Electoral system design in new democracies

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Abstract
Elections in the wake of dramatic transitions from authoritarian regimes to democracy may confront voters with choices that are unattractive or bewildering, or both. This paper examines the conditions that produce tractable sets of party options for voters, presents cross-national data on the choice sets and competitiveness in elections after dramatic transitions, and examines how the electoral formula used in proportional elections can affect electoral outcomes. The paper argues that, in transitional contexts characterized by high uncertainty, electoral rules that reward economies of moderate scale, such as the Hare Quota formula, can encourage the development of attractive choice sets. As democracies and party systems develop, however, the case for electoral rules that confer representational bonuses on winning parties gains traction.
New democracies, uncertainty, and choice sets

This chapter starts with the premise that certain characteristics of elections are normatively desirable, but far from certain to be established in new democracies. These include a tractable set of choices, competitiveness, and inclusiveness. I assume throughout that political parties are fundamental vehicles of representation. A tractable choice refers to a set of viable parties large enough to afford voters meaningfully distinct options but not so large as to be cognitively overwhelming. Competitiveness means that no one party dominates all others in elections. Inclusiveness means that no one party seizes control of the state in a way that allows it to marginalize others before democratic institutions are well established. This chapter explores the ways electoral system design in new democracies can affect the choice sets offered to voters, and the competitiveness and inclusiveness of elections.

Electoral systems are rules for soliciting citizens' preferences over parties and candidates and for converting those votes into representation. One of the critical dimensions on which electoral systems can vary is the degree to which the rules reward size. That is, to what degree does a system confer representational bonuses and penalties as a function of how large a share of the votes a party wins? I focus on the returns to party size because both politicians and voters seek to convert votes into political representation as efficiently as possible – that is to reap the biggest representational bang for the electoral "buck," each vote. How electoral rules distribute bonuses and penalties according to size shapes which electoral alliances politicians are inclined to form. This, in turn, shapes the tractability of the choice set and tendencies toward electoral competitiveness or dominance.

A key characteristic that distinguishes elections in new democracies from established ones is in the level of certainty about who the viable electoral actors are. Certainty facilitates coordination, of elites into electoral alliances and of voters in casting ballots, and allows voters to understand the connection between how they vote and the representation they get (Cox 1997). In established democracies, experience – in the form of past electoral results – is the main source of such certainty. Elections in new democracies are often characterized by uncertainty over which parties are viable and which are not, diminishing the ability of political elites to present voters with tractable choice sets and the ability of voters to distinguish among the choices presented. I focus on countries that have experienced rapid and dramatic transitions from non-democracy to democracy because I am particularly interested in the ability of new democracies to reduce the uncertainty surrounding the menu of party options and to establish competition over control of the government.

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1 They may call themselves alliances, blocs, movements, fronts, or anything else, but I will use the term "party" to refer to a group of politicians who coordinate their actions to win elections as a team.
Consider a situation in which leaders of two would-be parties, A and B, are determining whether and how to compete in an upcoming election. The parties share some basic principles but their leaders are rivals. Imagine they share the following expectations:

- Party A can command about 4-6% of the vote.
- Party B can command about 8-10% of the vote.
- It will be necessary to get about 10% of the vote to win any representation.

Party A is not close to the threshold for success, so a vote for Party A is, effectively, wasted whereas the same vote cast instead for Party B might help it get over the hump and win representation. The leaders of parties B, moreover, are motivated to court the leaders and supporters of Party A, maybe parceling out list positions or policy concessions – even forming a coalition, call it AB – to minimize the risk that they come up empty. The motivation and the ability to coalesce depends on shared expectations about electoral viability, which in turn depend on knowledge about the levels of support across parties, and about how support levels will translate into representation. In a new democracy, both sorts of knowledge may be in short supply, limiting coalitions. Where coalitions do not form, choice sets will be larger, and perhaps cognitively intractable.

In transitional democracies, the set of choices voters confront can be overwhelming. In their first post-Arab Spring election, Tunisian voters faced over 500 distinct party lists, but only 26 won any seats (and fifteen of those won just one seat each). Egyptian and Libyan voters were presented with dozens of lists and with separate ballots that included dozens of candidates (Carey, Masoud, Reynolds 2015). Afghan voters have regularly faced ballots with hundreds of individual candidates in parliamentary elections (Reynolds and Carey 2012).

Cognitive psychologists and behavioral economists have long recognized that the number of options among which people can make meaningful distinctions is limited (Iyengar 2010). Miller (1956) famously advanced the proposition that the "magical number" of options on a single dimension of choice among which humans can meaningfully discern is seven, or thereabouts. This line of reasoning suggests there may be a sweet spot in terms of the number of alternatives presented to voters – a range that combines variety with cognitive tractability – and perhaps also has downstream effects on governability and government accountability. This chapter suggests that electoral formulas can reward economies of moderate scale in party competition, and thus encourage choice sets voters in the range of cognitive tractability.

All electoral formulas reward economies of scale in some manner, penalizing very small parties by denying representation below some minimum vote threshold, whether legally specified or not. Many systems deliver progressively larger bonuses to larger parties. The choice of electoral system is, in large part, a choice about how seat bonuses and penalties should be distributed. The prescriptive argument in this chapter is that, in new democracies, bonuses should be concentrated on parties as they reach the range of
electoral viability in order to motivate potential allies to coalesce. Electoral engineers in new democracies should aim for economies of scale that peak in the lower end of the viable range. Seat bonuses should be targeted to encourage groups below the threshold of viability to coalesce and rise above it. In these environments, bonuses for large parties are of relatively less value and, in new democracies, increasing returns to scale can threaten the establishment of inclusive democracy.

