 4: *The effect of district magnitude on party magnitude in Argentina, 1985-2015*

	Party magnitude (mean)		***Party magnitude (weighted mean)***		***Party magnitude (median)***	
	(1)	(2)	(3)	(4)	(5)	(6)
(a) Full sample (provinces: 19; time periods: 16; obs: 302)						
Magnitude	0.99	0.35	0.82	0.43	1.04	0.33
	[0.84:1.13]	[0.23:0.48]	[0.65:0.98]	[0.30:0.57]	[0.88:1.20]	[0.20:0.47]
(b) Pre-quota (1985-1991) (provinces: 19; time periods: 4; obs: 74)						
Magnitude	0.74	0.32	0.50	0.42	0.82	0.29
	[0.59:0.90]	[0.20:0.45]	[0.32:0.67]	[0.29:0.55]	[0.62:1.02]	[0.14:0.44]
(c) Post-quota (1993-2015) (provinces: 19; time periods: 12; obs: 228)						
Magnitude	1.06	0.37	0.92	0.44	1.11	0.35
	[0.88:1.25]	[0.21:0.52]	[0.71:1.14]	[0.27:0.60]	[0.91:1.31]	[0.18:0.51]
province FEs	no	yes	no	yes	no	yes
year FEs	no	yes	no	yes	no	yes
model	OLS	OLS	OLS	OLS	OLS	OLS

Note: Values in square brackets report 95% confidence intervals based on robust standard errors (HC3) clustered by province, and assuming a Student distribution with degrees of freedom equal to the number of provinces minus 1.

party magnitude as well. Regardless of how the latter variable is measured, an increase in *Magnitude* means that some parties receive more seats that before, i.e. the effect does not wash away by the fact that some lists are receiving seats that they would not have received otherwise.[14] Second, in Table 5 we replicate the specifications reported in columns 2, 6 and 8 of Table 3, but including both *Magnitude* and *Party magnitude* as predictors. To the extent that the effect of district magnitude is being driven by party magnitude, including the second variable should wash out the effect of the former.

[14] At the same time, the fact that the estimate is generally below one suggests that some parties are indeed receiving more seats; see also Lucardi (forthcoming).

This is indeed the case. The first three columns of Table 5 show that when both *Magnitude* and *Party magnitude* are included in the same equation, the effect of the latter becomes essentially zero, while the second is positive and statistically significant, implying that district magnitude does in fact result in proportionally more women elected, but only when this results in some parties receiving more seats than would otherwise be the case, rather than more parties receiving seats. When looking at the probability that at least one woman will be elected (models 4 through 6), the estimate for *Magnitude* remains positive but is cut in size by approximately 33-50%, and is not always statistically significant. The estimate for *Party magnitude*, in contrast, is both larger in size and statistically significant. The only exception is for the number of women elected: the estimate for *Magnitude* decreases, though by a small amount, while that for party magnitude, while positive, is not so large and not always statistically significant. All in all, then, these results suggest that a good deal of the reason why district magnitude matters is because it makes some lists elect more representative, some of which correspond to women. This is consistent with the fact that the effect of *Magnitude* on women's representation is almost entirely driven by the post-quota era.

Robustness and placebo tests. These results are robust to several specification changes. As mentioned, confidence intervals are already adjusted using a Student distribution with 18 degrees of freedom, thus allaying concerns that the confidence intervals are too narrow because they do not take into account the small number of provinces included in the sample. Alternatively, the results may be driven by a handful of districts in which the effect of district magnitude on women's representation is particularly large. However, replacing the variables with their rank-based version — that is, ranking the dependent variable across provinces, thus ensuring that the distribution of the outcome is the same for all provinces

— produces similar results.[15] Lastly, Table 6 reports the results for a series of placebo tests in which the outcome is some time-varying covariate that should not be affected by periodic changes in district magnitude — such as provincial revenues, the number of public employees, or the unemployment and infant mortality rates. Consistent with the claim that district magnitude should have no effect on these outcomes, the point estimates are not only statistically insignificant, but very close to zero in substantive terms.

[15]Results available upon request from the authors.

