Democratic Electoral Systems Around the World, 1946-2020

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Contents

Chapter 1

Codebook

1.1 Introduction

This document provides information about the data described in the following article:

- Bormann, Nils-Christian & Matt Golder. Forthcoming. "Democratic Electoral Systems Around the World, 1946-2020," *Electoral Studies*.

To obtain an updated and corrected version of the data that extends to December 31, 2020, please click here. In total, the data contain information on 1,563 lower-house legislative and 592 first-round presidential elections that occurred in democracies from 1946 (or independence) through 2020.

We are grateful to Dina Castillo, Luisina Kemanian-Leites, Franziska Knubel, Rebecca Otto, Julia Welp, and Katerina Yankanich for superb research assistance. Our gratitude also extends to several constructive users of the dataset who discovered errors in earlier versions and suggested improvements. We recognize their valuable contribution and describe the changes we made relative to the previous version of the data in our Change Log.

1.2 Data

There are three data sets:

1. `es_data-v4.dta`

2. `es_data-v4.csv`

3. `es_data-v4_comments.xlsx`

The first two data sets differ only in terms of their format: Stata or comma separated. The third data set, `es_data-v4_comments.xlsx`, adds (very brief) comments about specific variables for particular cases and indicates the sources that were consulted.

1.3 Case Selection

The data focus on national-level (lower house) legislative and presidential elections in *democratic* regimes. Previously, we identified democratic regimes based on the Democracy-Dictatorship (DD) classification scheme set out in Cheibub, Gandhi and Vreeland (2010). According to this classification scheme, a regime is democratic if (i) the chief executive is elected, (ii) the legislature is elected, (iii) there is more than one party competing in elections, and (iv) an alternation under identical electoral rules has taken place (alternation rule). A regime is dictatorial if any of these four conditions do not hold. While the latest version of the DES dataset continues to classify elections as democratic according to these coding rules, it also classifies elections as democratic based on four other commonly-used coding schemes as well: Boix-Miller-Rosato (BMR, 2012), Freedom House (FH, 2021), Polity$_5$ (2020), and Varieties of Democracy (V-Dem, 2021).

Like the original DD indicator, BMR is dichotomous and classifies countries as democratic or dictatorial. In contrast, FH, Polity$_5$, and V-Dem provide ordinal or interval measures of regime type such that we have to use a cut-off for identifying when a country is considered democratic. In line with common practice, we classify a country as democratic if its Freedom House score is less than or equal to 2.5 (Free) on its $1 - 7$ scale and if its Polity$_5$ score is greater than or equal to 6 on its -10 to $+10$ scale. The V-Dem project provides several slightly different measures of regime type. We focus on its *Polyarchy* measure (Teorell et al., 2019) and code a country as democratic if its *Polyarchy* score is greater than or equal to 0.5 on its 0 to 1 scale. All five indicators are available from 1946, with the exception of FH, which only started coding democracies in 1973. The BMR and Polity$_5$ indicators stop in 2015 and 2018 respectively. We have updated the DD indicator, which stops in 2008, through 2020 ourselves.

1.4 Missing Data

There are three different types of missing data.

1. `NA` in the `.csv` file or `.` in the Stata file indicate that the variable cannot take on a meaningful value. For example, *presidential* elections do not have a meaningful value for those variables that relate to the electoral rules used in *legislative* elections.

2. `-99` indicates that the information is missing but should theoretically be available. For example, the average district magnitude in the 1957 legislative elections in Honduras should be available but we could not locate it.

3. `-88` indicates that there is no single value for this particular variable. For example, the legislative elections in France in 1951 and 1956 used two different electoral rules in the first electoral tier depending on the result in a given constituency. While we know both of the rules, our data structure

cannot display both rules at the same time – we only have one variable for the electoral formula used in the first electoral tier and it cannot take on two values simultaneously. The details regarding these particular missing values are typically provided as comments in `es_data-v4_comments.xlsx`.

1.5 Variables

1.5.1 ID Variables

The following variables provide identifying information about the election and country.

elec_id: This variable uniquely identifies each election. The variable begins with either an `L` or a `P` to indicate whether the election is legislative or presidential. The variable then includes a three letter abbreviation of the country's name, followed by the (first round) date (`yyyy-mm-dd`) of the election. For example, `L-ARG-2001-10-14` uniquely identifies the legislative elections that took place in Argentina on October 14, 2001, and `P-USA-2008-11-4` uniquely identifies the presidential elections that took place in the United States on November 4, 2008.

country: This is the country name.

ccode: This is the country code classification used by the *Correlates of War (COW)* project (Singer and Small, 1994).

ccode2: This is the country code classification used by Gleditsch and Ward (1999). Differences from the COW classification include different dates for a polity's birth and death (e.g., the Yugoslav successor states) and different continuation rules (e.g., Germany).

dd_democracy: This is a dichotomous variable that equals 1 if the election occurs in a regime that's coded as democratic by the Democracy-Dictatorship dataset and 0 otherwise (Cheibub, Gandhi and Vreeland, 2010). A regime is democratic if (i) the chief executive is elected, (ii) the legislature is elected, (iii) there is more than one party competing in elections, and (iv) an alternation under identical electoral rules has taken place (alternation rule). A regime is dictatorial if any of these four conditions do not hold.

bmr_democracy: This is a dichotomous variable that equals 1 if the election occurs in a regime that's coded as democratic by the Boix-Miller-Rosato dataset and 0 otherwise (Boix, Miller and Rosato, 2012).

fh_democracy: This is a dichotomous variable that equals 1 if the election occurs in a regime that's coded as less than or equal to 2.5 (Free) on the 1-7 scale used by Freedom House and 0 otherwise (Repucci

and Slipowitz, 2021).

p5_democracy: This is a dichotomous variable that equals 1 if the election occurs in a regime that's coded as 6 or higher on the -10 to +10 scale used by Polity_5 and 0 otherwise (Marshall and Gurr, 2020).

vd_polyarchy: This is a dichotomous variable that equals 1 if the election occurs in a regime that's coded as 0.5 or higher on the 0 to 1 Polyarchy scaled used by the Varieties of Democracy (V-Dem) project (Teorell et al., 2019; Coppedge et al., 2021).

region1: This is a categorical variable indicating the country's region of the world (Przeworski et al., 2000).

1. Sub-Saharan Africa

2. South Asia

3. East Asia

4. South East Asia

5. Pacific Islands/Oceania

6. Middle East/North Africa

7. Latin America

8. Caribbean and non-Iberic America

9. Eastern Europe/post-Soviet states

10. Industrialized Countries (OECD)

11. Oil Countries

region2: This is a categorical variable indicating the country's region of the world.

1. Sub-Saharan Africa

2. South Asia

3. East Asia

4. South East Asia

5. Pacific Islands/Oceania

6. Middle East/North Africa

7. Latin America

8. Caribbean and non-Iberic America

9. Eastern Europe/post-Soviet states

10. Western Europe

region3: This is a categorical variable indicating the country's region of the world.

1. Sub-Saharan Africa

2. Asia

3. West (incl. US, Canada, Australia, New Zealand)

4. Eastern Europe/post-Soviet states

5. Pacific Islands/Oceania

6. Middle East/North Africa

7. Latin America/Caribbean

regime: This is a categorical variable indicating a country's regime type at the end of the given year. The data for this variable come from Cheibub, Gandhi and Vreeland (2010), which we updated through 2020.

0. Parliamentary democracy

1. Semi-presidential democracy

2. Presidential democracy

3. Civilian dictatorship

4. Military dictatorship

5. Royal dictatorship

Not all elections that occur when a regime is classified as a dictatorship (regime= 3−5) by the Democracy-Dictatorship measure are dictatorial. This apparent anomaly has to do with the fact that a country's regime type is coded based on its status at the end of a given year. Elections like those in Argentina 1962, Nigeria 1983, Philippines 1965, and Thailand 1976 all preceded a democratic collapse in the same year. Although these countries are considered dictatorial at the end of these years, we code these particular elections as democratic according to the Democracy-Dictatorship measure and therefore include them in our data set. We should note that we code the 1997 elections in Kenya, the 1999 elections in Guinea Bissau, the 2005 elections in Liberia, the 2006 elections in Mauritania, and the 2008 elections in Bangladesh as democratic

even though Cheibub, Gandhi and Vreeland (2010) do not code these countries as democratic until the following year. The reason for this is that these elections are the primary reason cited by Cheibub, Gandhi and Vreeland (2010) for their eventual recoding of these countries as democratic. As an example, Cheibub, Gandhi and Vreeland (2010) do not code Liberia as democratic until 2006 despite the fact that presidential elections took place in October 2005, because the winner of these elections, Ellen Johnson-Sirleaf, did not officially take office until January 2006. The bottom line is that there are a few observations in our data set of *democratic* elections where `regime` indicates that the country was a dictatorship by the end of the year.

presidential: This is a dichotomous variable that takes on the value `1` if the election is presidential and `0` if the election is legislative.

year: This is the year of the election.

date: This is the precise date (`mm/dd/yyyy`) of the election, including the day, month, and year. If the election involves multiple rounds, then `date` refers to the date for the *first* round of elections. In some unusual cases, elections do not occur on a single day but instead occur over a period of time, possibly even weeks. For example, the Indian legislative elections in 1999 took place from September 5, 1999 to October 3, 1999. In these cases, we report the first day of the elections. In other words, the date for the Indian elections is recorded as 9/5/1999. Information about the full period of time over which elections were held can be found in `es_data-v4_comments.xlsx`.

secondround: This is the precise date (`mm/dd/yyyy`) for the second round of an election. This variable takes on the value `NA` in the `.csv` file or `.` in the Stata file if there is no second round.

thirdround: This is the precise date (`mm/dd/yyyy`) for the third round of an election. This variable takes on the value `NA` in the `.csv` file or `.` in the Stata file if there is no third round.