The rest of the chapter follows in three sections. The first assesses the problem of developing tractable partisan choice sets and competition in new democracies where uncertainty is high, presenting descriptive data from early elections after dramatic democratic transitions. I measure the fragmentation votes in parliamentary elections across parties and the gap between the first- and second-place parties, across countries and over time, to determine whether, and how quickly, the choice sets voters confront in new democracies converge in terms of their tractability, and whether competitiveness tends to increase or decrease over time after transitions. The next section zeroes in on the effect of one particular element of electoral system design, the choice of formula for translating votes to seats in proportional representation (PR) elections, and examines how formulas have affected choice sets, competition, and inclusiveness in Tunisia, Hong Kong, Peru, and Spain. The last section summarizes some principles of electoral system design for new democracies, drawing on the evidence the chapter presents, and speculates about how those principles might evolve as democracies endure.

Elections after big swings to democracy
The Polish template?
Following the collapse of Central European communism in 1989. The first democratic election for Poland's parliament, the Sejm, took place in 1991. In the absence of an established party system and of firm expectations about which leaders and alliances would be viable, Poland adopted an inclusive electoral rule, with list proportional representation (PR), votes pooled at the national level, and no minimum threshold for representation, such that list winning a fraction of a percent of the nationwide vote could gain representation. The top panel of Figure 1 shows the highly dispersed distribution seats across the 30 lists that won seats in the 1991 election, the largest with 12% of the vote. 7% of the valid ballots were cast for the hundreds of lists that won less than 0.1% of the votes, and no seats. Another 6% of ballots were invalid.

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2 The location of the lower boundary is also shaped by electoral rules, but the threshold and the distribution of bonuses to parties above it are distinct issues. Scholarship on electoral systems has focused far more on the former issue than the latter. This chapter shifts that focus.

3 Poland held a partly competitive Sejm election in June 1989. Parties other than the Communists and their rural ally, the Peasant Party, were allowed to contest 1/3 of the seats. The landslide victory for the anti-communists triggered a mass defection of communist deputies, such that the Sejm then selected a non-communist government. The first open elections, however, took place in 1991.
During the next couple of years, Polish governments were highly unstable and susceptible to shifting coalitions. By 1993, the Sejm agreed to dissolve itself and call new elections, but under modified rules that adopted a 5% legal threshold for representation.\textsuperscript{4} The 1993 election saw a continued dispersal of the vote, but the legal threshold restricted representation to the 6 parties that cleared the barrier, in turn conferring large winner bonuses to most of them given that 35% of votes were cast for parties that won no representation (next panel in Figure 1). Coalition options were reduced, governments stabilized, and the new Sejm endured through its constitutional term. In the next election, in 1997, expectations about viability among both voters and elites strengthened, with fewer lists on the ballot, less than half as many votes thrown to parties below the threshold, and a resulting higher correlation between vote shares and seat shares. The pattern continued and stabilized in the next two elections (next panels), and has persisted to the present, with 5 or 6 parties winning representation in each contest and less than 10% of votes wasted on parties winning no representation.

The Polish experience would appear to be an archetype for how electoral engineering can foster the formation of a tractable choice set following a dramatic swing to democracy. At the initial democratic founding, expectations about viability were ill-defined, and the choice set was bewildering. After the imposition of a rule establishing a clear benchmark for strategic alliances and voting, the set of viable choices narrowed, and actors updated expectations and behavior accordingly.

Cross-national patterns
Research on the effects of institutional design on representation is plagued by the problem of imperfect identification. Electoral systems are not randomly assigned across societies. Political parties, which anticipate their own strengths and those of their rivals, generally have a hand in shaping the rules. In particular, where party systems and electoral systems co-develop over time, the relative degree to which rules shape the party system, as opposed to the reverse, is inherently hard to determine (Colomer 2005; Benoit 2007). The empirical exercise here does not pretend to resolve that problem, but attempts to mitigate it by focusing on elections in new democracies where the transition from non-democracy is rapid and dramatic. Where the electoral field of competitors most closely resembles a clean slate, where expectations about relative strengths are weakest and alliances are least fixed, the degree to which electoral rules merely reflect existing party structures should be minimized, and the impact of electoral

\textsuperscript{4} Two caveats were that a party representing German-speaking Poles was exempted from the threshold, and a 7% threshold applied for multi-party alliances. For a comprehensive account of adjustments (and manipulations) to Polish electoral law in the early 1990s, see Kaminski and Nalepa (2004).
system design should be the greatest and the most discernible. For this reason, I focus on founding elections that pronounced swings from non-democracy to democracy.

I start with the Polity IV data, which provide a 21-point scale running from -10 (dictatorship) through 10 (fully democratic). Polity assigns values for 209 countries for every year from their origin (or 1800) up through 2015 (or the end of existence). Across all countries, all years, the mean score is -1, the standard deviation is 7.2, and the distribution is generally bimodal with concentrations at either extreme. I define a dramatic transition to democracy as any case where a country makes a positive swing of 7 or more points from one Polity score to the next, arriving at a score of 5 or greater. Such big swings to democracy are rare events, with only 150 in the Polity data, comprising less than 1% of country-year observations. Of these, 42 occurred in countries that subsequently experienced both democratic backsliding as well as another big swing to democracy, whereas 108 represent the "last" big swing to democracy for that country. Of those 108, 75 (69%) of the countries have remained democratic (that is, with Polity scores at 5 or above) in every year since their big swing. 67 of those big swings to stable democracy, listed in Table 1, have occurred since 1945.

