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Institutional gamblers: majoritarian representation, electoral uncertainty, and the coalitional costs of Mexico's hybrid electoral system

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Abstract

An unintended result of Mexico's hybrid electoral system is that 40% of the candidates may increase their chances to be elected for Congress as their party loses votes, while 60% of the candidates increase their chances to be elected as their parties gain votes. Because parties have to decide how to distribute candidates among single-member and multi-member districts some time before the election, this "double road" to representation sets the scenario for a new type of institutional gambling. Candidates face a dilemma: their chances of being elected improve dramatically if they run as single-member district candidates (lower tier) of the winning party or in the closed list (upper tier) of losing parties. This article shows that both electoral uncertainty and party switching incentives grow as a function of the majoritarian *bias* found in the single-member districts of Mexico's hybrid system. We introduce an extension of King and Browning's (American Political Science Review 81 (1987) 1252) model that represents a party's expected seat gain under both a mixed and a hybrid electoral system, and that captures the distortions produced by a ceiling on the maximum number of representatives that a party can elect to congress. © 2002 Elsevier Science Ltd. All rights reserved.

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1. The costs of Mexico's hybrid electoral system

The 1997 elections represented a turning point in Mexican history. After 70 years single party dominance by the Partido Revolucionario Institucional (PRI), opposition parties gained control of Mexico City and obtained a majority of seats both in the national lower house and in Mexico City's legislature. Moreover, governors from the two most important opposition parties, the rightist Partido Acción Nacional (PAN) and the leftist Partido de la Revolución Democrática (PRD), outnumbered PRI governors — a first in Mexico's post-revolutionary history (Klesner, 1997). The 1997 elections were also the first truly *competitive* test of the hybrid electoral system instituted in 1963, which for years distributed most single-member district seats (lower tier) to the PRI and most multi-member district seats (upper tier) to opposition candidates.¹

In Mexico City, the congressional results surprised many, not only because of the unanticipated defeat of the PRI. An electoral landslide against the incumbent PRI in the city elections had the unintended consequence of leaving the leftist PRD without any major political figure in the city's legislature. This costly victory was the result of a peculiar “loophole” in the electoral laws that stipulated a ceiling on the number of candidates that could be elected to the local legislature. The ceiling applied to the seats obtained by the winning party in multi-member districts in the event that they captured over 60% of the total seats. The leader of the PRD majority in the legislature became Martí Batres, a 32-year-old representative from the internal faction *Unión Popular Nueva Tenochtitlán*, instead of the experienced Jesús González Schmal, the PRD's number one candidate for the city. The party's president and PRD's second candidate for Mexico City, René Bejarano, was also out of the legislature. At first glance these results appear to be a gross miscalculation on the part of the winning party. A more in-depth look at the electoral system, however, shows that far from being an accident, the result may be the first among a series of similar electoral outcomes that result from an ill-conceived hybrid electoral system that combines majoritarian and proportional principles with a maximum seat ceiling. The Mexico City election in the year 2000 provided an equally bizarre test of this system when less than 500 votes in the 16th single-member district gave six extra congressional seats to the PAN.²

In the 1997 Mexico City elections, a PRD landslide in most single-member (lower tier) districts left crucial candidates from the party out of the legislature. This article explains why the PRD paid such a high price for its political success and outlines the boundaries for the emergence of a recurrent “gambling” problem on the part of

¹ Mexico's mixed electoral systems has single-member (lower tier) districts and multi-member (upper tier) districts.

² The 2000 elections in Mexico City provide some surreal examples for explaining the relevance of electoral systems to political science students. While the leftist PRD won the mayoral elections in the City, a governability clause that favors the party that wins most single-member districts gave control of the legislature to the PAN. This clause, introduced to avoid divided government in the city, was ultimately responsible for giving the absolute majority of seats to the opposition in the City's legislature.

parties and candidates. Large majoritarian biases, we argue, “crowd out” upper-tier candidates in winning parties, therefore overrepresenting losing party voters in multi-member districts. We develop a model to estimate this crowding-out effect and show that under the current electoral system small changes in the number of votes received by parties may result in dramatic changes in the composition of these legislatures. Uncertainty regarding (i) which party will control the legislature and (ii) which candidates of that party will be elected, are especially significant.

Scholars rarely have the opportunity to observe institutional rules created with one goal in mind that produce such dramatically different results, but that is exactly what happened in Mexico: a system designed to guarantee a minimum number of seats to the opposition parties in the PRI dominated political system became a set of rules that increase electoral uncertainty and that harm party discipline.

While the legislature under Mexico’s electoral rules tend to only be slightly majoritarian³ the result is paradoxical in many ways. Only losing parties that have no chance of obtaining a majority of the votes know with relative certainty which candidates will be elected: the top candidates of their list in multi-member districts. Furthermore, these losing parties might welcome a landslide victory from any other party in single-member districts, since this would increase the relative weight of their own votes in multi-member districts. Even worse, candidates from the winning party in multi-member districts increase their chances of being elected if their party wins fewer votes. This dynamic creates an incentive for strictly rational⁴ upper tier candidates to break away to small parties if they think their current party will sweep most single-member districts, since that will decrease their chances of being elected. In conclusion, Mexico’s hybrid electoral system provides strong exit incentives for multi-member district candidates of winning parties.

Recent comparative literature has started to analyze the distributional costs of different electoral rules and the coalitional implications of different types of electoral distortions. Cox’s (1996) work on single non-transferable vote systems (SNTV) describes accurately the coordination problem this electoral system imposes on big parties’ nomination strategies. Samuel and Snyder (1999) and Gibson (1997) showed

³ Mexico’s hybrid system is good at forcing a slightly majoritarian Lower House, as most mixed systems are. The problem we study here is who gets elected rather than how well party votes adjust to party seats. Overall seat shares will be a ρ -weighted function of the vote share obtained by a party in both arenas constrained only by the 60% ceiling, as we show in the next section. Therefore, total seat allocations should approach a slightly majoritarian share of party votes. An alternative to a ρ -weighted function, to measure malapportionment rather than crowding out, is found in Samuel and Snyder (1999).