1.5.2 Legislative Elections

The following variables provide information about (lower house) legislative elections only. They take on the value `NA` in the `.csv` file or `.` in the Stata file for presidential elections. Some variables relating to things such as the electoral formula or the number of electoral districts are specific to an *electoral tier*. Each of the variables that relate to a specific electoral tier is entered as `tierx_varname`, where `x` indicates the tier (1-4) and `varname` is the variable name. For example, `tier3_formula` indicates the electoral formula used in the third electoral tier. In what follows, we describe the variables but do not distinguish by electoral tier.
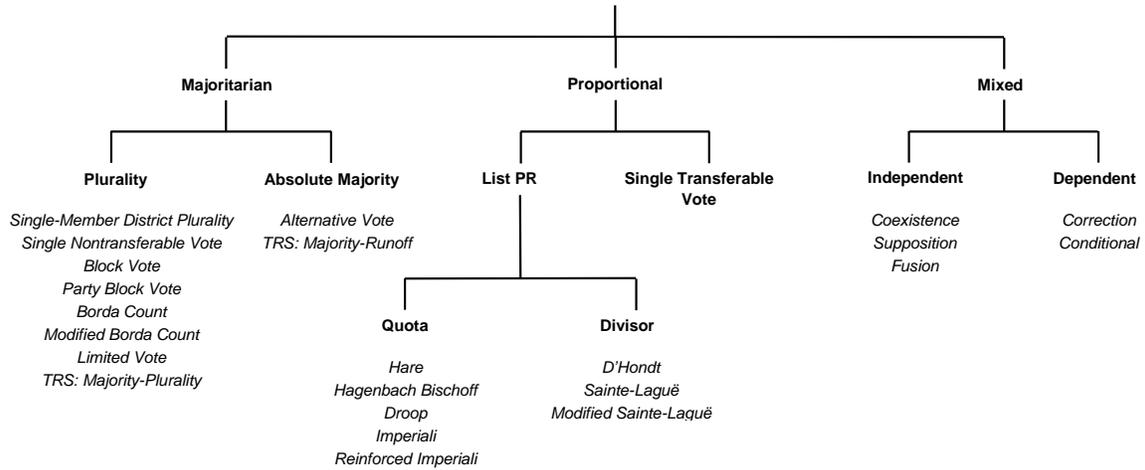
legislative_type: This is a categorical variable that takes on one of three values indicating the basic type of electoral system used in the elections.

1. Majoritarian

2. Proportional

3. Mixed

In Figure 1.1, we show the basic classification of electoral systems used in democratic national-level lower house legislative elections.

Figure 1.1: Classification of Legislative Electoral Systems

elecrule: This is a categorical variable that provides a more detailed indication of the type of electoral system used in the election.

1. Single-Member-District-Plurality (SMDP)

2. Two-Round System (TRS)

3. Alternative Vote (AV)

4. Borda Count (BC)

5. Block Vote (BV)

6. Party Block Vote (PBV)

7. Limited Vote (LV)

8. Single Nontransferable Vote (SNTV)

9. List Proportional Representation (List PR)

10. Single Transferable Vote (STV)

11. Mixed Dependent (or Mixed Member Proportional)

12. Mixed Independent (or Mixed Parallel) .

To see how this fits with the basic classification of electoral systems into majoritarian, proportional, and mixed, see Figure 1.1.

`formula`: This is a categorical variable that indicates the precise electoral formula used in an electoral tier.

1. Single-Member-District-Plurality (SMDP)

2. Majority-Plurality Two Round System

3. Qualified Two Round System

4. Majority Runoff Two Round System

5. Alternative Vote (AV)

6. Borda Count (BC)

7. Modified Borda Count (mBC)

8. Block Vote (BV)

9. Party Block Vote (PBV)

10. Limited Vote (LV)

11. Single Nontransferable Vote (SNTV)

12. Hare quota

13. Hare quota with largest remainders

14. Hare quota with highest average remainders

15. Hagenbach-Bischoff quota

16. Hagenbach-Bischoff quota with largest remainders

17. Hagenbach-Bischoff quota with highest average remainders

18. Droop quota

19. Droop quota with largest remainders

20. Droop quota with highest average remainders

21. Imperiali quota

22. Imperiali quota with largest remainders

23. Imperiali quota with highest average remainders

24. Reinforced Imperiali quota

25. D'Hondt

26. Sainte-Laguë

27. Modified Sainte-Laguë

28. Single Transferable Vote

mixed_type: This is a categorical variable that indicates the precise type of mixed electoral system that is being used (Massicotte and Blais, 1999).

1. Coexistence

2. Superposition

3. Fusion

4. Correction

5. Conditional

multi: This is a dichotomous variable that indicates whether there is more than one electoral tier (1) or not (0).

multi_linked: This is a dichotomous variable that indicates whether different electoral tiers are linked (1) or not (0). Electoral tiers are linked if the unused votes from one electoral tier are used to allocate seats in another electoral tier, or if the allocation of seats in one electoral tier is conditional on the seats received in a different electoral tier.

seats: This indicates the total number of seats in the lower house of the national legislature.

upperseats: This indicates the number of legislative seats allocated in electoral districts above the lowest electoral tier.

uppertier: This indicates the percentage of all legislative seats allocated in electoral districts above the lowest electoral tier.

districts: This is the number of electoral districts or constituencies in an electoral tier. For example, `tier1_districts` is 17 and `tier2_districts` is 1 in the 2005 legislative elections in Denmark, because there were 17 districts in the lowest electoral tier and 1 district in the next (national) tier; `tier3_districts` and `tier4_districts` are both 0 for this election because there were no higher electoral tiers.

avemag: This is the average district magnitude in an electoral tier. This is calculated as the total number of seats allocated in an electoral tier divided by the total number of districts in that tier. For example, `tier1_avemag` is $\frac{135}{17} = 7.94$ in the 2005 legislative elections in Denmark, because 135 seats were allocated across 17 districts in the lowest electoral tier.

enep: This is the effective number of electoral parties (Laakso and Taagepera, 1979).

enep_others: This is the percentage of the vote going to parties that are collectively known as 'others' in official election results.

enep1: This is the effective number of electoral parties once the 'other' category has been "corrected" by using the least component method of bounds suggested by Taagepera (1997).

enpp: This is the effective number of parliamentary (legislative) parties (Laakso and Taagepera, 1979).

enpp_others: This is the percentage of seats won by parties that are collectively known as 'others' in official election results.

enpp1: This is the effective number of parliamentary (legislative) parties once the 'other' category has been "corrected" by using the least component method of bounds suggested by Taagepera (1997).

majority_bonus: This is a dichotomous variable that captures whether a country employs a majority bonus system (1) or not (0).

1.5.3 Presidential Elections

The following variables provide information about presidential elections only. They take on the value `NA` in the `.csv` file or `.` in the Stata file for legislative elections.

preselecrule: This is a categorical variable that indicates the electoral formula used in the presidential election.

1. Plurality

2. Absolute Majority Two Round System

3. Qualified Majority Two Round System

4. Electoral College

enpres: This is the effective number of presidential candidates (Laakso and Taagepera, 1979).

1.6   Glossary

Much of the information in the glossary comes directly from Clark, Golder and Golder (2012, 535-602).

Absolute Majority Two Round System: There are five electoral systems used for electing presidents: plurality, absolute majority two round system, qualified two round system, electoral college, and alternative vote. The absolute majority two round system is the same as a majority-runoff two-round system. Any candidate who obtains an absolute majority of the votes in the first round is automatically elected. If no candidate obtains an absolute majority, then the top two vote winners go on to compete in a runoff election one or two weeks later. Whoever wins the most votes in this runoff election is elected.