Of the countries that experienced big swings and remained democratic, I am particularly interested in patterns of party competition in the first five post-transition parliamentary elections, when expectations about party viability are taking shape. To examine patterns of competition and party system fragmentation, I merged the data on big swings to democracy with electoral data from Bormann and Golder (2013), as well as Teorell et.al. (2016), supplementing those with electoral results I collected from various government and scholarly websites. Limiting our data to the first five (or fewer, if five have not occurred yet) parliamentary elections, the data include 211 elections from 57 of the 67 countries that experienced big swings and no democratic backsliding since 1945.

I rely on the Bormann and Golder (2013) data to classify electoral systems into six distinct categories: single-member district plurality (SMDP), two-round systems (TRS), mixed systems, list PR using the D'Hondt divisors formula, and list PR using the Hare Quota and largest remainders (HQLR) formula, and list PR using formulas other than

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5 Polity assigns placeholder scores off the 21-point scale (e.g. -66, -77, -88) for countries under foreign occupation or in the midst of regime transitions. In such cases, I identify swings based on the difference between the first standard value after such an interruption and the last prior standard value.

6 Of these, 44 were cases in which countries had intervening Polity scores off the -10 to 10 scale, which indicate things like occupation (e.g., Japan 1952) or civil war (El Salvador 1984), or general political upheaval (e.g., Tunisia 2014), and 46 represent new countries which entered the Polity dataset with a score of 5 or above (e.g., Czech and Slovak Republics 1993, Suriname 1975, Kosovo 2008).
D'Hondt and HQLR for seat allocation. Many of these categories will be familiar to this volume's readers. [Editors: For purposes of this volume, I assume it would be redundant to define SMDP or TRS here – correct?] The important thing to note is that mixed systems include elections in which parliamentary seats are awarded across distinct geographical tiers, whereas the cases coded as list PR are single-tier systems. Among those, I distinguish the two most frequently used formulas, D'Hondt and HQLR, from others, both because D'Hondt and HQLR are by far the most common PR formulas and because they represent polar extremes on the degree to which they distribute seat bonuses as a function of party size. I discuss the mechanics of D'Hondt and HQLR in detail below. Among the 211 post-big swing elections in new democracies noted in the previous paragraph, Table 2 shows the distribution of electoral systems:

[Table 2]

Now we can consider the question of whether the structure of party competition differs across elections in new democracies held under varying electoral rules. Figure 2 shows linear fit estimates for party system fragmentation, measured as the effective number of both vote-winning and seat-winning parties, across the first five post-big swing elections, according to the electoral system used.7

[Figure 2]

The conventional expectation that SMDP elections discourage party fragmentation receives modest support, with both vote and seat fragmentation lower than in other systems, and diminishing with successive elections (Duverger 1954). In two-round systems, both forms of fragmentation increase over time, although the number of two-round elections in new democracies is very low (see Table 2). For mixed systems, measuring fragmentation based on the partisan vote distribution in the PR tier, we see higher, and stable, levels of fragmentation. Among the pure list PR formulas, fragmentation is lower under D'Hondt than under either HQLR or the other formulas (e.g., Droop quota, St. Lague divisor, or modified St. Lague), although under HQLR, both vote and seat fragmentation diminishes gradually over time.

What about competitiveness? I measure competitiveness simply as the gap in percentage vote share between the first-place and second-place party. Figure 3 shows linear fit models, with 95 percent confidence intervals, for margin of victory across the first five post-big swing elections. In SMDP systems, margins tend to be larger than in PR systems, and to rise over time, although the data are sufficiently dispersed that there is no pronounced pattern. That data on margins in two-round systems are sparse. In both mixed systems and under HQLR, competitiveness increases and victory margins

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7 Vote and seat fragmentation are measured using the method introduced by Laakso and Taagepera (1979).
decline over time, from above 15% to around 5%, on average, between the founding and the fifth election.

What do these patterns tell us about electoral system design in new democracies? First, the standard caveats apply, that we are looking merely at correlations in observational data, and in a limited number of cases under highly unusual circumstances, so any conclusions are provisional. That said, the PR systems as a whole tend to produce closer competition between first- and second-place parties than do the single-member district formats. Among the PR systems, D'Hondt constrains party fragmentation more than the other formulas, although where democracy survives to its fifth parliamentary election, the other PR formulas converge toward party systems with around five effective vote-winning parties, and four effective seat-winning parties, only slightly above the D'Hondt averages.  

Alternative PR formulas and their effects
When we talk about the effects of electoral rules, we implicitly summon a counterfactual: How would the outcome of an election have differed had a different system been used? Cross-national comparisons allow for a counterfactual based on the idea that, had Spain, for example, employed Canada’s electoral rules, perhaps party competition in Spain would look more like Canada’s. But of course, Spain and Canada differ on countless dimensions beyond electoral rules so any such counterfactual is loose. A less crude counterfactual might simulate electoral outcomes within a given country, had alternative electoral rules been in place. A strong constraint on this kind of analysis is that votes are cast within geographical districts and the preferences voters can express are a function of ballot structure. So the most plausible simulations are limited to comparing outcomes under identical ballot structures, based on votes cast within the existing districts.