Table 5: *District magnitude, party magnitude, and women's representation in Argentina, 1985-2015*

	DV: *Women share*			**DV: *Woman elected dummy***			**DV: # *Women elected***		
	Party magnitude			*Party magnitude*			*Party magnitude*		
	mean	*mean, wt.*	*med.*	*mean*	*mean, wt.*	*med.*	*mean*	*mean, wt.*	*med.*
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(a) Full sample (provinces: 19; time periods: 16; obs: 302)									
Magnitude	0.00	-0.00	0.00	0.07	0.06	0.08	0.29	0.33	0.28
	[-0.04:0.04]	[-0.04:0.04]	[-0.04:0.04]	[-0.01:0.15]	[-0.03:0.14]	[0.00:0.16]	[0.13:0.45]	[0.16:0.50]	[0.12:0.43]
Party magnitude	0.07	0.06	0.06	0.15	0.16	0.13	0.16	0.05	0.22
	[0.03:0.10]	[0.03:0.09]	[0.03:0.10]	[0.07:0.23]	[0.09:0.23]	[0.06:0.20]	[-0.01:0.34]	[-0.15:0.24]	[0.06:0.38]
(b) Pre-quota (1985-1991) (provinces: 19; time periods: 4; obs: 74)									
Magnitude	-0.01	-0.02	-0.00	-0.03	-0.03	0.01	0.04	0.02	0.08
	[-0.05:0.03]	[-0.06:0.03]	[-0.04:0.04]	[-0.17:0.12]	[-0.19:0.13]	[-0.12:0.13]	[-0.23:0.31]	[-0.26:0.31]	[-0.12:0.28]
Party magnitude	0.06	0.07	0.04	0.28	0.22	0.20	0.26	0.25	0.15
	[-0.01:0.14]	[-0.00:0.14]	[-0.02:0.10]	[0.02:0.54]	[-0.03:0.47]	[0.01:0.40]	[-0.21:0.74]	[-0.18:0.68]	[-0.14:0.45]
(c) Post-quota (1993-2015) (provinces: 19; time periods: 12; obs: 228)									
Magnitude	0.00	0.00	0.00	0.09	0.07	0.10	0.34	0.38	0.33
	[-0.05:0.05]	[-0.05:0.05]	[-0.04:0.05]	[-0.00:0.18]	[-0.02:0.17]	[0.00:0.19]	[0.18:0.51]	[0.20:0.55]	[0.17:0.48]
Party magnitude	0.07	0.06	0.07	0.15	0.16	0.14	0.22	0.11	0.28
	[0.03:0.11]	[0.03:0.10]	[0.04:0.11]	[0.08:0.23]	[0.09:0.23]	[0.07:0.21]	[0.06:0.38]	[-0.07:0.29]	[0.14:0.42]
province FEs	yes	yes	yes	yes	yes	yes	yes	yes	yes
year FEs	yes	yes	yes	yes	yes	yes	yes	yes	yes
model	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS	OLS

Note: Values in square brackets report 95% confidence intervals based on robust standard errors (HC3) clustered by province, and employing a Student distribution with degrees of freedom equal to the number of provinces minus 1.

Table 6: *Placebo tests. The effect of district magnitude on time-varying pseudo-outcomes in Argentina, 1985-2011*

(a) Pooled models	***revenues per capita (log)***	***% own revenues***	***% royalties***	***% automatic transfers***	***% discretionary transfers***	***public employees (per 1,000)***	***unemployment rate (%)***	***in mo (per***
Magnitude	0.01	0.45	0.23	-0.72	0.18	-0.69	-0.04	-(
	[-0.13:0.15]	[-4.46:5.35]	[-3.36:3.81]	[-6.17:4.74]	[-1.82:2.18]	[-6.47:5.08]	[-1.16:1.07]	[-2.4
(b) FE models								
Magnitude	-0.00	-0.42	0.02	0.25	0.37	0.04	-0.01	-(
	[-0.03:0.02]	[-1.44:0.60]	[-1.27:1.31]	[-1.19:1.68]	[-0.70:1.44]	[-1.57:1.65]	[-0.53:0.52]	[-0.8
num. obs	245	245	245	245	245	218	263	2
provinces	19	19	19	19	19	19	19	
elections	13	13	13	13	13	12	14	

Note: OLS regression estimates. Values in square brackets report 95% confidence intervals based on robust standard errors (HC3) clustered by province, and employing a Student distribution with degrees of freedom equal to the number of provinces minus 1.