Alternative Vote (AV): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The alternative vote (AV) is a candidate-centered electoral system used in single-member districts, where voters are required to rank at least one candidate in order of preference. Voters typically do this by placing numbers next to the names of the candidates to indicate whether each is the voter's first choice, second choice, third choice, and so on. AV systems in which voters have to rank order all of the candidates are called "full preferential" systems, whereas AV systems in which voters have to rank order only some candidates are called "optional preferential" systems. If a candidate wins an absolute majority of first-preference votes, he is immediately elected. If no candidate wins an absolute majority, then the candidate with the lowest number of first-preference votes is eliminated and his ballots are examined for their second-preference votes. Each ballot from the eliminated candidate is then reallocated among the remaining candidates according to these second preferences. This process is repeated until one candidate has obtained an absolute majority of the votes cast (full preferential system) or an absolute majority of the valid votes remaining (optional preferential system). The alternative vote is sometimes referred to as an instant-runoff vote (IRV) because it is much like holding a series of runoff elections in which the candidate with the fewest votes is eliminated in each round until someone receives an absolute majority of the vote.

Table 1.1 provides an example of how the AV system works using the results from the Richmond constituency of New South Wales in the 1990 Australian legislative elections. When the first-preference votes from all of the voters were initially tallied up, Charles Blunt came first with 40.9 percent of the vote. Because no candidate won an absolute majority, the candidate with the lowest number of votes (Gavin Baillie) was eliminated. As Table 1.1 illustrates, Baillie was ranked first on 187 ballots. These 187 ballots were then reallocated to whichever of the remaining candidates the voters ranked second after Gavin Baillie. For example, the fact that Ian Paterson received 445 votes in the first count but 480 votes in the second count indicates that 35 of the people who had listed Gavin Baillie as their most preferred candidate listed Ian Pater-

Table 1.1: Richmond Constituency, New South Wales, Australian Legislative Elections, 1990

Candidate	First Count (#)	(%)	Second Count (#)	(%)	Third Count (#)	(%)	Fourth Count (#)	(%)	Fifth Count (#)	(%)	Sixth Count (#)	(%)	Seventh Count (#)	(%)
Stan Gibbs	4,346	6.3	4,380	6.3	4,420	6.4	4,504	6.5	4,683	6.8				
Neville Newell	18,423	26.7	18,467	26.7	18,484	26.8	18,544	26.9	18,683	27.1	20,238	29.4	34,664	50.5
Gavin Baillie	187	0.3												
Alan Sims	1,032	1.5	1,053	1.5	1,059	1.5	1,116	1.6						
Ian Paterson	445	0.6	480	0.7	530	0.8								
Dudley Leggett	279	0.4	294	0.4										
Charles Blunt	28,257	40.9	28,274	41.0	28,303	41.0	28,416	41.2	28,978	42	29,778	43.2	33,980	49.5
Helen Caldicott	16,072	23.3	16,091	23.3	16,237	23.5	16,438	23.8	16,658	24.1	18,903	27.4		

Note: Blank cells indicate that a candidate was eliminated.

son as their second-choice candidate. Because there was still no candidate with an absolute majority after this second count, the new candidate with the lowest number of votes (Dudley Leggett) was eliminated and his ballots were reallocated among the remaining candidates in the same manner as before. This process continued until the seventh round of counting, when Neville Newell became the first candidate to finally obtain an absolute majority of the votes. The overall result, then, was that Neville Newell became the representative elected from the Richmond constituency of New South Wales.

Block Vote (BV): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The block vote is essentially the same as the single nontransferable vote system except that individuals now have as many votes as there are seats in a district to be filled. When presented with a list of candidates from various parties, voters can use as many or as few of their votes as they wish; however, they can give only one vote to any one candidate. The candidates with the most votes are elected. This helps to explain why the block vote is sometimes referred to as plurality-at-large voting. See also Party Block Vote.

Borda Count (BC): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The Borda count is a candidate-centered electoral system used in either single- or multi-member districts in which voters must use numbers to mark their preferences for all of the nominated candidates. These preferences are then assigned a value using equal steps to reflect the voter's preference ordering. For example, if there are ten candidates, a voter's first preference might be worth one, his second preference 0.9, his third preference 0.8, and so on until his tenth preference, which would be worth 0.1. These values are then summed and the candidate(s) with the most "valuable" votes is (are) elected. See also the modified Borda count.

Civilian Dictatorship: There are three types of dictatorship: civilian, military, and royal. A civilian dictatorship is a residual category in that dictatorships that are not royal or military are considered civilian (Cheibub, Gandhi and Vreeland, 2010).

Coexistence Mixed Electoral System: There are five subcategories of mixed electoral systems. Coexistence, superposition, and fusion systems are independent mixed systems, while correction and conditional systems are dependent mixed systems. A coexistence system is one in which some districts in an electoral tier employ a majoritarian formula, while others employ a proportional formula. As an example, 82 seats in the 1998 legislative elections in Madagascar were allocated by majoritarian electoral rules (single-member district plurality) and 78 seats were allocated in 39 2-member districts using proportional representation (Hare quota with highest average remainders) (Nohlen, Krennerich and Thibaut, 1999, 536).

Conditional Mixed Electoral System: There are five subcategories of mixed electoral systems. Coexistence, superposition, and fusion systems are independent mixed systems, while correction and conditional systems are dependent mixed systems. A conditional system is one in which the use of one electoral formula

is triggered by a certain outcome of the other. As an example, France employed a conditional system in its 1956 legislative elections. If a party won more than 50% of the vote in a district, then it would win all of the district seats. But if no party won more than 50% of the vote, then seats were allocated using proportional representation (D'Hondt).

Correction Mixed Electoral System: There are five subcategories of mixed electoral systems. Coexistence, superposition, and fusion systems are independent mixed systems, while correction and conditional systems are dependent mixed systems. A correction system is one in which the seats distributed by the proportional formula in one set of districts are used to "correct" the vote-seat distortions created by the majoritarian formula in another. As an example, 100 seats in the 1992 legislative elections in Albania were allocated using majoritarian electoral rules (single-member district plurality) in the lowest electoral tier and 40 seats were allocated based on unused votes from the lowest electoral tier using proportional electoral rules (Hare quota with largest remainders) in a single national district.

Dependent Mixed Electoral System: There are two main types of mixed electoral system: dependent and independent. A dependent mixed electoral system is one in which the application of the proportional formula is dependent on the distribution of seats or votes produced by the majoritarian formula. This is because the proportional component of the electoral system is used to compensate for any disproportionality produced by the majoritarian formula at the constituency level. This type of mixed system is sometimes referred to as a mixed member proportional (MMP) system. There are two subtypes of dependent mixed electoral systems: correction and conditional. The most common form of dependent mixed electoral system involves the use of majoritarian and proportional formulas in two separate electoral tiers (correction systems). For example, Germany elected half its legislators in the 2009 elections using a single-member district plurality system at the constituency level and the other half using proportional representation (Sainte-Laguë) at the state level in 16 regions. In most dependent mixed electoral systems, such as those used in Germany and New Zealand, individuals have two votes. They cast their first vote for a representative at the constituency level (candidate vote) and their second vote for a party list in a higher electoral tier (party vote). These types of mixed dependent systems allow individuals to give their first vote to a constituency candidate from one party and to give their second vote to a different party if they wish. This is called split-ticket voting. In systems in which voters have only one vote, the vote for the constituency candidate also counts as a vote for that candidate's party.

In Table 1.2, we show how votes are translated into seats in a dependent mixed electoral system with two electoral tiers. The first thing that happens is that each party receives legislative seats in proportion to the total number of votes that they obtained nationally. This means that because Party A won 60 percent of the vote overall, it receives 60 percent of the party list seats, or six seats. And since Party B won 40 percent of the vote overall, it receives 40 percent of the party list seats, or four seats. We then look to see how many constituency seats each party won. In our example, Party A won all five constituency seats because it came first in each constituency. Party A already has five constituency seats, so it gets to keep only one of its six party list seats. Party B has no constituency seats, so it gets to keep all four of its party list seats. In effect, the party list seats "correct" or "compensate" for the fact that Party B won no seats at the district level even though it won 40 percent of the vote. Overall, then, Party A receives six seats (five constituency seats and one party list seat), and Party B gets four seats (no constituency seats and four party list seats). As you can see, the party list vote determines how many seats a party gets, whereas the candidate vote determines

whether these seats will be constituency or party list seats. This particular version of the dependent mixed system is used in Germany and New Zealand.