In this section, I compare results under HQLR versus D'Hondt formulas for vote distributions within the same district structure. Switching between these formulas would be, effectively, invisible to voters, with no impact on how ballots are formatted or marked. Politicians, by contrast, are attuned to how electoral formulas affect their competitive prospects, and as they gain experience with an electoral system, they adjust their behavior accordingly, as we shall see. Yet in the context of new democracies,

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It is worth keeping in mind that the effective number of parties understates the actual number of viable competitors. Except under the exceptional circumstance of every party winning equal vote (or seat) shares, the raw number of vote-winning (seat-winning) competitors is higher than the effective number. How much higher depends on the dispersal of vote shares across parties. So a system with five effective vote-winning parties likely includes seven to ten viable competitors – pushing against what Miller’s (1956) results suggest is the upper boundary of citizens’ cognitive capacity to make meaningful distinctions among their various options.
when uncertainty prevails about the relative strengths of would-be parties and alliances, the distributional effects of electoral formulas might initially be opaque even to political elites. To the extent that strategic responses to electoral formulas are constrained in the context of new democracies, the simulations presented here shed light on how alternative electoral rules can drive representational outcomes. The results suggest that the choice of rules can profoundly affect who wins and by how much, encouraging or blocking the formation of legislative majorities, and shaping prospects for inclusiveness and the development of party systems that afford meaningful representation to the widest possible set of citizens.

List PR formulas
There are two main “families” of PR formulas: quota-based methods and divisor methods. Within each family, there are various formulas, although Hare and D'Hondt are the clear “heads” of their respective families. They are the most common formulas employed in new democracies, as shown in Table 2, and in modern democratic elections more generally (Bormann and Golder 2013).

HQLR
The basic principle here is to set a “retail price,” in the currency of votes, at which seats in each electoral district may be “purchased” by lists. That price, or quota, is determined by dividing the total number of valid votes cast in a district by some number – in the case of the HQLR, the district magnitude (DM), or the number of seats at stake in the district. Once votes are tallied, each list is awarded as many seats in the district as full quotas of votes it won. For each seat awarded in this manner, a quota of votes is subtracted from the list’s district total. If not all seats in the district can be awarded on the basis of full quotas, any remaining seats are allocated, one per list, in descending order of the lists’ remaining votes. These seats, then, are purchased for less than the retail price (or quota) for a seat. Lists that win seats on the basis of their remainders are, effectively, buying seats “wholesale.”

Note that, under HQLR, it is virtually impossible for all seats in a district to be purchased at retail price – that is, unless the distribution of votes were such that every list won vote totals perfectly divisible by the district magnitude. Thus, the HQLR method almost guarantees that, within a given district, lists will pay different prices for seats they win. More specifically, it implies that, among lists that win seats at all, smaller competitors, who buy wholesale on the remainders market, will pay less per seat than larger competitors, who also buy seats retail, paying full quotas.

D'Hondt
Rather than set a price in votes for the purchase of seats, divisors methods use the tallies of votes across lists to establish a matrix of quotients pertaining to lists, then allocate seats in descending order of quotients until all the seats in a given district are awarded. A hypothetical example illustrates. Imagine a district in which four lists – A, B, C, and D – compete and 1,000 votes are cast. The votes are distributed across lists as


illustrated in the second row of Table 3: 415, 325, 185 and 75, respectively. The D'Hondt method proceeds by calculating a matrix of quotients by dividing each list's tally by the sequence of integers 1, 2, 3, and so on. These quotients are shown in the successive rows of Table 2. Once the matrix is constructed, seats are awarded in the descending order of quotients. In this district, for example, if DM=5, then the distribution of seats would be A(2), B(2), C(1), D(0). By contrast, if DM=10, the distribution would be A(5), B(3), C(2), D(0). The initial intuition behind divisors methods may be slightly less obvious than with quota-and-remainers methods, but an advantage is that all seats are awarded according to a uniform principle.

Distributing rewards according to party size
Either a quotas-based or a divisors-based approach can be modified from its simplest version in order to adjust the degree to which the formula rewards large versus small lists. HQLR is relatively friendly to small lists because the quota (retail price) it sets to purchase seats is high. Lists that win enough votes to purchase seats at retail pay a steep price for doing so. By contrast, D'Hondt is relatively friendly to large lists because, in constructing the matrix of quotients by which seats will be awarded, its sequence of divisors erodes the tallies of large lists only gradually. Thus, the most common PR formulas have opposite effects with respect to rewards to size.

Note that many other features of electoral rules, besides formulas, shape the relative prospects for large versus small lists to win seats. District magnitude (DM) is critical here (Taagepera and Shugart 1989; Cox 1997). Under any PR formula, lower DM favors larger lists, while higher DM reduces the vote share needed to win representation, opening the door to representation by smaller lists. As we saw in the Polish example, above, legal thresholds that establish a minimum vote share lists must win to be eligible to win seats also discourage smaller parties and alliances and favor larger ones. In short, there are various ways to tilt the field of electoral competition in ways that affect the relative prospects for larger versus smaller lists.

Simulating effects in new democracies
To illustrate how the choice of rules can affect electoral outcomes, I consider four cases. First is from Tunisia's founding elections in the wake of the Arab Spring uprisings. Second, I examine Hong Kong's legislative elections following the transition of sovereignty over the region from Britain back to China in the late 1990s. Next is a

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9 Legal thresholds may apply at the national level (e.g. Israeli parties must win 2% of the vote nationwide to be eligible for any representation) or the district level (e.g. lists in Costa Rica that do not win at least one half a full quota in a given district are ineligible to be awarded seats by remainder in that district) or both (e.g. Argentine parties that win 3% nationwide are eligible to win seats in any district, but failing that, a list must win 8% of the votes in a given district to be eligible for seats in that district, regardless of its rank order in the D'Hondt quotient matrix.
recent election in Peru, which has experienced intervals of democracy and non-
democracy throughout its history, but where the party system has been consistently
volatile. The final example is from the more established democracy, Spain.