⁴ By strictly rational we mean candidates only interested in maximizing their electoral chances. The existence of such narrowly minded candidates or, alternatively, extremely sophisticated voters is a matter of debate. As one of our anonymous reviewers asked “Is there any evidence that Mexican citizens are savvy enough to vote as strategically?...By the same token, I doubt that even the candidates themselves and party leaders could anticipate the final outcome well enough so that their campaigning decisions would be affected”. While we share the reviewer’s scepticism as to the extent of real life sophisticated electoral voting by citizens, we know that the 1997 elections stirred much internal debate in the PRD. The title of this article, “Institutional gamblers”, attempted to capture the dilemma party leaders face when negotiating with different internal factions in ordering the candidates on different lists and districts under conditions of increased uncertainty.

in recent articles that electoral rules in Latin America often overrepresent rural and conservative constituents against their urban and more progressive counterparts. Gibson et al. (1999) argue that rules that overrepresent particular groups of voters in federal polities often evolve into rules that guarantee increased government spending on those same voters. Ames (1995) demonstrated that open-list proportional representation increases candidates' competition for pork and barrel resources in Brazil, while Jones (1998) has explained how a minimum representation quota for women candidates can have dramatically different results under different electoral rules. In the same spirit, this article shows how combining majoritarian and proportional representation principles with a maximum candidate ceiling, as in Mexico, can have profound political consequences.

In the next section we describe Mexico's electoral system and introduce King and Browning's (1987) majoritarian representation model, which will be used extensively in this article. We then adapt their model to explain the impact that a maximum ceiling has on a party's expected seat gain in a mixed or hybrid electoral system. Since King and Browning's extended model can be calibrated to analyze the impact of a representation ceiling in the presence of different majoritarian biases, we can estimate the "crowding out" effect of Mexico's hybrid system in both national and local legislatures. Finally, we analyze the party switching incentives and the coalitional costs of high electoral uncertainty that result from such complex electoral rules.

2. A basic description of Mexico's hybrid electoral system: the national lower house

Mexico's electoral rules for the national lower house allocate legislative seats to parties by combining 300 single-member districts with five multi-member districts that distribute 40 seats each. Together, these two electoral arenas elect 500 representatives to the lower house for 3 years. The number of candidates elected in multi-member districts has increased three times over the past 25 years, mainly to accommodate minority representation in the national lower house as a mechanism to provide external legitimacy to Mexico's 70 years of single party dominance.

The historical origins of Mexico's hybrid system are well described by Molinar Horcasitas (1997). In *Changing the Balance of Power* the author explains how the PRI instituted single-member districts to restrain intra-party competition and limit the incidence of factionalism early in the 1930s. Single-member districts, while integrating the party, also restricted the access of opposition candidates to Congress. Under increasing international and domestic pressure, the Lopez Portillo administration (1976–82) introduced the first substantive⁵ reforms 40 years later. The implementation of sub-majoritarian⁶ multi-member districts provided the opposition

⁵ Multi-member districts were already legislated.

⁶ Or sub-proportional, using Cox's (1996) terminology.

with broader access to congress while maintaining single-member districts as the most important dimension of Mexico's electoral system. Intra-party conflict was therefore avoided by the control the PRI had on single-member districts while minority representation was promoted in sub-majoritarian multi-member districts.

A maximum ceiling of 300 seats was introduced in 1986 to limit the PRI dominance to 60% of the chamber. Since blocking the entry of the most voted candidate in any single-member district would be hard to justify, once a party reached 300 seats the rest of that party's candidates in multi-member districts were automatically out of the race. The votes for the remaining candidates were then *weighted up*, providing more than proportional representation to their parties in Mexico's upper tier districts. Finally, a second ceiling was applied to losing parties to guarantee that they will not exceed their national vote share in seats by more than 8%.

The designers of this system did not take into consideration, however, that single-member districts make it more likely for winning parties to gain a disproportionate number of seats. In fact, as the number of parties increases from two to three, the possibility of one party electing most of those 300 lower tier representatives remains a strong possibility.⁷ Thus, Mexico's hybrid system increases the chances that winning parties will obtain more seats than votes in single-member districts and fewer seats than their share of votes in multi-member districts. We define this last effect as *crowding out*.⁸ The question is then, How dramatic can this crowding out effect be?

We first extend the King and Browning (1987) majoritarian representation model to analyze mixed or hybrid electoral systems and then estimate the probability that a winning party will crowd out some or all of its upper tier candidates.

3. Modeling an electoral game with different representation arenas⁹

An electoral system is basically a set of rules that distributes a number of electoral seats as a function of the number of votes obtained by political parties. Such distribution is often far from proportional and most of the time it is normatively contested.

Twenty-five years ago, Tufté (1973) and Taagapera (1973) provided a generalized version of the cube law in order to describe the majoritarian *bias* introduced by

⁷ The level of effective competition varies across different states in Mexico and those differences can greatly affect the performance of the hybrid system. While Mexico has a three-party system at the national level, local effective competition is often below two. Diaz-Cayero and Magaloni (1999) provide evidence that Mexico has competitive election in almost all 300 single-member districts, but they also note that "single member districts in Mexico concentrate competition in challenger against the PRI" (p. 7). We further analyze the regional impact of the system in different Mexican states in Section 6.

⁸ While crowding out could be avoided if candidates were allowed to run simultaneously for both their district (*uninominal*) and their region (*plurinominal*), the *Artículo 8* of the electoral code states: "No person can be registered as a candidate for different popularly elected *cargos*; neither can be registered as a candidate for a federal and a state or municipal *cargo*" (Codigo Federal de Instituciones y Procedimientos Electorales, Art. 8).