Discussion and conclusion

A decade ago, Matthew Shugart celebrated the maturity of the literature on electoral systems while lamenting the scarcity of "crucial experiments" that could isolate the effects of electoral rules from that of other factors that shape electoral outcomes (Shugart 2005). Political scientists (and some economists) responded to this appeal by devising ingenious designs to find evidence of contamination effects in mixed-member systems (Crisp, Potter and Lee 2012), identifying the effect of double-ballot rules on electoral coordination (Bordignon, Nannicini and Tabellini 2016; **?**), analyzing whether district magnitude increases the number of parties (Lucardi forthcoming), determining how the mechanical and psychological effect shape the distribution of seats (Fiva and Folke 2016; Lucardi forthcoming), examining the impact of closed-list PR on voter turnout (Eggers 2015; Sanz forthcoming) determining whether district magnitude increases the number of parties (Singer 2015), or comparing the effects of the single-member plurality and the multiple non-transferable votes systems (Crisp and Demirkaya 2016). Similarly, some authors have studied how gender quotas affect women's representation (Hughes 2011; Franceschet, Krook and Piscopo 2012; Htun, Lacalle and Micozzi 2013) or stereotypes about women (De Paola, Scoppa and Lombardo 2010). To the best of our knowledge, however, so far nobody has devised a way to isolate the effect of district magnitude on women's representation; the existing literature is mostly cross-national or cross-district, but rarely looks at (exogenous) variation within districts.

By looking at exogenous variation in district magnitude induced by the Argentine electoral calendar, we offer the first such study. Our analysis reveals three main findings. First, even modest and short-term changes in district magnitude do increase women's representation, especially if looking at the probability that at least one woman will be elected or the total number of women elected; the results for the proportion of women elected go in the expected direction, but are somewhat less precise. Second, these effects are driven by

the 1993-2015 period, when Argentina had implemented a generous quota legislation with a strict placement mandate that guaranteed that at least one candidate in three would be a woman. This suggest that quotas and large magnitudes actually complement each other: the former guarantees that there will be enough women in electable positions, while the latter ensures that enough lists will receive enough seats so that some of these women candidates (who presumably are not located at the top of the list) get elected. Thirdly, and consistent with this interpretation, the effect of district magnitude on women's representation almost disappears when *Party magnitude* is included in the equation, giving credence to the claim that higher magnitudes matter not because they induce parties to nominate more women, but rather because they make more likely that already nominated women will get a seat.

Of course, since district magnitude only changes by increments of one, the results may offer a poor guide to what we could expect following a dramatic increase (or decrease) in district magnitude. In this line, we will retest our expectations utilizing counterfactual scenarios after varying likely (and delayed) reapportionment decisions. This way, drastic increases and decreases in each district's magnitude will work as additional robustness checks. Furthermore, the fact that magnitude oscillates in a predictable way means that the results can only identify the effect of short-term changes that are (correctly) perceived as being short-term. On the bright side, exploiting the oscillation of the electoral calendar over a 30-year period rather than looking at what happens just before or after an electoral reform ensures that the results are not being driven by a handful of elections.

All in all, our contribution remains in line with the idea that quotas and proportional representation tend to reinforce each other, and jointly bolster the chances of the descriptive representation of women. However, we cannot help highlighting and reminding the influential lesson that Taagepera and Shugart (1989) engraved in stone almost three decades ago: district magnitude matters at the highest level of relevance.

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Online Appendix

A Balance check

If the choice of which provinces would elect more deputies in midterm than in concurrent years was decided randomly, provinces that elect more representatives in midterm years[16] should not differ systematically from those that have higher magnitudes in concurrent years.[17] To check whether this is the case, we collected data on 38 pre-treatment covariates and examined the difference in means between both groups of provinces.

These covariates include (a) the dependent variables, as measured in the 1983 election;[18] (b) the pseudo-outcomes reported in the robustness checks, again measured in 1983;[19] (c) a host of electoral outcomes measured in 1983, including the (combined) vote share of the PJ and the UCR and the share of the vote received by the largest third party;[20] (d) several demographic variables, such as population (density), taken from the 1980 census; (e) a wide array of geographic and historical variables, including area, average latitude, elevation, precipitation, etc, as well as dummies for the country's main geographic regions;[21] and (f)

[16] Catamarca, La Pampa, Neuquén, San Luis, Santa Cruz, Chaco, Entre Ríos and the Ciudad de Buenos Aires (see Table 1).

[17] Chubut, Formosa, La Rioja, Río Negro, Tierra del Fuego, Corrientes, Misiones, Salta, Santiago del Estero, Tucumán and Santa Fe.

[18] Source: Andy Tow's Electoral Atlas (`http://andytow.com/atlas/totalpais/`).

[19] Sources: BASECIAP (`http://www.econ.uba.ar/www/institutos/admin/ciap/baseciap/`) for the financial variables, and Argentina's statistical institute (INDEC; `http://www.indec.gob.ar/`) for infant mortality.

[20] Source: Andy Tow.