Tunisia
On October 23, 2011, Tunisians went to the polls to elect the first constituent assembly
following from the first uprising of the Arab Spring (Brownlee, Masoud, and Reynolds
2015). The Assembly had 217 members, elected by closed-list PR across 33 districts.
Districts elected between 1 and 10 members, but most districts elected 5 or more.
Across all 33 districts, 560 distinct groups registered lists to compete. The vast majority
of these lists – over 400 – were unique to a single district. Only four alliances – the
Islamist Ennahda, and the more secularist Congress for the Republic, Ettakatol, and the
Democratic Modernist Pole – managed to contest all 33 of the districts. Each voter cast
a ballot for a closed list of candidates, and the distribution of seats within each district
was determined by HQLR.

This set of electoral rules was brand new to Tunisia. During the long period of
dictatorship under Zine el Abidine Ben-Ali (1986-2011), the country had held rigged
elections under a mixed system that combined party bloc vote with list PR (Reynolds,
Reilly, and Ellis 2005). The post-Arab Spring electoral rules were written and approved
by a committee formed in the tumult after Ben-Ali fled and his regime crumbled. It
included leaders from political parties, labor unions, and civil society organizations, but
it was not elected and its membership was determined by improvisation (Brownlee,
Masoud, and Reynolds 2015; Stepan 2012). In retrospect, three years after the Arab
Spring uprisings, and after two successful parliamentary elections, some members of
that committee described their decision to adopt list PR and the HQLR formula as
motivated by a preference for an inclusive electoral rule in the context of upheaval and
transition. Among those interviewed, however, recollections differed with respect to
which political leaders supported which specific rules, when, and on what grounds
(Carey, Masoud, and Reynolds 2015). At any rate, the super-abundance of lists that
registered for the 2011 election suggests great uncertainty among many political actors
about their relative levels of electoral support.

To evaluate the impact of HQLR on Tunisia’s founding election outcome, I collected
district-level data on the distribution of votes across lists and replicated the distribution
of seats according to HQLR, then used the same votes to simulate the seat distribution
that would have obtained under D’Hondt (ISIE 2012). The results are summarized in
Table 4, which shows all the parties and alliances that won any seats under each rule, in
descending order of their share of the vote nationwide.

[Table 4]

The central question here is to what degree these formulas would have treated parties
differently according to their size. The short answer is, dramatically. Note that the
competitive field was unbalanced. The largest party, Ennahda, won 37% of the vote, more than four times the total of the next largest party. HQLR awarded Ennahda 89 seats (41%) in the Assembly. By contrast, D'Hondt would have awarded Ennahda 150 seats (69%).

Tunisia's constitutional moment would likely have proceeded quite differently had elections been held under D'Hondt rather than HQLR. With an Assembly supermajority, Ennahda might have been tempted to push through a constitution objectionable to its secularist opponents, and it would have had the votes to do so. By contrast, with only 41% in the Assembly, which served as a parliament as well as a constituent assembly during its three-year tenure, Ennahda brought in coalition partners to form a working majority. The Presidency of the Assembly went to Ettakatol, and the interim presidency of Tunisia was held by a member of Congress for the Republic. The process of drafting a constitution that could command coalition support extended past the initial target date of one year, but by January 2014, the Assembly produced a charter that won approval from 93% of its membership (Stepan 2016).

Tunisia maintained the same electoral system for its second democratic parliamentary election, following the ratification of the Constitution of 2014. Again, the outcome would have differed dramatically had the D'Hondt formula been applied, although the beneficiaries of HQLR were reversed. Consistent with HQLR's economies of moderate scale, a number of the secular parties at the low end of the viability range from 2011, plus some that had fallen short of representation altogether, had coalesced behind a single party label, Nida Tunis, in 2014. Nida Tunis won a 38% plurality of votes, while Ennahda's national share fell to 28%. Overall levels of vote fragmentation dropped substantially, with the effective number of vote-winning parties falling from 6.3 in 2011 to 4.5 in 2014 (author's calculations). Nida Tunis's 38% of the vote converted to 40% of the Assembly seats under HQLR, whereas a simulated outcome using D'Hondt would have afforded it 53%, enough to govern alone. Lacking a majority, Nida Tunis formed a coalition, bringing Ennahda into government along with three smaller parties (Stepan 2016). For a second time in Tunisia, by limiting the winner's bonus, HQLR encouraged inclusiveness in government and prevented a single party from seizing control of the state.

The difference between how the HQLR and D'Hondt formulas treat parties according to their size is illustrated by plotting each party's seat bonus or penalty – that is, its seat share minus its overall vote share – against its vote share. Figure 4 does this for both Tunisian elections, with the left panels showing the actual outcome under HQLR (top) and the D'Hondt simulation (bottom). The most remarkable characteristic of the windfall of seat bonuses generated by HQLR is the extent to which it accrued to small alliances rather than Ennahda. Ennahda regularly paid full price for its seats, often winning more than one per district, but purchasing them with full quotas. Its smaller competitors, by contrast, rarely won more than one seat per district, almost always buying wholesale with remainder votes. As a result, the moderate-sized parties
purchased votes more efficiently than Ennahda. HQLR delivered the greatest economies of scale to moderate parties rather than to the largest. D'Hondt, by contrast, confers sharply increasing economies to scale, and Ennahda would have captured far more seats and a vastly larger bonus. The 2014 election repeats this pattern, but with winners reversed, as shown in the panels at right.