⁹ In the next two sections we will simplify our presentation assuming a two-party race between the PRD and the PRI.

various electoral rules within different socio-electoral contexts. The generalized version of the cube's law provided a simple way for representing the majority forming bias of different electoral rules by a parameter, ρ . The authors introduced this parameter to capture the difference between the votes and seats obtained by a party. Eq. (1) describes the cube law in its classic form — constraining the parameter ρ to 3 — where S represents the share of seats and V the share of votes obtained by a party j .¹⁰

$$\left[\frac{S}{1-S} \right] = \left[\frac{V}{1-V} \right]^3 \quad (1)$$

Tufte (1973) recognized that the disparity between the number of seats and votes obtained by a party could be statistically inferred and provided a model to estimate the parameter ρ using a log–log linear regression model. Criticizing Tufte's choice of a log–log linear model because of his “unrealistic assumptions about the error term”, King and Browning (1987) opted for a modified dichotomous logit model expressing the number of seats won as a non-linear function of the number of votes obtained by a party j :

$$\text{PRD} = S_{(u)} \left[\frac{1}{1 + e^{(-\rho \ln(v))}} \right] \quad (2)$$

In Eq. (2), PRD represents the total number of seats obtained by that party, $S_{(u)}$ represents the total number of single-member districts (u), v represents the log–odds ratio of votes obtained by the PRD ($v = \ln(\text{Votes}/(1 - \text{Votes}))$), and ρ is the parameter of interest that estimates the level of majoritarian representation in the allocation of seats. King and Browning's bilogit model has three peculiar characteristics: (i) the dependent variable is a log–odds function of the number of votes V , (ii) the model has no constant term, and (iii) it includes a multiplier S to estimate the total number of seats won by a party in any given electoral arena. An important advantage of this model is its flexibility to represent a mixed or hybrid electoral system. By augmenting Eq. (2) to represent the multiple tiers of a hybrid system, we can represent the expected seat gain obtained by the PRD in Mexico's legislature as:

$$\text{PRD} = S_{(u)} \left[\frac{1}{1 + e^{(-\rho(u) \ln(v))}} \right] + S_{(p)} \left[\frac{1}{1 + e^{(-\rho(p) \ln(w))}} \right] \quad (3)$$

The first term on the right-hand side of Eq. (3) estimates the expected lower tier seat gain in single-member districts, and the second term estimates the expected seat gain in the upper tier multi-member districts. The parameter $\rho_{(u)}$ describes the level of majoritarian representation in single member-districts and $\rho_{(p)}$ describes the level

¹⁰ We are using King and Browning's (1987) notation.

of majoritarian representation in multi-member districts.¹¹ Since the votes received by a party in each tier can vary, we use v and w to distinguish the log-odds ratio of votes obtained in single-member and multi-member districts respectively.

Fig. 1 is a full representation of Eq. (3) constraining $v=w$ and $\rho_{(p)}=1$. It describes the expected seat gain by the PRD as a function of the majoritarian representation parameter $\rho_{(c)}$ in all districts and the votes obtained in a two-party race. As the PRD gains votes — as v increases — the number of seats won by the PRD also grows, but the number of total seats won increases and decreases more dramatically in single-member districts, $\rho_{(u)}$. The upper plane, which describes gains in the lower tier, describes the more dramatic transfer of seats that results from a larger $\rho_{(u)}$. The lower plane shows the expected seat gain under fully proportional representation in at-large districts.¹²

An important feature of Fig. 1 is that there is no ceiling on the number of candidates that can be elected to congress. Using Mexico’s national lower house as an example, the upper plane was set to $1=300$ representatives and the lower plane was set to $0.66=200$ representatives. Therefore, for both single-member and multi-member candidates, more votes is better.

In Fig. 1, the two roads to representation provide clear incentives. While candidates of losing parties would be better off running in multi-member districts and candidates of winning parties would be better off running in single-member districts, all candidates increase their chances to be elected as their parties increase their vote

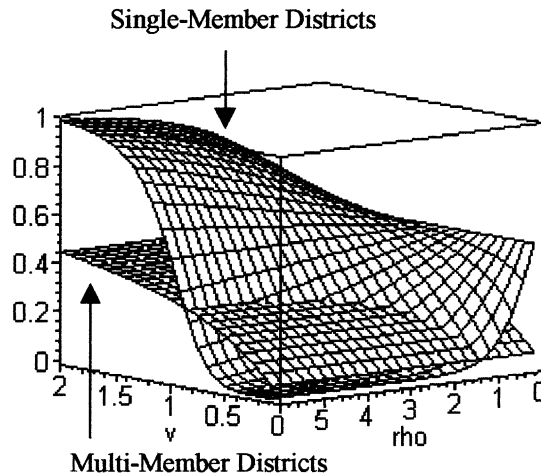


Fig. 1. Expected PRD seat gain for Mexico’s lower house: single-member districts sensitive to $\rho_{(u)}$, multi-member districts constrained to $\rho_{(p)}=1$.

¹¹ The index u is for the Spanish *uninominal* and the index p for Spanish *plurinominal*. For most analysis $\rho_p=1$ will be assumed, but both parameters can be estimated simultaneously.

¹² Fully proportional representation was computed constraining $\rho=1$. Also, setting $v=w$ allows for a more intuitive interpretation of the model.

shares. In the next section we will show how the introduction of a maximum ceiling on the number of representatives alters this calculus and sets the board for a different type of electoral game.