Table 1.2: Translating Votes into Seats in an Dependent Mixed Electoral System

| | Votes in Each Electoral district | | | | | National District | % of Votes | | Seats Won | |
	1	2	3	4	5	Votes	Won	SMDP	List PR	Total
Party A	3,000	3,000	3,000	3,000	3,000	15,000	60	5	1	6
Party B	2,000	2,000	2,000	2,000	2,000	10,000	40	0	4	4
Total	5,000	5,000	5,000	5,000	5,000	25,000	100	5	5	10

Two issues crop up in dependent mixed systems. First, some candidates compete for a constituency seat but are also placed on the party list. You may wonder what happens if a candidate wins a constituency seat but is also placed high enough on a party list that she could win a party list seat as well. In this circumstance, the candidate would typically keep the constituency seat, and her name would be crossed off the party list. Second, some parties win more constituency seats than is justified by their party list vote. An example is shown in Table 1.3. Three parties competed for ten legislative seats. Party B and Party C each won 30 percent of the vote and so get three party list seats. They did not win any constituency seats, so they get to keep all three of their party list seats. Party A won 40 percent of the vote and so gets four party list seats. Party A, however, won all five of the constituency seats. What happens now? Well, Party A loses all of its party lists seats but gets to keep all five of its constituency seats. Overall, then, Party A gets five constituency seats, and Party B and Party C each get three party list seats. You'll notice that the total number of allocated seats is eleven even though the original district magnitude was just ten. Because Party A won more constituency seats than its party list vote justified, the legislature in this example ends up being one seat larger than expected. This extra seat is known as an "overhang seat." This means that the size of a legislature in a dependent mixed electoral system is not fixed and ultimately depends on the outcome of the election. In New Zealand's 2005 legislative elections, the fact that the Maori Party won 2.1 percent of the party vote

Table 1.3: An Example of Overhang Seats

| | Votes in Each Electoral district | | | | | National District | % of Votes | | Seats Won | |
	1	2	3	4	5	Votes	Won	SMDP	List PR	Total
Party A	3,000	3,000	3,000	3,000	3,000	15,000	40	5	0	5
Party B	2,250	2,250	2,250	2,250	2,250	11,250	30	0	3	3
Party C	2,250	2,250	2,250	2,250	2,250	11,250	30	0	3	3
Total	7,500	7,500	7,500	7,500	7,500	37,500	100	5	6	11

entitled it to three legislative seats. Because it won four constituencies, however, it ended up with four seats. As a result, the New Zealand legislature had 121 seats instead of the normal 120. Note that the addition of the overhang seats that we have described and which arise because a party wins more constituency seats than its share of party list votes suggests it should have can lead to a distribution of legislative seats that is not perfectly proportional to the distribution of party list votes. Some countries, such as Germany, require that the final distribution of legislative seats be perfectly proportional. As a result, it will add additional overhang (party list) seats to parties that are no longer receiving their appropriate share of the legislative seats. This continues until the distribution of legislative seats matches the distribution of party list votes. This will, of course, lead to an even larger legislature but perfect proportionality is maintained.

D'Hondt: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. There are three common divisor systems in use around the world: D'Hondt, Sainte-Laguë, and Modified Sainte-Laguë. D'Hondt distributes seats among parties by first dividing the total number of votes won by each party in a district by a series of numbers (divisors) to obtain quotients, and then allocating seats according to those parties with the highest quotients. D'Hondt uses the divisors 1, 2, 3, 4, 5, etc. In Table 1.4, we show how D'Hondt works in a ten-seat district in which 100,000 valid votes are split among parties A through F. The ten largest quotients are shown in boldface type. The exact order in which the ten district seats are allocated among these ten quotients is shown by the numbers in parentheses next to them. For example, Party A receives the first and second seat, Party B wins the third seat, Party C wins the fourth seat, Party A the fifth seat, and so on. Unlike quota systems, it is easy to see that divisor systems do not leave any remainder seats. The final allocation of the ten district seats is five to Party A, two each to Party B and Party C, and one to Party D.

Table 1.4: Translating Votes into Seats Using the D'Hondt System

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Votes/1	**47,000 (1)**	**16,000 (3)**	**15,800 (4)**	**12,000 (6)**	6,100	3,100	
Votes/2	**23,500 (2)**	**8,000 (9)**	**7,900 (10)**	6,000	3,050	1,550	
Votes/3	**15,666 (5)**	5,333	5,266	4,000	2,033	1,033	
Votes/4	**11,750 (7)**	4,000	3,950	3,000	1,525	775	
Votes/5	**9,400 (8)**	3,200	3,160	2,400	1,220	620	
Total Seats	5	2	2	1	0	0	10

District Magnitude: District magnitude is the number of representatives that are elected in a district.

Divisor, or Highest Average, Systems: There are two types of list proportional representation systems: quota systems and divisor, or highest average systems. A divisor, or highest average, system distributes seats among parties by first dividing the total number of votes won by each party in a district by a series of numbers (divisors) to obtain quotients, and then allocating seats according to those parties with the highest

quotients. There are three common divisor systems in use around the world: D'Hondt, Sainte-Laguë, and Modified Sainte-Laguë.

Droop Quota System: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. A quota system allocates seats to party lists based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. The Droop quota is calculated as

$$Q = \frac{V_d}{M_d + 1} + 1,$$

with the "decimal part" removed, where V_d is the total number of valid votes in district d and M_d is the number of seats available in district d. In Table 1.5, we provide an example of how votes are translated into seats in a list PR system that employs the Droop quota. The results relate to a ten-seat district in which 100,000 valid votes are split among parties A through F. How many seats does each party win? The Droop quota in this case is $\frac{100,000}{10+1} + 1$ minus the decimal part $= 9,091$. Because Party A has 47,000 votes, it has 5.17 full quotas. This means that it automatically receives five seats. Following the same logic, Parties B, C, and D all automatically win one seat. You'll have noticed that we have allocated only eight of the ten seats available in this district so far. There are two remainder seats that must still be distributed among the parties. There are three common methods for distributing remainder seats: largest remainders, highest average, and modified highest average.

Table 1.5: Translating Votes into Seats Using the Droop Quota

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							9,091
Votes/Quota	5.17	1.76	1.74	1.32	0.67	0.34	
Automatic Seats	5	1	1	1	0	0	8
Remainder Seats							2

Effective Number of Electoral Parties: The effective number of electoral parties is calculated as

$$\frac{1}{\sum v_i^2},$$

where v_i is the percentage of the vote received by the ith party (Laakso and Taagepera, 1979). Independents or 'others' are treated as a single party. This is `enep` in our data set.

Treating independents and 'others' as a single party can be misleading, though, especially when these categories are large. As a result, it may be preferable to use a "corrected" effective number of electoral parties based on the methods of bounds suggested by Taagepera (1997). This is `enep1` in our data set. The method

of bounds essentially requires calculating the effective number of parties treating the 'other' category as a single party (smallest effective number of parties), then recalculating the effective number of parties as if every vote in the 'other' category belonged to a different party (largest effective number of parties), and then taking the mean.

Consider the following example taken almost directly from Taagepera (1997, 150):

    Party A: 40%

    Party B: 30%

    Party S: 10% (smallest party recorded in official results, P_s)

    Others: 20% (residual, R)

Proceed as follows:

1. Calculate `enep` by omitting the 'others' category: $\text{enep}_{omit} = \frac{1}{0.4^2+0.3^2+0.1^2} = \frac{1}{0.26} = 3.847$.

2. Take the minimum of the product of (i) the smallest party and the 'other' category or (ii) the squared 'other' category: $\min(R^2, R \times P_s) \rightarrow R \times P_s = 0.02$.

3. Now, recalculate `enep` using the minimum found in Step 2: $\text{enep}_{min} = \frac{1}{0.26+0.02} = 3.571$.

4. Finally, take the mean of `enep`$_{omit}$ and `enep`$_{min}$: `enep1`$= \frac{3.847+3.571}{2} = 3.71$.

Effective Number of Parliamentary (Legislative) Parties: The effective number of parliamentary (legislative) parties is calculated as

$$\frac{1}{\sum s_i^2},$$

where s_i is the percentage of legislative seats won by the ith party. Independents or 'others' are treated as a single party. This is `enpp` in our data set.

Treating independents and 'others' as a single party can be misleading, though, especially when these categories are large. As a result, it may be preferable to use a "corrected" effective number of parliamentary parties based on the methods of bounds suggested by Taagepera (1997). This is `enpp1` in our data set. To see how this is calculated, see the example with respect to electoral parties.

Effective Number of Presidential Candidates: The effective number of presidential candidates is calculated as

$$\frac{1}{\sum v_i^2},$$

where v_i is the percentage of the vote received by the ith candidate (in the first round). 'Others' are treated as a single candidate. This is `enpres` in our data set.

Electoral College: There are five electoral systems used for electing presidents: plurality, absolute majority two round system, qualified two round system, electoral college, and alternative vote. The electoral college system is one in which a set of electoral is appointed through various mechanisms to an institution – the electoral college – whose sole role it is to elect the president.