[Figure 4]

**Hong Kong**

Hong Kong is neither a country nor a democracy; it is a "special administrative region" within the autocracy of China, but its experience with electoral system design in the past two decades is instructive nevertheless. Once an agreement had been established for the transfer of sovereignty over Hong Kong from the United Kingdom back to Beijing, the United Kingdom began to increase the prominence of Hong Kong's regional Legislative Council (LegCo) and expand the competitiveness of LegCo elections (Baum 2000). After the transfer in 1997, LegCo elections continued this trend, with the size of the assembly and the share of seats awarded via multiparty competition gradually increasing. Currently, half of the LegCo's 70 members are directly elected in five geographical constituencies from closed party lists using the HQLR formula.

Elections in Hong Kong are not fully open and free overall. Candidacies for the most important office, the Chief Executive, remain tightly controlled by Beijing and nearly half of LegCo seats are elected indirectly by groups stacked toward Beijing's interests (Pepper 2000). So the playing field is far from level. But for our purposes, the more interesting design feature was Beijing's insistence on HQLR for the election of the LegCo's that are directly elected and freely contested.

Results from the last couple of elections held in Hong Kong under British rule had suggested a strong and growing bloc of pro-democracy voters who were motivated to protect Hong Kong's tradition of civil liberties and independent courts, and who could be expected to reject parties and candidates associated with Beijing and the Chinese Communist Party (Lam 1995, Fung 1996). Even according to those who worked inside the Chinese government committees that drafted the electoral law, the central motive of electoral system designers was to obstruct the formation of a party that could command a majority of the LegCo's directly elected seats, although even that would leave such a bloc far from controlling the region's government (Lau Siu-kai 1999).

Beijing eventually settled on HQLR, and its choice has proved prescient. In each of Hong Kong's five LegCo elections since the system was adopted, lists from the broad pro-democracy camp have won majorities of the votes cast. These electoral successes have translated into majorities of the subset of LegCo seats that are directly elected (although not of the LegCo overall). But the use of HQLR has had two important effects beneficial to Beijing. First, as in Tunisia, HQLR constrains winners' bonuses, preventing the pro-
democratic camp from translating its vote majorities into clean sweeps of the elected seats.

Second, HQLR encourages broad alliances to sub-divide in order to convert seats to votes more efficiently. A list that wins more than one seat in a given district pays retail (that is, a full quota) for at least one of those seats. A list that wins by remainders pays wholesale. Any list big enough to win a full quota might do better by splitting in two. Hong Kong politicians have responded strategically, dividing into ever more parties and splinter lists in elections between 1998 and 2012, even as the central divide in Hong Kong politics, between pro-democracy and pro-Beijing camps, has remained stable with the pro-democracy side winning between fifty and sixty percent of votes (Ma and Choy 2003). Figure 5 shows that the percentage of LegCo seats won by lists that capture a full quota in their districts has dropped to near zero. Correspondingly, if we calculate vote fragmentation just within the pro-democracy camp (i.e., the effective number of vote-winning parties just within that camp), we see an increase from 2.0 effective parties in the 1998 election to 5.9 by 2012. The corresponding numbers within the pro-Beijing camp are 1.3 to 3.5 (author's calculations).

[Figure 5]

The effect of this fragmentation in the LegCo party system has been to hamper the formation of broad and stable legislative coalitions the could effectively advance platforms endorsed by the majority of Hong Kong voters, who have consistently supported greater autonomy of the region from Beijing and the protection of individual rights Choy 2013; Ma 2014; Chen 2015; Carey 2016).

Peru

The potentially pivotal effects of PR formula are not limited to brand new democracies, and with access to district-level returns that allow for replication and simulation of alternative outcomes, they are not difficult to find. For example, Peru uses the D'Hondt formula to elect its 130-member Congress. Most of Peru's 26 districts elect between two and five seats, and there is a nationwide five percent threshold. In the 2016 elections, the Popular Force party, headed by Keiko Fujimori, the daughter of disgraced former president, Alberto Fujimori, won 36% of the vote, but was awarded 56% of the seats. The enormous winner's bonus was due far more to the use of D'Hondt than to any penalties visited upon smaller parties by the legal threshold.10

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10 This discussion of the Peruvian outcome is based on a blog post on The Monkey Cage, co-authored with Steven Levitsky, and published on the Washington Post's website on June 3, 2016. [https://www.washingtonpost.com/news/monkey-cage/wp/2016/06/03/fujimoris-party-already-controls-perus-congress-heres-why-observers-are-worried/]
Using the district-level votes from the Peruvian National Electoral Office (ONPE 2016), I reproduced the election results under D'Hondt and also simulated results that would have obtained under HQLR, both and without the legal threshold. The threshold denied a total of six seats to two parties that would otherwise have won seats. Four of those seats were gained by Popular Force, but even without those, Popular Force would hold a 53 percent majority. Far more consequential was Peru's use of the D'Hondt formula. Under HQLR, Popular Force's 36 percent vote share would have translated into 41 percent of seats, even with the legal threshold shutting out smaller parties -- and 40 percent without it. Here again, the contrast between D'Hondt and HQLR is clearest by contrasting seat bonuses as a function of vote share, as in Figure 6. Bonuses increased sharply with size under D'Hondt, with Popular Force harvesting almost all the representational penalties visited upon smaller parties. Bonuses would have increased far more gradually with size, and included more moderate-sized parties, under HQLR.

[Figure 6]

As in the other cases discussed, use of the alternative formula here could have substantial impact on how Peru is governed. Peru's congressional election was held concurrently with the first round of its presidential election. In the run-off that followed a month later, Pedro Pablo Kuczynski, who had finished second to Keiko Fujimori in first-round balloting, captured the presidency. Had Peru used any of the other PR formulas employed in other democracies around the world, with or without the legal threshold, Fujimori's Popular Force would not have won a congressional majority. Kuczynski would have faced the substantial challenge of piecing together coalitions in a fragmented Congress in order to govern. Instead, he will face a majority opposition party in Congress. At the time of this writing, it is too early to tell how that difference will affect governance in Peru.