4. Seat transfer in Mexico’s hybrid system

Imagine the case when the leaders of a one-party system are eager to increase the legitimacy of a weak and powerless congress. They elect a large number of representatives and devise an ingenious mechanism to expand minority participation: no party can have more than 60% of the total number of representatives in the lower house. In this case, King and Browning’s augmented model would have to incorporate both the expected number of seats gained by a party in the two electoral arenas (lower and upper tier) and the upper ceiling and lower floor of such a truncation.¹³

$$300 \frac{1}{1+e^{(-\rho(u) \ln(v))}} + 200 \frac{1}{1+e^{(-\rho(p) \ln(w))}} \leq 300 \tag{4}$$

$$200 \leq 300 \frac{1}{1+e^{(-\rho(u) \ln(v))}} + 200 \frac{1}{1+e^{(-\rho(p) \ln(w))}} \tag{5}$$

Since the ceiling can only be applied to those candidates elected in multi-member districts, the resulting inequalities should be written as:

$$200 \frac{1}{1+e^{(-\rho(p) \ln(w))}} \leq 300 - 300 \frac{1}{1+e^{(-\rho(u) \ln(v))}} \tag{6}$$

$$200 - 300 \frac{1}{1+e^{(-\rho(u) \ln(v))}} \leq 200 \frac{1}{1+e^{(-\rho(p) \ln(w))}} \tag{7}$$

Eqs. (4) and (5) show that the number of elected representatives have to be above 200 and below 300 in a two-party race, while Eqs. (6) and (7) demonstrate that the probability of being elected to congress is not strictly positive — a result of the limits set on the number of elected candidates in multi-member districts. While there is a narrow area in which the chances of being elected increases as the party’s vote share increases, many candidates will increase their chances to be elected to congress as their party’s share of votes declines. The effect of inequalities (6) and (7) are represented in Fig. 2.

There is only a small section of this line in which the number of elected candidates is positively correlated with votes. On the other hand, a positive correlation between party votes and seat share is positive only within the minimum and maximum number of seats a party may win. Fig. 2 also indicates that as the parameter ρ_u increases,

¹³ There is a lower floor because we are still restricting the model to a two-party race, thus no party can have less than 200 representatives. There is still a second ceiling on losing parties that will be incorporated in the next section.

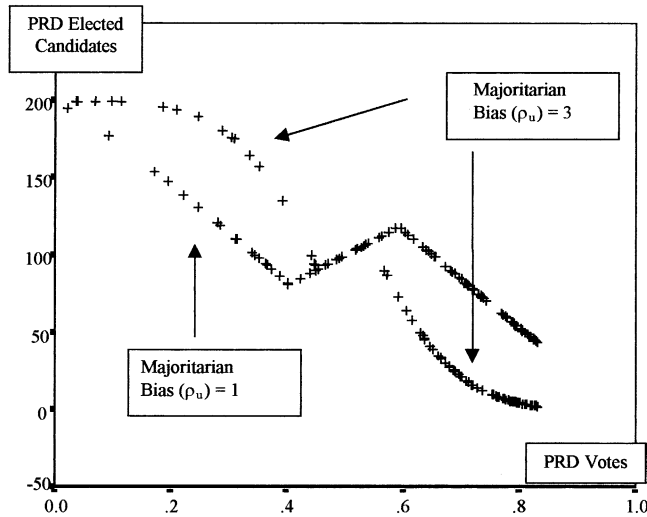


Fig. 2. Number of PRD candidates elected for the lower house in multi-member districts by vote under two different majoritarian biases.

the area that depicts a positive correlation between seats and votes tends to narrow. Where $\rho_u=3$, which represents the cube law in its classic form, any increase in the PRD vote over the 55% mark produces a sharp decline in the number of candidates elected in multi-member districts.¹⁴ And as ρ_u approaches ∞ the relationship between PRD candidates elected and PRD votes becomes both negative and continuous.

In other words, the more votes the PRD obtains the fewer the number of representatives that it can elect in multi-member districts. As Fig. 2 shows, even in cases where there is no majoritarian bias — $\rho_u=1$ — most multi-member district candidates will improve their chances of being elected if their party performs poorly in the elections.

Lawmakers evidently recognized that a party with just over 0% votes could end up electing 40% of the house and imposed a new restriction to avoid such an outcome. A second ceiling was therefore introduced restricting the number of seats obtained by all parties to at most 8% over that party’s share of national votes.¹⁵ This new ceiling of 8% is represented in Fig. 3 by the AB line, and while it appears to temper the generation of a “super-minority”, also expands the representation of smaller parties that received almost no votes.

A guided tour through Fig. 3 can be revealing. First, it should be noticed that increasing the number of votes does not lead to obtaining a larger number of seats

¹⁴ Note that ρ is indexed by u to indicate that it is the level of majoritarian representation in single member districts that explains crowding out in multi-member districts. Therefore, ρ_u is the only parameter that needs estimation.

¹⁵ This ceiling cannot be applied to reduce the number of single-member district candidates elected by a winning party. In a three-party system that is an important exception.

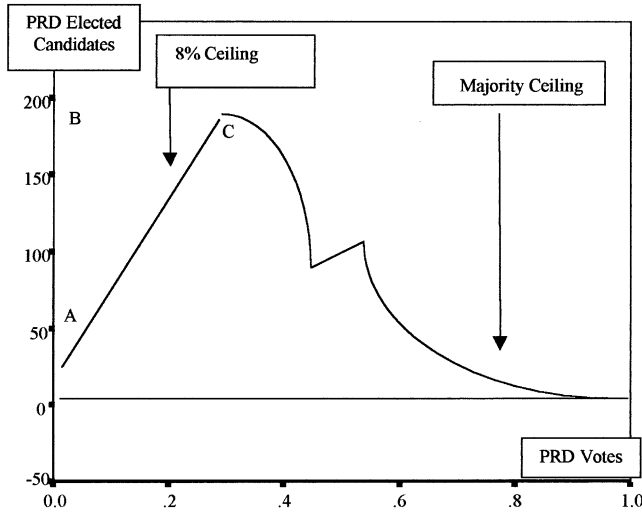


Fig. 3. Number of PRD candidates elected for the lower house in multi-member districts by vote. Upper majority ceiling and 8% ceiling in a two-party race.