Electoral Tier: An electoral tier is a level at which votes are translated into seats. The lowest tier is the district or constituency level. Higher tiers are constituted by grouping together different lower tier constituencies; they are typically at the regional or national level.

Fusion Mixed Electoral System: There are five subcategories of mixed electoral systems. Coexistence, superposition, and fusion systems are independent mixed systems, while correction and conditional systems are dependent mixed systems. A fusion system is one in which majoritarian and proportional formulas are used within a single district. As an example, Turkey used a fusion system in its 1987 legislative elections – the largest party won the first seats in multi-member districts, with the rest allocated by proportional electoral rules (D'Hondt). The first seat that went to the largest party was known as the contingency mandate.

Hagenbach-Bischoff Quota System: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. A quota system allocates seats to party lists based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. The Hagenbach-Bischoff quota is calculated as

$$Q = \frac{V_d}{M_d + 1},$$

where V_d is the total number of valid votes in district d and M_d is the number of seats available in district d. In Table 1.6, we provide an example of how votes are translated into seat in a list PR system that employs the Hagenbach-Bischoff quota. The results relate to a ten-seat district in which 100,000 valid votes are split among parties A through F. How many seats does each party win? The Hare quota in this case is $\frac{100,000}{10+1} = 9,090.9$. Because Party A has 47,000 votes, it has 5.17 full quotas. This means that it automatically receives five seats. Following the same logic, Parties B, C, and D all automatically win one seat. You'll have noticed that we have allocated only eight of the ten seats available in this district so far. There are two remainder seats that must still be distributed among the parties. There are three common methods for distributing remainder seats: largest remainders, highest average, and modified highest average.

Table 1.6: Translating Votes into Seats Using the Hagenbach-Bischoff Quota

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							9,090.9
Votes/Quota	5.17	1.76	1.74	1.32	0.67	0.34	
Automatic Seats	5	1	1	1	0	0	8
Remainder Seats							2

Hare Quota System: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. A quota system allocates seats to party lists based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. The Hare quota is calculated as

$$Q = \frac{V_d}{M_d + 0},$$

where V_d is the total number of valid votes in district d and M_d is the number of seats available in district d. In Table 1.7, we provide an example of how votes are translated into seat in a list PR system that employs the Hare quota. The results relate to a ten-seat district in which 100,000 valid votes are split among parties A through F. How many seats does each party win? The Hare quota in this case is $\frac{100,000}{10} = 10,000$. Because Party A has 47,000 votes, it has 4.7 full quotas. This means that it automatically receives four seats. Following the same logic, Parties B, C, and D all automatically win one seat. You'll have noticed that we have allocated only seven of the ten seats available in this district so far. There are three remainder seats that must still be distributed among the parties. There are three common methods for distributing remainder seats: largest remainders, highest average, and modified highest average.

Table 1.7: Translating Votes into Seats Using the Hare Quota

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							10,000
Votes/Quota	4.7	1.6	1.58	1.2	0.61	0.31	
Automatic Seats	4	1	1	1	0	0	7
Remainder Seats							3

Highest Average Remainder Method: There are three common methods for distributing remainder seats in quota-based list PR systems: largest remainders, highest average, and modified highest average. The highest average remainder method allocates remainder seats to those parties who "paid," *on average*, the most for their automatic district seats. The highest average method requires that the number of votes won by each party be divided by the number of automatic, or "full quota", seats that it obtains. This gives the average number of votes "paid" by each party for the automatic seats that it won. The highest average method then allocates the remainder seats to the parties that paid the most votes (highest average) for their seats. In Table 1.8, we show how the highest average method works alongside the Hare quota in a ten-seat district in which 100,000 valid votes are split among parties A through F. The Hare quota is calculated as $\frac{100,000}{10} = 10,000$. As Table 1.8 indicates, Party B obtains the first remainder seat because it paid $\frac{16,000}{1} = 16,000$ votes for its one seat; Party C gets the second remainder seat, and Party D gets the third.

Table 1.8: Translating Votes into Seats Using the Hare Quota with Highest Average Remainders

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							10,000
Votes/Quota	4.7	1.6	1.58	1.2	0.61	0.31	
Automatic Seats	4	1	1	1	0	0	7
Votes/Automatic Seats	11,750	16,000	15,800	12,000	0	0	
Remainder Seats	0	1	1	1	0	0	3
Total Seats	4	2	2	2	0	0	10

Imperiali Quota System: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. A quota system allocates seats to party lists based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. The Imperiali quota is calculated as

$$Q = \frac{V_d}{M_d + 2},$$

where V_d is the total number of valid votes in district d and M_d is the number of seats available in district d. In Table 1.9, we provide an example of how votes are translated into seat in a list PR system that employs the Imperiali quota. The results relate to a ten-seat district in which 100,000 valid votes are split among parties A through F. How many seats does each party win? The Hare quota in this case is $\frac{100,000}{10+2} = 8,333.3$. Because Party A has 47,000 votes, it has 5.64 full quotas. This means that it automatically receives five seats. Following the same logic, Parties B, C, and D all automatically win one seat. You'll have noticed that we have allocated only eight of the ten seats available in this district so far. There are two remainder seats that must still be distributed among the parties. There are three common methods for distributing remainder seats: largest remainders, highest average, and modified highest average.

Although it is not the case here, it is possible for the Imperiali quota to result in a situation where parties win more seats than are actually available in a district. This can occur when several parties score just above

Table 1.9: Translating Votes into Seats Using the Imperiali Quota

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							8,333.3
Votes/Quota	5.64	1.92	1.90	1.44	0.73	0.37	
Automatic Seats	5	1	1	1	0	0	8
Remainder Seats							2

the Imperiali quota. When this occurs, the results are typically recalculated using a larger quota such as the Hare quota, the Hagenbach-Bischoff quota, or the Droop quota.

Independent Mixed Electoral System: There are two main types of mixed electoral system: dependent and independent. An independent mixed electoral system is one in which the majoritarian and proportional components of the electoral system are implemented independently of one another. This type of mixed system is often referred to as a mixed parallel system. There are three subtypes of independent mixed electoral systems: coexistence, superposition, and fusion. The most common form of independent mixed electoral system involves the use of majoritarian and proportional formulas in two separate electoral tiers (superposition system). For example, the Ukraine elected half of its legislators in the 1998 and 2002 elections using a single-member district plurality system at the constituency level and the other half using list PR (Hare quota with largest remainders) in a single district at the national level. The precise balance between "proportional" and "majoritarian" seats varies from country to country. Although in some countries, such as South Korea, individuals have only one vote, which is used for both parts of the electoral system, in other countries, such as Japan and Lithuania, they have two votes - one for the majoritarian component and one for the proportional component.

In Table 1.10, we show how votes are typically translated into seats in an independent mixed electoral system

Table 1.10: Translating Votes into Seats in an Independent Mixed Electoral System

	Votes in Each Electoral district					National District	% of Votes	Seats Won		
	1	2	3	4	5	Votes	Won	SMDP	List PR	Total
Party A	3,000	3,000	3,000	3,000	3,000	15,000	60	5	3	8
Party B	2,000	2,000	2,000	2,000	2,000	10,000	40	0	2	2
Total	5,000	5,000	5,000	5,000	5,000	25,000	100	5	5	10

with two electoral tiers. Two parties, A and B, are competing over ten seats. Five seats are allocated at the constituency level using a single-member district plurality system, and five seats are allocated in a single district at the national level using some type of list PR system. Given the distribution of votes shown in Table 1.10, Party A wins eight seats. Why? First, it wins all five constituency seats because it came first in each constituency. Second, because Party A wins 60 percent of the party list vote, it wins 60 percent of the five seats allocated in the national tier, that is, three seats. As a result, Party A wins eight seats altogether. Party B wins 2 seats – it gets no constituency seats, but it gets 40 percent of the five party list seats in the national tier, or two seats.

Largest Remainder Method: There are three common methods for distributing remainder seats in quota-based list PR systems: largest remainders, highest average, and modified highest average. The largest remainder method allocates remainder seats to those parties with the largest "remainders." "Remainders" refer to the fraction of a quota that is left over after parties have used their "full quotas" to obtain district seats. In Table 1.11, we show how the largest remainder method works alongside the Hare quota in a ten-seat district in which 100,000 valid votes are split among parties A through F. The Hare quota is calculated as $\frac{100,000}{10} = 10,000$. Because Party A has 47,000 votes, it has 4.7 full quotas. This means that it automatically receives four seats. Following the same logic, Parties B, C, and D all automatically win one seat. After all of the *automatic* seats are allocated, we calculate the fraction of a Hare quota that was left unused (remainder) by each party. The first remainder seat is then allocated to the party with the largest remainder. Thus, Party A wins the first remainder seat because its remainder (0.7) is the largest. The second remainder seat is then allocated to the party with the next largest remainder. The remainder seats are allocated in this way until all of the district seats have been allocated. Thus, the total number of seats won by each party in a district is the sum of their automatic and remainder seats.

