

Online Appendix A : An OLPR Hypothetical Election Example

In the main text, I note that Brazil employs an open list proportional electoral system (OLPR), which uses the D'Hondt formula for seat allocation. In what follows, I present an example that illustrates the seat allocation procedure under OLPR. In OLPR electoral systems, on election day, the electorate may vote for an individual candidate or the party label.¹ A candidate's odds of electoral success are affected by the number of personal votes received as well as his party's overall vote share. Take for example a hypothetical electoral district with 160 voters and 4 open seats. For these seats compete 8 candidates (c_n , where $n \in \{1, 2, \dots, 8\}$) who are affiliated with either Party *A* or Party *B*. The results from two alternative elections, which differ only in terms of whether candidate c_3 is a member of Party *A* or *B*, are shown in Table 1. In both scenarios, all candidates and parties enjoy the same level of electoral support. In particular, candidate c_3 receives the same number of personal votes regardless of his party affiliation, which indicates that his supporters would follow him across party lines.

Table 1.a shows the vote distribution across all candidates and parties. For example, in the first scenario, candidate c_2 receives 25 personal votes, Party *A* receives 10 party label votes and has a grand total of 100 votes. A party's total number of votes is the sum of the votes received by all its candidates plus the party label votes. Table 1.b shows how seats are allocated to parties, which is a function of parties' overall vote share. The four seats are allocated to the party/parties with the four largest quotients, according to the D'Hondt formula. The formula is $\frac{V}{s+1}$, where V is a party's total number of votes, and s is the number of seats that the party has been allocated so far (initially 0 for all parties), such that $\max(s+1)$ equals the total number of open seats.

How many seats does each party win, and which candidates are assigned a seat? In the first scenario, adding the 6 votes cast for c_3 , Party *A* has 100 votes, whereas Party *B* has only 60. Dividing the parties' votes by the respective divisors (i.e., 1, 2, 3, and 4), we obtain the quotients

¹In Brazil, “[m]ost people—about 90 percent—vote for an individual” (Ames 2009, 42).

Table 1: The Seat Allocation Procedure under OLPR with D'Hondt Formula

Table 1.a: The Vote Tally and Seat Winners

| Parties and Candidates | <i>First Scenario</i> | <i>Second Scenario</i> |
|------------------------|-----------------------|------------------------|
| <i>Party A</i> | | |
| c ₁ | 58* | 58* |
| c ₂ | 25* | 25* |
| c ₃ | 6* | — |
| c ₄ | 1 | 1 |
| Party Label Votes | 10 | 10 |
| Total Votes | 100 | 94 |
| <i>Party B</i> | | |
| c ₅ | 30* | 30* |
| c ₆ | 14 | 14* |
| c ₇ | 8 | 8 |
| c ₃ | — | 6 |
| c ₈ | 2 | 2 |
| Party Label Votes | 6 | 6 |
| Total Votes | 60 | 66 |

Table 1.b: The Seat Allocation Procedure

| | D'Hondt Quotients | | | | | Seats Won (*) |
|------------------------|-------------------|-------------------------|-----|--------|------|---------------|
| | Nominator (V) | Denominator ($s + 1$) | | | | |
| | Total Votes | 1 | 2 | 3 | 4 | |
| <i>First Scenario</i> | | | | | | |
| Party A | 100 | 100* | 50* | 33.33* | 25 | 3 |
| Party B | 60 | 60* | 30 | 20 | 15 | 1 |
| <i>Second Scenario</i> | | | | | | |
| Party A | 94 | 94* | 47* | 31.33 | 23.5 | 2 |
| Party B | 66 | 66* | 33* | 22 | 16.5 | 2 |

Note: The D'Hondt formula for the quotient is: $\frac{V}{s+1}$, where *V* is a party's total number of votes, and *s* is the number of seats that the party has been allocated so far, initially 0 for all parties. The four winning candidates, Table 1.a, as well as the four largest party quotients, Table 1.b, are identified by an adjacent *.

presented in Table 1.b *First Scenario*. The four largest quotients are identified by an adjacent *. It is easy to see that, in this scenario, Party *A* wins three seats, and Party *B* only one. As a result,

the top three candidates from Party A (in terms of the number of personal votes received), and the top candidate from Party B win a seat. In Table 1.a *First Scenario*, the four winning candidates are identified by an adjacent *. Note that, as a member of Party A , candidate c_3 is assigned a seat while Party B 's candidates c_6 and c_7 fail to win a seat in spite of both having more personal votes than c_3 .

In the second scenario, candidate c_3 is a member of Party B , and, therefore, their 6 personal votes count towards Party B 's total number of votes. As a result of the extra votes, Party B now wins two seats instead of one (see Table 1.b *Second Scenario*). Yet, as indicated by the Table 1.a *Second Scenario* results, the extra seat goes to candidate c_6 not c_3 . In fact, c_3 is not even the runner-up candidate, as c_7 has more personal votes as well. In practical terms, this means that candidate c_3 would win a seat as a member of Party A , but not of Party B .