in multi-member districts. In a two-party race with $\rho_u=3$, if the PRD obtains no votes it will elect 40 representatives to the lower house (8%) in multi-member districts.¹⁶ As the PRD obtains more votes, the party's share of seats would increase more than proportionally (weighted up votes) until just below 190 seats¹⁷ with 32% of the votes. After this point, any increase in PRD votes will reduce the number of seats won in multi-member districts, constrained only by the small segment around 50% of the votes. This segment depends on the level of majoritarian representation, ρ_u , and is the only remnant of the proportional surface (lower plane) described in Fig. 1. As $\rho_u \rightarrow \infty$, the relationship will become continuous and negative, showing that any increase in votes will “crowd out” multi-member PRD candidates in a two-party race. Thus, for successful parties, more votes leads to the election of fewer candidates in multi-member districts. While it may surprise some readers, Fig. 3 describes the actual seat–votes relationship expected in Mexico's upper tier when two parties are competing. In addition, as we will show, the results are even more erratic when more than two parties are competing. In the next section we provide estimates of the level of majoritarian representation in Mexico, Mexico City and the other states, and we analyze a three-party race.

¹⁶ The space between the 8% ceiling and 200 should reward 0% parties. This will be explained in the next section.

¹⁷ With 32%, close to 10 seats should be won in single-member districts if $\rho_u=3$.

5. Majoritarian representation and crowding out in Mexico's 1997 elections

In this section we estimate the level of majoritarian representation, $\rho_{(u)}$, in Mexico's 1997 national elections and provide insights about their impact in the different Mexican states. The results shows that there are significant variations in the level of majoritarian *bias* across states, which would result in different levels of *crowding out* if and when the hybrid system of Mexico City is applied to other local congresses.

Tufte (1973) and King and Browning (1987) argue that ρ is a parameter that needs to be explained by other variables. The level of homogeneity of the electoral districts, the size of the district, the number of significant political parties, and, in Mexico's hybrid system, the relative number of lower to upper tier seats in the house, affect majoritarian representation at the aggregate level.

We could, for example, expect a candidate's bet on single-member and multi-member tickets to be riskier in Mexico City, where single-member districts are much more homogeneous, than in the national lower house election. A few points difference in highly homogeneous districts could lead a party to elect all single-member candidates to congress, crowding out all multi-member candidates. A more competitive three-party system also increases the majoritarian bias, $\rho_{(u)}$, by helping winning parties to elect most of their single-member candidates with less than 50% of the votes.

In our case, we are only interested in the seat transfer associated with different magnitudes of ρ . Thus, we estimate $\rho_{(u)}$ directly by running King and Browning's bilogit model of seat shares on party vote in all single-member districts.¹⁸ By constraining $\rho_p=1$, the majoritarian bias in multi-member districts set to proportional, we estimated the expected seat gain in multi-member districts which satisfies Eq. (6).

Appendix A provides information on the estimation process both at the national level and at the state level. For the 1997 national election we estimated $\rho_{(u)}=1.60$, which in repeated trials gave the expected seat gain distribution in single-member districts depicted in Fig. 4.¹⁹ Because in Fig. 4 we are still modeling a two-party race, the number of votes required to win most single-member districts is still relatively large (above 0.8). Even in such a two-party race, however, crowding out will be significant if any party receives close to 0.6 of the votes and it will increase sharply in the 0.6–0.8 range. In a three-party race, significant crowding out can start at 0.3 and excludes most candidates from the winning party in multi-member districts when $\rho_{(u)}$ reaches the 0.6 mark.²⁰

The expected seat gain in at-large districts in Mexico's national legislative elections is described in Fig. 4. It shows the often negative relationship anticipated in the previous section. Our estimated majoritarian bias for the 1997 election allows

¹⁸ See Eq. (2).

¹⁹ Ungrouped logit estimation increases to $\rho=2.36$. In Appendix A we discuss some of the implications of this finding.

²⁰ In fact, the PRD won all 40 single-member districts electing representatives to the Mexico City's lower house with 48% of the votes in 1997. See Table A1 in Appendix A for descriptive information on seats and votes in all Mexican provinces.

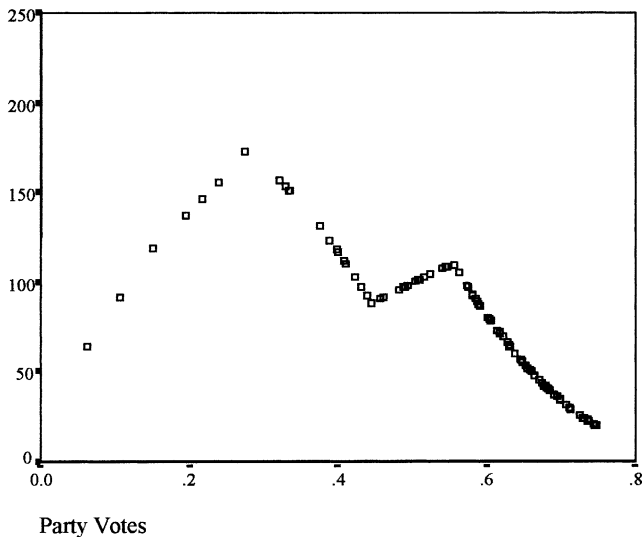


Fig. 4. Expected seat gain to the lower house in Mexico's national elections by party vote, grouped logit estimation $\rho_{(w)}=1.60$. Repeated two-party simulations in multi-member districts.

candidates in multi-member districts to improve their chances of being elected to congress as their party loses votes, constrained only by the 8% ceiling, except in the 0.45–0.55 interval.²¹

It is interesting to note that the *national* level of majoritarian representation provides little information regarding *local* majoritarian representation. For example, if the entire electoral system included only the states of Tamaulipas and Michoacan, the PRI would have seven out of eight seats in Tamaulipas with 48% of the votes, and only three of 13 in Michoacan, home state of Cárdenas, with 35% of the votes. In the two states taken together, however, the PRI would have 10 out of 21 seats with close to 40% of the votes. Therefore, we can see that high levels of *local* majoritarian representation can result in low levels of *national* or global majoritarian representation.