Spain
Finally, consider the case of Spain, which like Peru uses the D'Hondt formula in its 52 districts, which award between 1 and 36 seats. I replicated outcomes from Spain's 2011, 2015, and 2016 elections and simulated outcomes that would have prevailed under HQLR. In 2011, the Partido Popular won a 53% parliamentary majority based on a 45% vote share, and governed alone. Had HQLR been used, the same vote distribution would have yielded only a 47% seat share, and quite likely the need to govern in coalition. The next two elections, in December 2015 and June 2016, produced no majority -- and at the time this is written (July 2016) no governing coalition either. The patterns of bonuses by vote shares in Spain are consistent with all those shown above. In every election, D'Hondt produces sharply increasing returns to scale, whereas HQLR would have yielded returns that increase only gradually and that confer bonuses on smaller and moderate-sized parties commensurate with those for the largest competitors, as illustrated in Figure 7.

[Figure 7]
Electoral system design for new democracies and beyond

The choice sets voters confront in transitional democracies can be vast, and the connection tenuous between a ballot cast and its effect on representation. A central challenge of electoral system design in these environments is to encourage the formation of a choice set that is large enough to reflect diverse societal interests but not so large that voters cannot distinguish among their options, or parse how to channel their support to viable parties. Another challenge is to encourage partisan competition while limiting the likelihood that one party can parley an initial victory into a permanent electoral advantage by monopolizing the state apparatus. Electoral system design in new democracies should encourage the development of tractable partisan choice sets while fostering competition and inclusive governing coalitions.

Electoral rules can strike this balance by concentrating representational bonuses on parties at the low end of the viability range. Such economies of moderate scale reward alliance formation, and thus choice set tractability, in environments where high uncertainty can discourage electoral coordination. This design also insures against manufactured parliamentary majorities that would concentrate state authority.

The cross-national data presented early in this chapter show that, in new democracies, the most dramatic constraints on partisan choice sets are found in single-member district elections. Mixed systems and list PR using the D'Hondt formula exhibit somewhat larger choice sets, and list PR using HQLR or other formulas constrains fragmentation least of all, at least initially. In those latter systems, however, vote fragmentation tends to decline over time such that, by the fifth post-transition election, choice sets resemble those under D'Hondt. Moreover, competitiveness tends to increase over time under HQLR.

The case studies visited in this chapter provide further insights. The Tunisian experience, as well as those of Peru and Spain, show that HQLR can act as insurance against manufactured majorities that would confer the authority to govern alone. Under D'Hondt, parties that fall far short of winning vote majorities can win large seat majorities, particularly when competition in unbalanced – that is, where the plurality party far outpaces others in a highly fragmented field, as in Tunisia’s founding election, or Peru’s 2016 contest. In new democracies, the downside risk of such a result is particularly acute. Under these circumstances, the appeal of HQLR is most pronounced.

Yet the same mechanics of HQLR that make it attractive in environments of extreme fragmentation and uncertainty can produce liabilities. The Hong Kong case study shows that where the set of viable contenders is compact and their relative strengths are well known, HQLR’s concentration of representational bonuses at the low end of the viability scale can discourage the formation of broad coalitions, even splintering natural alliances. The Hong Kong case is not unique. For example, Colombia used HQLR throughout the late 20th Century, and witnessed a proliferation of lists even more
pronounced than Hong Kong's, as parties would split into scores of factional lists in order to win seats by remainders. The effect was widely regarded as corrosive to Colombian parties and an obstacle to the development of common policy platforms and effective governance. In 2004, Colombia passed a broad set of electoral reforms, among them replacing the HQLR formula with D'Hondt (Shugart, Moreno, and Fajardo 2007). Following the reform, the number of lists dropped and the correlation between the vote shares of the largest parties and their seat bonuses grew stronger as D'Hondt rewarded economies of larger scale and broader electoral alliances united under common banners (Pachon and Shugart 2010; Shugart, Moreno, and Fajardo 2007, Tables 7.4 and 7.8).

The experiences of Hong Kong and Colombia – and, perhaps, of Spain – suggest that the principles of electoral system design in brand new democracies might differ slightly from those in more established ones. In new democracies, where uncertainty prevails about who is viable and who is not, and where the risks associated with one party capturing unfettered control of government are high, economies of moderate scale are the most attractive. Electoral rules that reward viability, but no more, can encourage the formation of tractable choice sets, competitiveness, and inclusiveness. Ideally, new democracies will develop party systems that deliver meaningfully distinct choices, but without overburdening the cognitive capacities, or will, of voters. Once a party system with those characteristics takes shape, however, and as expectations firm up around it, the premium on moderate scale should be less pronounced and the case for electoral economies of increasing scale – rules that confer the largest bonuses on the largest parties to foster governability and decisiveness – increases in appeal.