Table 1.11: Translating Votes into Seats Using the Hare Quota with Largest Remainders

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							10,000
Votes/Quota	4.7	1.6	1.58	1.2	0.61	0.31	
Automatic Seats	4	1	1	1	0	0	7
Remainder	0.7	0.6	0.58	0.2	0.61	0.31	
Remainder Seats	1	1	0	0	1	0	3
Total Seats	5	2	1	1	1	0	10

Limited Vote (LV): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The limited vote is a candidate-centered system used in multi-member districts in which voters have multiple votes, but fewer votes than there are districts seats. The candidates with the most votes are elected.

List Proportional Representation: In a list proportional representation (list PR) system, each party presents a list of candidates for a multi-member district, and parties receive seats in proportion to their overall share of the votes. List PR systems come in two main types: quota systems and divisor or highest average systems.

Majority Bonus System: A majority bonus system is one in which the largest party or coalition is given additional legislative seats to facilitate the government formation process and ensure government stability. Some majority bonus systems provide a fixed number of seats to the 'winning' party or coalition, while others add as many seats as necessary until a specified minimum number of seats is achieved. A handful of countries such as Greece, Italy, and San Marino have adopted a majority bonus system in the 2000s and 2010s.

Majoritarian Electoral System: A majoritarian electoral system is one in which the candidates or parties that receive the most votes win. Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems.

Majority-Plurality Two-Round System: Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. There are three main types of two-round systems: the majority-runoff TRS, the majority-plurality TRS, and the qualified TRS. Almost all majority-plurality TRSs are candidate-centered electoral systems in single-member districts in which voters have a single vote. Any candidate who receives an absolute majority of the vote in the first round is automatically elected. If no candidate obtains an absolute majority, then all candidates who overcome some preordained threshold of votes can contest the second round. Whichever candidate obtains the most votes in this second round, whether it is an absolute majority or not, is duly elected. In one country – the Pacific island of Kiribati – a majority-plurality TRS is used in multi-member districts. In the 2007 legislative elections, Kiribati's voters had as many votes as there were seats available. Although they could use as many or as few of their votes as they wished, they could give at most only one vote to any particular candidate. Any candidate that received a vote on an absolute majority of the ballots was automatically elected. If a sufficient number of candidates did not receive a vote on more than 50 percent of the ballots, then a second round of elections took place. In three-member districts with no first-round victors, the top five candidates contested the second round; in two-member districts, the top four candidates contested it. Those candidates with the most votes in the second round were elected (Brechtenfeld, 1993, 44).

Majority-Runoff Two-Round System: Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. There are three main types of two-round systems: the majority-runoff TRS, the majority-plurality TRS, and the qualified TRS. Most majority-runoff TRSs are candidate-centered electoral systems in single-member districts in which voters have a single vote. Each voter chooses his most preferred candidate. Any candidate who obtains an absolute majority of the votes in the first round is automatically elected. If no candidate obtains an absolute majority, then the top two vote winners go on to compete in a runoff election one or two weeks later. Whoever wins the most votes

in this runoff election is elected. Given that there are only two candidates in this second election, the winner necessarily has the support of an absolute majority of the voters (as long as there is not an exact tie). Although extremely unusual, majority-runoff TRSs are sometimes employed in multi-member districts. As an example, the 2007 legislative elections in Mali employed a party-centered majority-runoff system in the multi-member districts. Malian voters cast a single vote for their preferred party. Any party that obtains an absolute majority of the votes wins all of the seats in the district. If no party wins an absolute majority, then the top two parties are placed on a second ballot and compete in a runoff election. Whichever party obtains the most votes wins all of the district seats.

Military Dictatorship: There are three types of dictatorship: civilian, military, and royal. A military dictatorship is one in which the executive relies on the armed forces to come to and stay in power Cheibub, Gandhi and Vreeland (2010).

Mixed Electoral System: A mixed electoral system is one in which voters elect representatives through two different systems, one majoritarian and one proportional. An electoral system is classified as mixed in our data set only if more than 5% of the total legislature is elected by a different electoral formula (majoritarian or proportional) to that used to elect the other deputies. Mixed electoral systems come in two varieties: independent and dependent.

Modified Borda Count (mBC): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The modified Borda count is a candidate-centered electoral system used in either single- or multi-member districts in which voters must use numbers to mark their preferences for all of the nominated candidates. These preferences are then assigned a value calculated by using a series of divisors - 1, 2, 3, 4, and so on. For example, if there were ten candidates, then a voter's first preference would be worth 1, his second preference 0.5, his third preference 0.33, his fourth preference 0.25, and so on until his tenth preference, which would be worth 0.1. These values are then summed and the candidate(s) with the most valuable votes is (are) elected. Table 1.12 illustrates how votes are translated into seats using the modified BC by presenting the results in the two-seat Buada district from the 2004 legislative elections

Table 1.12: Modified Borda Count in the Buada District, Nauru Legislative Elections, 2004

Candidate	Value of Votes Cast	
Roland Kun	145.793	Elected First
Lyn Terangi Adam	131.967	Elected Second
Thomas Star	123.243	
Vinson Detenamo	122.610	
Palik Agir	109.110	
Nelson Tamakin	104.793	
Manfred Depaune	84.890	

in Nauru. As you can see, 1.12 does not list the "number" of votes won by each candidate; instead, it lists the "value" of the votes won by each candidate. Roland Kun and Lyn Terangi Adam were elected as the representatives for this district because the values of their votes were the two highest.

Modified Highest Average Remainder Method: There are three common methods for distributing remainder seats in quota-based list PR systems: largest remainders, highest average, and modified highest average. The modified highest average remainder method allocates remainder seats to those parties who "paid," on average, the most for their automatic district seats. The difference with the highest average method is that it divides the number of votes won by each party by the automatic seats that it obtains *plus one* and not just by the number of automatic seats. The modified highest average method then allocates the remainder seats to the parties that paid the most votes (modified highest average) for their seats. In Table 1.13, we show how the highest average method works alongside the Hare quota in a ten-seat district in which 100,000 valid votes are split among parties A through F. The Hare quota is calculated as $\frac{100,000}{10} = 10,000$. As Table 1.13 indicates, Party A obtains the first remainder seat because it paid $\frac{47,000}{4+1} = 9,400$ votes for its one seat; Party B gets the second remainder seat, and Party C gets the third.

Table 1.13: Translating Votes into Seats Using the Hare Quota with Modified Highest Average Remainders

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							10,000
Votes/Quota	4.7	1.6	1.58	1.2	0.61	0.31	
Automatic Seats	4	1	1	1	0	0	7
Votes/(Automatic Seats+1)	9,400	8,000	7,900	6,000	0	0	
Remainder Seats	1	1	1	0	0	0	3
Total Seats	4	2	2	2	0	0	10

Modified Sainte-Laguë: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. There are three common divisor systems in use around the world: D'Hondt, Sainte-Laguë, and Modified Sainte-Laguë. Modified Sainte-Laguë distributes seats among parties by first dividing the total number of votes won by each party in a district by a series of numbers (divisors) to obtain quotients, and then allocating seats according to those parties with the highest quotients. Sainte-Laguë uses the divisors 1.4, 3, 5, 7, etc. In Table 1.14, we show how Modified Sainte-Laguë works in a ten-seat district in which 100,000 valid votes are split among parties A through F. The ten largest quotients are shown in boldface type. The exact order in which the ten district seats are allocated among these ten quotients is shown by the numbers in parentheses next to them. For example, Party A receives the first two seats, Party B wins the third seat, Party C wins the fourth seat, Party A the fifth seat, and so on. Unlike quota systems, it is easy to see that divisor systems do not leave any remainder seats. The final allocation of the ten district seats is five to Party A, two each to Party B and Party C, and one to Party D.

Table 1.14: Translating Votes into Seats Using the Sainte-Laguë System

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Votes/1.4	**33,571 (1)**	**11,429 (3)**	**11,286 (4)**	**8,571 (6)**	4,357	2,214	
Votes/3	**15,666 (2)**	**5,333 (8)**	**5,266 (9)**	4,000	2,033	1,033	
Votes/5	**9,400 (5)**	3,200	3,160	2,400	1,220	620	
Votes/7	**6,714 (7)**	2,286	2,257	1,714	871	443	
Votes/9	**5,222 (10)**	1,778	1,756	1,333	678	344	
Total Seats	5	2	2	1	0	0	10

Parliamentary Democracy: There are three types of democratic regime: parliamentary, semi-presidential, and presidential. A parliamentary democracy is one in which the government depends on a legislative majority to exist and the head of state is not popularly elected for a fixed term (Cheibub, Gandhi and Vreeland, 2010).