Compared with a $\rho_u=1.6$ for the National Congress, the estimated majoritarian bias for the local congress of Mexico City approached a winner-takes-all value of 6.45.²² In Mexico City such a high majoritarian representation would have the effect of turning the vote–seat relationship in multi-member districts both continuous and negative, once the 8% ceiling is cleared.

We have little data to forecast future elections and while we expect seat transfer

²¹ Again, in a three-party race this range would usually be to the left of that estimated in a two-party race.

²² See Table A1 in Appendix A. Estimation included the overall local majoritarian bias ($\ln v$) and Mexico City dummy.

in Mexico City to be more pronounced than in the national elections, further electoral results are necessary to obtain a realistic approximation of $\rho_{(w)}$.²³

Table 1 shows how the level of majoritarian representation ρ for the Mexican states is far larger than 1.6, ranging from $\rho_u=3.91$ for Campeche and Yucatan²⁴ to $\rho_u=6.45$ and 6.41 for Mexico City and the Estado de México. As a result, the implementation of hybrid electoral systems for other local congresses, as in Mexico City, could consistently produce large seat transfers. In the next section we extend our analysis to more than two parties and evaluate some of the secondary consequences of Mexico's electoral system on parties.

6. Electoral uncertainty, alliances, and party switching incentives

In the previous section we restricted the model to a two-party system. In that case, as described in Fig. 3, the existence of an electoral ceiling translates automatically into an electoral floor for the losing party. In such a scenario, any party over the 30% mark may face significant crowding out and confront a strictly negative vote–seats slope in the upper tier districts as the majoritarian representation ρ approaches ∞ . With more than two parties, however, there is no longer a minimum number of representatives for any given losing party. That is, the space to the left of line Q in Fig. 5 can effectively range from 0 to 200 representatives.²⁵

Table 1 provides information on the effective number of electoral parties in the Mexican states. Mexico City and the Estado de Mexico rank high in such categories. Electoral uncertainty in these cases is magnified by the multiplicative effect of a large majoritarian representation, ρ , and the existence of more competitive parties in the local elections. On the other hand, Yucatan and Baja California Sur rank low both in the level of majoritarian representation and the number of competitive parties. Together, these variables provide good indications of the expected seat transfers under a mixed or hybrid system for the state legislatures.

Imagine the following scenario. Elections will be held 4 months from today in Mexico City and opinion polls show the PRD and the PRI tied with 30% of the votes and the PAN with only 20%. Because nominating the same candidate to both single- and multi-member districts is illegal,²⁶ a PRD candidate has to choose

²³ Mexico City's governability clause can only increase crowding out given that even in competitive elections seat transfer will be substantial if no party obtains more than 50% of single-member district seats. Therefore, transfers occur not only if one party dominates but also if no party does.

²⁴ Because coefficients were not statistically significant, the baseline (Aguascalientes) should be considered the implied ρ .

²⁵ In Fig. 5 the range moves between 0 and 190 because $\rho_{(w)}=3$. Larger values of ρ would widen that range to [0, 200].

²⁶ Notice that double nomination would solve the candidate's gambling problem but, at the same time, reduce the responsiveness of the electoral system to citizens' electoral choices. After all, what does *personalization-of-the-vote* mean if candidates can have a guarantee post either by being voted in their districts or, alternatively, being elected by the party list if they loose in their own districts.

Table 1
 Votes, Seats, and $\rho_{(w)}$ by province, 1997 national elections^a

Province	Bilogit with dummies	NECP	PRD votes	PRD seats	PRI votes	PRI seats	PAN votes	PAN seats
Lnv	3.91***							
Aguascalientes		2.31	0.13	0	0.43	0.66	0.36	0.33
Baja California	1.65***	2.27	0.13	0	0.36	0.17	0.44	0.83
Baja Cal. Sur	2.66	2.19	0.13	0	0.48	1	0.23	0
Campeche	1.24	2.46	0.37	0	0.48	1	0.08	0
Chiapas	1.63***	2.58	0.28	0.17	0.83	0.53	0.12	0
Chihuahua	1.31***	2.3	0.10	0	0.42	0.55	0.41	0.44
Coahuila	1.81***	1.97	0.14	0	0.49	0.86	0.29	0.14
Colima	1.89*	2.82	0.2	0	0.38	0.5	0.38	0.5
Mexico City	2.54***	3.06	0.45	0.97	0.23	0	0.18	0.03
Durango	1.98***	3.29	0.10	0	0.39	1	0.24	0
Guanajuato	0.89*	2.22	0.14	0.06	0.35	0.36	0.41	0.6
Guerrero	2.06**	2.1	0.42	0.4	0.47	0.6	0.05	0
Hidalgo		2.44	0.26	0	0.51	0.86	0.16	0.14
Jalisco	1.59***	2.45	0.12	0	0.36	0.21	0.44	0.79
E. de Mexico	2.50***	2.82	0.34	0.42	0.36	0.44	0.20	0.13
Michoacan	1.89***	3.11	0.41	0.77	0.23	0.36	0.18	0
Morelos	1.82**	1.65	0.41	0.75	0.25	0.37	0.15	0
Nayarit	2.04	2.08	0.21	0	0.51	1	0.23	0
Nuevo Leon	0.86*	2.41	0.03	0	0.40	0.27	0.49	0.73
Oaxaca	1.54**	2.56	0.31	0	0.51	1	0.12	0
Puebla		2.44	0.19	0	0.5	1	0.24	0
Querétaro	1.48*	2.71	0.09	0	0.36	0.25	0.46	0.75
Quintana Roo	2.18	2.79	0.23	0	0.47	1	0.23	0
San Luis Potosí	1.49*	2.36	0.11	0	0.44	0.57	0.37	0.43
Sinaloa	2.15***	2.73	0.23	0.12	0.43	0.75	0.29	0.12
Sonora	2.48***	3.03	0.27	0.28	0.38	0.28	0.31	0.43
Tabasco	0.65	2.08	0.40	0	0.05	0	0.51	1
Tamaulipas	2.26***	2.51	0.27	0.12	0.48	0.87	0.2	0
Tlaxcala	2.60**	2.38	0.24	0	0.43	1	0.2	0
Veracruz	2.37***	2.88	0.27	0.08	0.44	0.87	0.21	0.04
Yucatan	0.90	2.29	0.07	0	0.53	0.6	0.37	0.4
Zacatecas	2.04*	2.53	0.14	0	0.50	1	0.26	0