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11 The practice came to be known as Operation Wasp (Operacion Avispa, in Spanish) because it was more effective to fight electoral battles as a swarm of tiny micro-lists than by uniting as a party under a single banner.
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Figure 1. Vote shares and seat shares in Polish elections

1993 Election
(Adoption of 5% Legal Threshold)
Votes (1993) and Seats in Sejm, 1983-97

1997 Election
Votes (1997) and Seats in Sejm, 1997-2001

2001
% Votes (2001) and %Seats in Sejm, 2001-2005

2005
Figure 2. Fragmentation in the first five post-big swing elections.

Figure 3. Competitiveness in the first five post-big swing elections.
Figure 4. Tunisia – Seat bonus by vote share
Figure 5. Hong Kong – Percentage of seats for which lists paid "full price"
Figure 6. Peru 2016 – Seat bonus by vote share
Figure 7: Spain 2011-2016 – Seat bonus by vote share

Spain D'Hondt Bonus by Vote Share

Spain HQ-LR Bonus by Vote Share

Graphs by year
Table 1. 67 Big swings to democracy since 1945 that have remained democracies.

<table>
<thead>
<tr>
<th>Country</th>
<th>Year</th>
<th>Country</th>
<th>Year</th>
<th>Country</th>
<th>Year</th>
</tr>
</thead>
<tbody>
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<td>Austria</td>
<td>1946</td>
<td>Brazil</td>
<td>1985</td>
<td>Guyana</td>
<td>1992</td>
</tr>
<tr>
<td>France</td>
<td>1946</td>
<td>Uruguay</td>
<td>1985</td>
<td>Mali</td>
<td>1992</td>
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<tr>
<td>Israel</td>
<td>1948</td>
<td>Philippines</td>
<td>1987</td>
<td>Mongolia</td>
<td>1992</td>
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<td>Italy</td>
<td>1948</td>
<td>South Korea</td>
<td>1988</td>
<td>Taiwan</td>
<td>1993</td>
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<tr>
<td>India</td>
<td>1950</td>
<td>Chile</td>
<td>1989</td>
<td>Czech Republic</td>
<td>1993</td>
</tr>
<tr>
<td>Japan</td>
<td>1952</td>
<td>Panama</td>
<td>1989</td>
<td>Slovak Republic</td>
<td>1993</td>
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<td>Colombia</td>
<td>1957</td>
<td>Poland</td>
<td>1989</td>
<td>Mozambique</td>
<td>1994</td>
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<tr>
<td>Cyprus</td>
<td>1960</td>
<td>Czechoslovakia*</td>
<td>1990</td>
<td>Indonesia</td>
<td>1999</td>
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<tr>
<td>Trinidad &amp; Tobago</td>
<td>1962</td>
<td>Germany</td>
<td>1990</td>
<td>Croatia</td>
<td>2000</td>
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<td>Mauritius</td>
<td>1968</td>
<td>Namibia</td>
<td>1990</td>
<td>Yugoslavia*</td>
<td>2000</td>
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<td>Greece</td>
<td>1975</td>
<td>Nicaragua</td>
<td>1990</td>
<td>Peru</td>
<td>2001</td>
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<td>1976</td>
<td>Romania</td>
<td>1990</td>
<td>East Timor</td>
<td>2002</td>
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<td>Dominican Republic</td>
<td>1978</td>
<td>Benin</td>
<td>1991</td>
<td>Kenya*</td>
<td>2002</td>
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<td>Solomon Islands</td>
<td>1978</td>
<td>Cape Verde</td>
<td>1991</td>
<td>Congo Kinshasa*</td>
<td>2006</td>
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<td>1979</td>
<td>Latvia</td>
<td>1991</td>
<td>Montenegro*</td>
<td>2006</td>
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<td>Argentina</td>
<td>1983</td>
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<td>1991</td>
<td>Somalia*</td>
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<td>El Salvador</td>
<td>1984</td>
<td>Slovenia</td>
<td>1991</td>
<td>Tunisia*</td>
<td>2014</td>
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* Source: Polity IV data.

* No data on post-big swing elections are included from these cases.
Table 2. Electoral systems used in new democracies following big swings

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<tr>
<th>Electoral System</th>
<th>Number</th>
<th>Percentage</th>
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<td>Single-Member District Plurality</td>
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<td>11</td>
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<td>Two-Round System</td>
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<td>Mixed System</td>
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<td>18</td>
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<td>List PR – D'Hondt Divisors</td>
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<td>29</td>
</tr>
<tr>
<td>List PR – Hare Quota Largest Remainders</td>
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<td>20</td>
</tr>
<tr>
<td>List PR – All other formulas</td>
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<td>18</td>
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Table 3. Illustration of the DHD method in a hypothetical district.

<table>
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<th>B</th>
<th>C</th>
<th>D</th>
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<td>325.0</td>
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<td>207.5</td>
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<td>92.5</td>
<td>37.5</td>
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<td>3rd Q</td>
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<td>108.3</td>
<td>61.7</td>
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<td>4th Q</td>
<td>103.8</td>
<td>81.3</td>
<td>46.3</td>
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<td>65.0</td>
<td>37.0</td>
<td>15.0</td>
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<td>6th Q</td>
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<td>54.2</td>
<td>30.8</td>
<td>12.5</td>
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<td>Rank</td>
<td>List</td>
<td>Votes</td>
<td>Percent</td>
<td>HQLR Seats</td>
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<td>----------------------------------------------------</td>
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<td>1</td>
<td>Ennahda</td>
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<td>Congress for the Republic</td>
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<td>3</td>
<td>Ettakatol</td>
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<td>Popular Petition</td>
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<td>Progressive Democratic Party</td>
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<td>Initiative Party List</td>
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<td>Democratic Modernist Pole</td>
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<td>Prospects for Tunisia Party</td>
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<td>9</td>
<td>Tunisian Worker's Party-RA</td>
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<td>People's Movement</td>
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<td>Movement of Socialist Democrats</td>
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<td>List for Tunisian National Front</td>
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<td>Hope List</td>
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<td>Loyalty to the Martyrs List</td>
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