[21] Sources: INDEC and Mitton 2016. We am thankful to Todd Mitton for kindly sharing this data.

several measured of provinces' political (over-)representation in the national Congress in 1983.[22]

Table A1 displays the means for both groups of provinces, as well as the difference between the two and the exact p-values for the sharp null hypothesis of no effect for any province. Given that the randomization had to respect some restrictions — notably, the number of deputies elected in concurrent and midterm years had to be equal —,[23] we calculated the p-values using simulations. First, we sampled $100,000$ vectors of eight 1's and ten 0's (or ten 1's and eight 0's), adding Tierra del Fuego to the ten-province group.[24] Each of these vectors represents a different random allocation of the provinces into two groups. Second, for every draw we calculated the difference in means for each variable, and saved these values. The p-values reported in Table A1 and Figure 1 indicate the proportion of draws in which the absolute value of the difference in means in the actual sample was smaller than the absolute value of the simulated differences in means. For example, the p-value of 0.89 for the log of population in 1980 indicates that approximately $89,000$ simulations produced a difference in means that was equal to or larger in size than the one observed in the sample.

[22]Sources: Andy Tow and INDEC.

[23]Dal Bó and Rossi 2011.

[24]This reflects the rules of the original draw that determined whether the deputies elected in 1983 would receive a two- or a four-year mandate: first, the number of deputies elected in concurrent and midterm years had to be equal; and second, the two deputies from Tierra del Fuego had to be elected simultaneously. That is, before Tierra del Fuego became a province there was a group of ten provinces with a higher magnitude in concurrent years, a group of eight with a higher magnitude in midterm years, and a district that elected its two only representatives in midterm years. Upon becoming a province, Tierra del Fuego began to elect three additional representatives in concurrent years, and thus it became a member of the former group.

Table A1: *Checking covariate balance*

(a) *Outcome variables (1983)*	large midterm mean	large concurrent mean	difference	*p*-value
# lists running	11.50	12.00	-0.50	0.68
ENPV	2.69	2.71	-0.02	0.96
vote first two	84.49	84.99	-0.50	0.93
# lists seats	2.62	2.18	0.44	0.30
ENPS	2.22	2.07	0.14	0.46
Gallagher index	7.97	9.38	-1.41	0.47
(b) *Pseudo-outcomes (1983)*				
revenues per capita (log)	7.16	7.09	0.07	0.82
% own revenues	19.56	14.80	4.76	0.62
% royalties	12.78	9.68	3.10	0.72
% automatic transfers	28.50	33.99	-5.50	0.05
% discretionary transfers	38.83	41.00	-2.17	0.80
infant mortality rate (per 1,000)	35.50	39.52	-4.02	0.37
(c) *Electoral outcomes (1983)*				
% vote PJ (1983)	39.02	43.26	-4.24	0.34
% vote UCR (1983)	42.93	40.10	2.83	0.43
% vote PJ+UCR (1983)	81.95	83.36	-1.41	0.80
vote third party	11.81	10.65	1.16	0.81
(d) *Demographics (1980)*				
population (1980) (log)	12.93	12.99	-0.07	0.89
population density (1980) (log)	2.10	1.69	0.41	0.79
% poor (1980)	31.00	39.81	-8.81	0.12
(e) *Geography and history*				
area (1,000s km2)	104.93	106.92	-1.99	0.95
latitude	35.11	32.52	2.58	0.53
elevation	6.20	6.17	0.03	0.91
ocean access	0.38	0.27	0.10	1.00
% tropical	20.11	52.64	-32.53	0.09
average precipitation	55.57	63.80	-8.22	0.62
average temperature	15.02	16.57	-1.55	0.52
average wind speed	3.53	3.39	0.14	0.75
# oil and gas fields	33.25	19.00	14.25	0.54
region: Cuyo	0.12	0.09	0.03	1.00
region: Northeast	0.12	0.27	-0.15	0.59
region: Northwest	0.12	0.27	-0.15	0.59
region: Pampa	0.38	0.09	0.28	0.28
region: Patagonia	0.25	0.27	-0.02	1.00
founding province	0.38	0.55	-0.17	0.64
% foreign population (1914)	31.06	26.68	4.38	0.66
(f) *Political representation (1983)*				
delegation size (1983)	8.25	7.09	1.16	0.73
seat/population ratio (1983)	2.18	1.97	0.22	0.76
% seats - % population (1983)	0.81	0.46	0.35	0.29

Note: Mean values of pre-treatment covariates for provinces that have a higher magnitude in midterm or concurrent elections, respectively. The *p*-values correspond to the sharp null hypothesis that the effect of having a higher magnitude in midterm years is zero for all provinces.