^a NECP=number of effective competing parties, from Diaz-Cayero and Magaloni (1999). * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

whether to run as part of the top 50% of the list in a multi-member district or as the PRD candidate in a single-member district.

He estimates that in the next few months the PRD can move ahead so that the results would be PRD 40%, PRI 20%, and the PAN 20%. If that happens, it is likely that the PRD will elect most of their lower tier candidates and, consequently, lose most of their upper tier candidates (scenario A in Fig. 5). However, if things turn sour during the campaign and the result is PRI 40%, PRD 20% and PAN 20%, the PRD would lose most single-member districts and elect close to half of their candidates in multi-member districts (scenario B in Fig. 5).

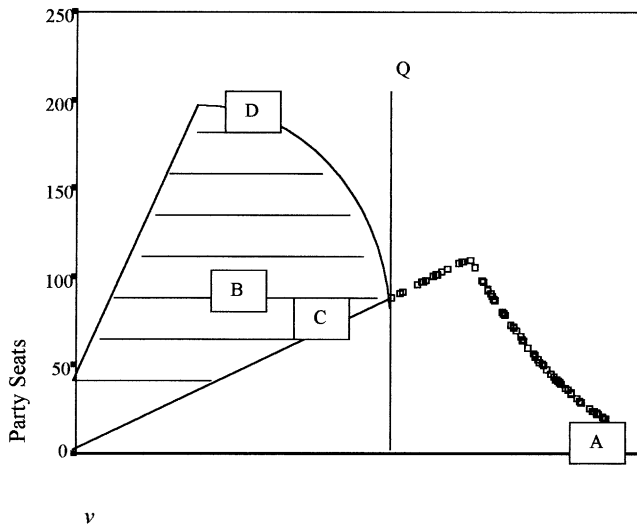


Fig. 5. Expected seat gain in at-large districts with more than two parties (note that the log-odds share of votes, v , is used instead of percent votes; this is necessary to represent scenarios with different numbers of parties without changing the percent vote's scale).

Finally, if the outcome of the elections is PRD 30%, PRI 30%, and PAN 30%, the PRD may elect close to 30% of their single-member district candidates and the top 30% of their multi-member candidates (scenario C in Fig. 5). Note how increasing the vote from 20% in B to 30% in C leads to a decline in the number of representatives elected in multi-member districts!

In the first scenario (A) the PRD candidate would improve his chances to be elected by running in a single-member district while his party wins the elections. In the second scenario (B) the PRD candidate would improve his chances to be elected by running in the party list while his party loses the election. On the other hand, if the PAN collapses, the result would approach the two-party example of previous sections (scenario D in Fig. 5).

Thus, only losing but significant parties know for sure which candidates will be elected: their top candidates in multi-member districts. For the candidates of those parties that are in a position to win the election, however, the time between the moment candidacies are decided — choosing to run in a single-member or the party list — and the day of elections could prove fatal.

The coalitional implications of Mexico's hybrid electoral system are also remarkable. Losing parties weigh up their upper tier votes if a winning party obtains most single-member district seats and their losing competitor drops out of the race. Thus, there is an incentive for losing but significant parties to be more aggressive with other losing but significant parties. That is, if a party expects another party to be a "sure" winner in the elections, their candidates should campaign against other losing parties to improve their share of seats in multi-member districts.

Another interesting implication is that a two-party coalition could be harder to

consolidate. If there is parity between three parties, a two-party coalition against a third party could only aspire to obtain 60% of the seats, which could be lower than what they might obtain if they did not form an alliance. Bargaining for single-member district candidacies could also prove difficult, while bargaining for multi-member candidacies might be risky if the coalition wins by a significant margin of votes. Thus, Mexico's hybrid system can inhibit the formation of electoral alliances, which would produce the opposite effect than that expected in single-member districts, which are generally assumed to foster bipartisan competition (Cox, 1990).

Finally, let us summarize the party switching incentives that Mexico's hybrid electoral system generates. Since running as in the party list of a losing party can be safer than running as a single-member candidate or multi-member candidate of a winning party, there are party switching incentives to candidates from winning parties. The existence of an 8% ceiling provides real chances for very small parties to place their top candidates in congress.

7. Conclusion

While much has been written on the drain of candidates from the PRI to the PAN and the PRD, little attention has been given to the party switching incentives that Mexico's electoral rules generate against successful parties. The weakening of PRI dominance opens the electoral space to a wide range of outcomes that were not anticipated when Mexico's mixed system was devised. The costly victory suffered by the PRD in Mexico City is an example of the kind of political results that Mexico's highly unstable hybrid electoral system may produce.