Party Block Vote: Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. Like the block vote, the party block vote (PBV) is employed in multi-member districts. The difference is that individuals in the party block vote system have only a single vote and they allocate this to a list of party candidates rather than an individual candidate. In effect, voters are choosing the party or list of people that they want to win all of the district seats. The party that obtains the most votes in a PBV system wins all of the seats; all of the candidates on the party list are elected.

Party List: A party list is a list of candidates that a party runs in an electoral district. Parties allocate the seats that they win to candidates on their list. There are three main types of party list: closed party lists, open party lists, and free party lists. In a closed party list, which is sometimes known as a non-preferential or blocked list, the order of candidates elected is determined by the party itself, and voters are not able to express a preference for a particular candidate. In a closed list system, political parties receive seats in proportion to the number of votes that they obtain using a quota or divisor electoral system. The first seat won by the party goes to the candidate listed first on the party list, the second seat goes to the second candidate, and so on. Thus, if a party wins four seats, then the top four candidates on the list are elected and the remaining candidates are not elected. In an open party list, which is sometimes known as a preferential or unblocked list, voters can indicate not just their preferred party but also their favored candidate within that party. In most open list systems, it is up to the voter whether to indicate her preferred candidate in addition to her preferred party. Each individual candidate on an open list is credited with all of the personal votes given to him plus a share of the votes cast for his party. The order in which the party's seats are allocated

among the individual candidates on the list is determined by the number of total votes (personal and party) that are credited to him. In a free party list, voters have multiple votes that they can allocate either within a single party list or across different party lists. The capacity to vote for candidates from different party lists – split voting – is known as panachage. And the capacity to give more than one vote for a single highly favored candidate is known as cumulation.

Plurality System: There are five electoral systems used for electing presidents: plurality, absolute majority two round system, qualified two round system, electoral college, and alternative vote. The plurality system in presidential elections is the same as a single-member district plurality system with just one district. The candidate with the most votes wins.

Presidential Democracy: There are three types of democratic regime: parliamentary, semi-presidential, and presidential. A presidential democracy is one in which the government does not depend on a legislative majority to exist (Cheibub, Gandhi and Vreeland, 2010).

Proportional Electoral System: A proportional electoral system is a quota system or divisor system employed in multi-member districts (where the quota is less than 50%). Proportional electoral systems include list proportional representation systems and the single transferable vote.

Qualified Two-Round System: Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. There are three main types of two-round systems: the majority-runoff TRS, the majority-plurality TRS, and the qualified TRS. In a majority-runoff TRS or a majority-plurality TRS, a candidate who obtains an absolute majority of votes in the first round is automatically elected. There are, however, some two-round systems in which a candidate must obtain some percentage of the vote other than an absolute majority to be elected in the first round. These systems are called qualified TRSs. The precise threshold of votes that needs to be overcome to win in the first round varies quite considerably in these systems. For example, a candidate had to come first and win more than 33 percent of the votes to be elected in the first round of the 1956 and 1963 presidential elections in Peru. In contrast, a candidate had to win more than 55 percent of the vote to be elected in the first round of the 1996 presidential elections in Sierra Leone (Nohlen, Krennerich and Thibaut, 1999, 793). The threshold employed in the first round can be quite complicated in some countries. In 2007, for example, a candidate could be declared president in Argentina without the need for a second round if she either (a) came first and won more than 45 percent of the votes or (b) if she won 40 percent of the vote and at least 10 percent more than the nearest competitor (Regúnaga, 2007, 2). Qualified TRSs are not restricted to presidential elections. For example, the first-placed candidate in Mongolian legislative elections in 2000 had to win 25 percent of the district vote in order to avoid a second round (Reynolds, Reilly and Ellis, 2005, 27). Although the voting procedure employed in the second round of these TRSs varies from country to country, most employ a runoff between the top two vote winners.

Quota: A quota is the number of votes that guarantees a party a seat in a particular electoral district. See Quota Systems.

Quota Systems: A quota is the number of votes that guarantees a party a seat in a particular electoral district. A quota system allocates seats to parties based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. A quota, $Q(n)$ is defined as

$$Q(n) = \frac{V_d}{M_d + n},$$

where V_d is the total number of valid votes in district d, M_d is the number of seats available in district d, and n is the modifier of the quota. When $n = 0$, the system employs the Hare quota; when $n = 1$, the system employs the Hagenbach-Bischoff quota; when $n = 2$, the system employs the Imperiali quota; and when $n = 3$, the system employs the Reinforced Imperiali quota. The Droop quota is equal to the Hagenbach-Bischoff quota plus one with any "decimal part" removed. For example, the Hare quota in an electoral district with 10 seats and 100,000 valid votes would be $\frac{100,000}{10} = 10,000$ votes. This means that a political party obtains a seat for every 10,000 votes that it wins. The Hagenbach-Bischoff quota in the same electoral district would be $\frac{100,000}{10+1} = 9,090.9$ votes; the Imperiali quota would be $\frac{100,000}{10+2} = 8,333$ votes; and the Reinforced Imperiali quota would be $\frac{100,000}{10+3} = 7,692$ votes. To calculate the Droop quota in this district, we start with the Hagenbach-Bischoff quota (9,090.9), add one (9,091.9), and then remove the "decimal part," that is, 9091.

It is often the case that there are seats left over in a district after seats have been assigned to parties based on the number of full quotas that they obtained. There are three common methods for distributing these remainder seats among the parties: largest remainders, highest average remainders, and modified highest average remainders.

In the case of the Imperiali and Reinforced Imperiali quota, a different issue can arise in that it is possible for parties to win more seats than are actually available in the district if several parties poll just over these quotas. When this is the case, the results will typically be recalculated using a larger quota such as the Hare quota, the Hagenbach-Bischoff quota, or the Droop quota.

Reinforced Imperiali Quota System: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. A quota system allocates seats to party lists based on the number of quotas that a party wins. There are five common quotas in use around the world: Hare, Hagenbach-Bischoff, Imperiali, Reinforced Imperiali, and Droop. The reinforced imperiali quota is calculated as

$$Q = \frac{V_d}{M_d + 3},$$

where V_d is the total number of valid votes in district d and M_d is the number of seats available in district d. In Table 1.15, we provide an example of how votes are translated into seats in a list PR system that employs the reinforced Imperiali quota. The results relate to a ten-seat district in which 100,000 valid votes are split among parties A through F. How many seats does each party win? The reinforced imperiali quota in this case is $\frac{100,000}{10+3} = 7,692.3$. Because Party A has 47,000 votes, it has 6.11 full quotas. This means

Table 1.15: Translating Votes into Seats Using the Reinforced Imperiali Quota

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Quota							7,692.3
Votes/Quota	6.11	2.08	2.05	1.56	0.79	0.40	
Automatic Seats	6	2	2	1	0	0	11
Remainder Seats							-1

that it should automatically receive six seats. Following the same logic, Parties B and C should automatically win 2 seats, and party D should automatically win one seat. You'll have noticed that such a process would actually allocate 11 seats even though there are only 10 seats available! Unlike the Hare quota, the Hagenbach-Bischoff quota, and the Droop quota, it is possible for the Imperiali and reinforced Imperiali quota to result in more seats being allocated than are actually available in the district. This can occur when several parties score just above the Imperiali or reinforced Imperiali quota. When this happens, the results are typically recalculated using a larger quota such as the Hare quota, the Hagenbach-Bischoff quota, or the Droop quota.

Remainder Seats: Remainder seats refer to those district seats still to be allocated after parties have received their "full quota" seats in quota-based list proportional representation systems. There are three common methods for distributing remainder seats: largest remainders, highest average, and modified highest average.

Royal Dictatorship: There are three types of dictatorship: civilian, military, and royal. A royal dictatorship is one in which the executive relies on family and kin networks to come to and stay in power (Cheibub, Gandhi and Vreeland, 2010).

Sainte-Laguë: List proportional representation systems come in two main types: quota systems and divisor, or highest average, systems. There are three common divisor systems in use around the world: D'Hondt, Sainte-Laguë, and Modified Sainte-Laguë. Sainte-Laguë distributes seats among parties by first dividing the total number of votes won by each party in a district by a series of numbers (divisors) to obtain quotients, and then allocating seats according to those parties with the highest quotients. Sainte-Laguë uses the divisors 1, 3, 5, 7, etc. In Table 1.16, we show how Sainte-Laguë works in a ten-seat district in which 100,000 valid votes are split among parties A through F. The ten largest quotients are shown in boldface type. The exact order in which the ten district seats are allocated among these ten quotients is shown by the numbers in parentheses next to them. For example, Party A receives the first seat, Party B wins the second seat, Party C wins the third seat, Party A the fourth seat, and so on. Unlike quota systems, it is easy to see that divisor systems do not leave any remainder seats. The final allocation of the ten district seats is four to Party A, two each to Party B and Party C, and one each to Party D and Party E.

Table 1.16: Translating Votes into Seats Using the Sainte-Laguë System

	Party A	Party B	Party C	Party D	Party E	Party F	Total
Votes	47,000	16,000	15,800	12,000	6,100	3,100	100,000
Seats							10
Votes/1	**47,000 (1)**	**16,000 (2)**	**15,800 (3)**	**12,000 (5)**	**6,100 (8)**	3,100	
Votes/3	**15,666 (4)**	**5,333 (9)**	**5,266 (10)**	4,000	2,033	1,033	
Votes/5	**9,400 (6)**	3,200	3,160	2,400	1,220	620	
Votes/7	**6,714 (7)**	2,286	2,257	1,714	871	443	
Total Seats	4	2	2	1	1	0	10

Semi-Presidential Democracy: There are three types of democratic regime: parliamentary, semi-presidential, and presidential. A semi-presidential democracy is one in which the government depends on a legislative majority to exist and the head of state is popularly elected for a fixed term (Cheibub, Gandhi and Vreeland, 2010).

Single-Member District Plurality (SMDP): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. A single-member district plurality system is one in which individuals cast a single vote for a a candidate in a single-member district, and the candidate with the most votes is elected. On being presented with a list of the nominated candidates in the district, each individual votes for one, and only one, candidate; they typically do this by placing an *X* next to their chosen candidate. The candidate with the most votes, even if this is not a majority of the votes, is elected from the district. SMDP systems are sometimes referred to as "first-past-the-post" systems in an analogy to horse racing. This analogy is misleading, however, because there is no particular "post" that a candidate must move beyond before he or she can win; all a candidate needs to win is to get more votes than anyone else. In theory, a candidate can win in an SMDP system with as few as two votes if all the other candidates win only one vote each.

Single Nontransferable Vote (SNTV): Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. The single nontransferable vote is essentially the equivalent of a single-member district plurality system applied in multi-member districts. Both systems involve individuals casting a single vote for some candidate. The only difference is that voters in an SNTV system are now electing more than one candidate in each district. Basically, each party competing in a district puts up a list of candidates, and individuals vote for one of them. The candidates that win the most votes are elected. Interestingly, candidates in an SNTV system know exactly how many votes they need to win in order to guarantee their election. For example, if there are *n* seats to be filled, then any candidate *A* can guarantee being elected by receiving one more than $\frac{1}{n+1}$ of the votes. This is because *n* other candidates cannot all

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receive more than candidate A. Thus, in a four-seat district, a candidate can guarantee winning one of the seats by winning more than 20 percent of the vote.

Single Transferable Vote (STV): The single transferable vote is the only proportional representation electoral system that does not employ a party list. It is used in multi-member districts, and voters must rank at least one candidate in order of preference. Voters usually do this by placing a number next to the name of the candidates, indicating whether they are the voter's first choice, second choice, third choice, and so on. In order to win a seat, candidates must obtain a particular quota or threshold of votes. Votes initially go to each voter's most preferred candidate. If an insufficient number of candidates obtain the necessary quota to fill all of the district seats, then the candidate with the lowest number of first-choice votes is eliminated. The votes from the eliminated candidate, as well as any surplus votes from candidates that are already elected, are then reallocated to the remaining candidates. This process continues until enough candidates meet the quota to fill all of the district seats. The exact process by which the STV system transfers votes and the exact size of the quota used to determine the winning candidates vary from country to country. Although the Hare quota is sometimes employed, it turns out that the most common quota is the Droop quota. The STV system is essentially the same as the alternative vote but applied in multi-member districts.

The STV is quite a complicated electoral system and so an example of how it works can be helpful. Our specific example illustrates how the STV works when a Droop quota is used with the Clarke method for reallocating surplus votes.[1] Imagine that there are five candidates – Bruce, Shane, Sheila, Glen, and Ella – competing in a three-seat district containing twenty voters. In Table 1.17, we show how the twenty voters marked their preferences on their ballots. Four voters (type A) voters marked Bruce first and Shane second. Two voters (type B) marked Shane first and Bruce second. Eight voters (type C) marked Sheila first, Bruce second, and Ella third. Four voters (type D) marked Sheila first, Ella second, and Glen third. One voter (type E) marked Glen first, and one voter (type F) marked Ella first. One thing to note is that not everybody provided a complete preference ordering of all the candidates. For example, two voters marked only their first preferences. In other words, our example assumes an optional preferential system.

Table 1.17: Results from Twenty Ballots in an STV Election

	Voter Types					
Preferences	AAAA	BB	CCCCCCCC	DDDD	E	F
1st	Bruce	Shane	Sheila	Sheila	Glen	Ella
2nd	Shane	Bruce	Glen	Ella		
3rd			Ella	Glen		

The Droop quota in our three-seat district with twenty voters is calculated as $\frac{20}{3+1} + 1 = 6$. In other words, each candidate must win six votes in order to be elected. We can now begin examining how votes are translated into seats in an STV system. The whole process is outlined in Table 1.18.

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[1]There are a variety of different ways of reallocating surplus votes – Hare's method, the Cincinnati method, the Clarke method, senatorial rules, and Meek's method (Tideman and Richardson, 2000, 248-258).

Table 1.18: The STV in a Three-Seat District with Twenty Voters

Voting Round	Bruce	Shane	Candidates Sheila	Glen	Ella
1st	AAAA	BB	CCCCCCCCDDDD	E	F
2nd	AAAA	BB	CCCCDD	CCCCE	FDD
3rd	AAAABB		CCCCDD	CCCE	FDD

The first thing to do is to see if any candidates obtained the Droop quota in the first-choice votes. If they did, they are automatically elected. Because Sheila has 12 first-choice votes, she is elected in the first round. Next, it is necessary to reallocate any surplus votes from already elected candidates to the remaining candidates. In the example, Sheila has six surplus votes; that is, she received six votes more than she needed to be elected. As noted previously, we are going to use the Clarke method for reallocating these six surplus votes to the remaining candidates. To do this, it is necessary to separate Sheila's ballots into bundles based on who the second choice candidates are. Because those who voted for Sheila list either Glen (type C voters) or Ella (Type D voters) as their second choice, there would be two bundles. Because the eight C voters make up two-thirds of Sheila's 12 total votes, two-thirds of Sheila's surplus votes (4) go to Glen. Because the four D voters make up one-third of Sheila's total votes, one third of Sheila's surplus votes (2) go to Ella. After reallocating these surplus votes to Glen and Ella, votes are recounted a second time to see if any new candidate now has obtained the Droop quota. In our example, no candidate meets the Droop quota in the second count. As a result, the next step is to eliminate the candidate with the lowest number of votes (Shane) and reallocate his votes to the remaining candidates. Because the second choice of Shane's votes is Bruce, Shane's two votes are reallocated to Bruce. Votes are now recounted a third time to see if any candidate now meets the Droop quota. As you can see, Bruce meets the Droop quota on the third count because he has six votes, and he is, therefore, elected. If there were any surplus votes for Bruce, then we would reallocate the among the remaining candidates at this stage. In this case, though, Bruce has no surplus votes. To this point, we have filled only two of the district's three seats. No one else meets the Droop quota, so the candidate with the next lowest number of votes (Ella) is eliminated. Because there is only one candidate left, there is no need for a fourth recount; Glen is the third and last candidate to be elected. Thus, the STV with the Droop quota and the Clarke method for reallocating surplus votes results in the election of Sheila, Bruce, and Glen in this three-seat district.

Superposition Mixed Electoral System: There are five subcategories of mixed electoral systems. Coexistence, superposition, and fusion systems are independent mixed systems, while correction and conditional systems are dependent mixed systems. A superposition system is one in which the majoritarian and proportional formulas are applied in different electoral tiers. As an example, 300 seats in the 2000 legislative elections in Japan were allocated by majoritarian electoral rules (single-member district plurality) in the lowest electoral tier and 180 seats were allocated in 11 regional districts using proportional representation (D'Hondt) in the second electoral tier.

Two Round System (TRS) Majoritarian electoral systems include single-member district plurality, alternative vote, single nontransferable vote, block vote, party block vote, borda count, modified borda count, limited vote, and two-round systems. A two-round system is a majoritarian electoral system that has the potential for two rounds of elections. In a two-round system, candidates or parties are automatically elected in the first round if they obtain a specified level of votes, nearly always an absolute majority. If no candidate or party wins this level of votes, then a second round of elections takes place, normally one or two weeks later. Although the precise details of how this second round of elections is conducted vary from country to country, the candidates or parties with the most votes in the second round are elected. Two-round systems are sometimes referred to as "runoff" or "double-ballot" electoral systems in recognition of their potential for two rounds of elections. Although TRSs are quite diverse, they can be divided into three main types: the majority-runoff TRS, the majority-plurality TRS, and the qualified TRS.

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