As shown in this article, successful parties face higher uncertainty regarding the candidates that will be elected to congress in national and local elections. This uncertainty is a function of a party's capacity to gain a large number of seats in single-member districts and crowd out some or all of its candidates in multi-member districts. We also extended King's (1997) majoritarian representation model to estimate the magnitude of this crowding-out effect, calibrating a party's electoral success by a parameter $\rho_{(w)}$, and simulating alternative electoral scenarios.

The model shows that winning parties face higher uncertainty regarding which candidates will be elected to congress while small parties face higher uncertainty regarding the number of candidates that will be elected to congress. Landslide victories drive winning parties to forfeit most of their upper tier candidates, while small changes in all parties' share of the vote results in dramatic seat transfers among losing parties. In short, Mexico's hybrid system allows small changes in the percentage of votes obtained by different parties to produce large seat transfers both from winning to losing parties and among losing parties in multi-member districts. These transfers depend critically on the level of majoritarian representation ρ in single-member districts, which is itself a function, among other things, of the level of homogeneity of districts, the share of lower to upper tier candidates being elected, and the number of significant political parties. The implementation of this hybrid system in small

cities or provinces, where $\rho_{(u)}$ is expected to be large, can have enormous consequences for the composition of local legislatures.²⁷

Mexico's electoral rules also make it harder for parties to form electoral alliances. First, any party alliance can aspire to at most 60% of the seats in the lower house, which could be well below the number of total seats each party could obtain by running separately if any of the allies obtains a significant number of single-member seats. Second, alternating candidates in multi-member districts is easier than withdrawing candidates in uninominal districts, but negotiating candidacies in multi-member districts could be of little interest if the alliance expects a landslide victory. Third, parties that have the same expected vote share early in the campaign but expect to gain just a few votes by election day should anticipate winning a lot more districts on their own than those that could be obtained from cooperating with other parties. Because small changes in votes can lead to dramatic seat transfers among losing parties, bargaining on seat shares could be extremely problematic.

Let us conclude with a note on electoral policy. It is true that the allocation of seats to votes in a democracy can be justified normatively on grounds that are different from a one vote–one seat rule. Departing from perfectly proportional representation can give voice to minorities, guarantee more political power to underprivileged citizens in marginal regions, help the formation of majorities in highly fragmented societies, or reduce the power of a dominant party or an overwhelming electoral majority. Mexico's electoral system appears to do just that by weighting up the vote of minorities and restricting the power of a strong dominant party. A close inspection of the electoral rules, however, demonstrates that they go much further than these limited goals by translating votes into seats in many ways that cannot be anticipated by citizens, candidates, or party leaders. The problem with Mexico's electoral rules for the lower house is not the normative principles that it seeks to fulfil but its tendency to be erratic about it, producing dramatically different results given small variations in the share of votes obtained by Mexico's parties.

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Appendix A

Estimation of $\rho_{(u)}$ for the 1997 national elections was conducted by pooling electoral results for the PRD, PAN, and PRI in all 300 single-member districts. Pooling

²⁷ An anonymous reviewer also brought to our attention the strategic dilemmas parties may face when deciding campaign spending, a problem that deserves further study but falls outside the scope of this article.

the data was necessary because we analyzed a three-party race. This procedure generated a 900 observations dataset (dataset 1) which contained the percentage of votes (V) obtained by a candidate i in district j , and a dummy variable (E) coded 1 if the candidate won in that district and 0 otherwise. The variable v of Eqs. (2)–(6) was computed as $v = \ln(\text{Votes}_{prd}/1 - \text{Votes}_{prd})$.

We also collapsed this dataset into 96 observations (dataset 2) measuring the number of total seats won by each party in every Mexican state (S), the total number of seats to be distributed (TS), and the mean v . Analyses of ungrouped data were performed on dataset 1 and analyses of grouped data were performed on dataset 2.

The BLOGIT procedure of Stata 6.0 for grouped data was used to estimate the number of single-member seats won by party i . The total number of seats to be distributed in every Mexican state was used as the reference population when running the BLOGIT procedure.

Most analyses of majoritarian representation use grouped data estimation procedures, including Tuftes' log–log linear model and King and Browning's bilogit model. The assumption behind King and Browning's statistical choice is that ρ should be estimated according to the model that best explains the underlying social process that generated the data. Methodologically, the choice of a statistical model that attempts to recover the underlying district level information (ungrouped data) when such information is available should be justified. Given that the level of majoritarian representation is estimated for the legislature, rather than for the districts, the aggregate data is actually closer to the underlying process that generated the lower house data. We therefore decided to run models in both ungrouped and grouped datasets and compare the results. The ungrouped data analyses led to larger estimations of $\rho_{(w)}$ than those performed on grouped data.

The explanation resides in the way majoritarian representation affects all parties locally without doing so globally. That is, while majoritarian bias is large for every particular single-member district, that is not the case for every state's aggregate. Some parties obtain a larger than proportional number of seats in some districts and a less than proportional number of seats in others.

Therefore, while the estimation of the ungrouped data describes well how all parties performed at the district level, grouped data estimation better approached the global effect of majoritarian representation on the total number of seats and votes obtained by parties in the legislature. If we accept that any statistical model should attempt to capture the underlying social process that generated the data, then we can see how both ungrouped and grouped estimation of the data give good insights into the expected differences in majoritarian representation in Mexico — both globally (for the Mexican National Congress) and locally (for particular districts). Different estimates of $\rho_{(w)}$ on grouped and ungrouped electoral data appear in Table A1.

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Table A1
 Estimated $\rho_{(u)}$ for the 1997 national congressional elections. National, provincial, and pooled data

	$\rho_{(u)}$ logit	<i>N</i>	$\rho_{(u)}$ Tufté model	<i>N</i>	$\rho_{(u)}$ bilogit estimation (King and Browning)	<i>N</i>
1997 National elections	2.44*** (0.17)	900	2.53*** (0.17)	59	1.62*** (0.11)	96

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Further reading

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