FAPP 9e Writing Projects – Chapter 11

1. The most important weighted voting system in the United States is the Electoral College (see Spotlight 11.1 on p. 378). Three alternate methods to elect the president of the United States have been proposed:

- *Direct election*. The Electoral College would be abolished, and the candidate receiving a plurality of the votes would be elected. Most versions of this system include a runoff election or a vote in the House of Representatives in cases where no candidate receives more than 40 percent of the vote.

-*District system*. This system could be adopted by individual states without amending the Constitution or passing a federal law. It is now in use by two states, Maine and Nebraska. In each congressional district, and in the District of Columbia, the candidate receiving the plurality would select one elector. Furthermore, in each state, including the District of Columbia, the candidate receiving the plurality would receive two electors.

- *Proportional system*. Each state and the District of Columbia would have fractional electoral votes assigned to each candidate in proportion to the number of popular votes that candidate received. With this system, if a candidate received 25 percent of the vote in New Mexico, then that candidate would receive 25 percent, or 1.25, of New Mexico's five electoral votes. Obviously, no actual electors would be involved.

Determine the outcome of a recent election under each of these alternatives. Should the present Electoral College, operating under the unit rule, be replaced by one of these systems? Reference: *The Presidential Election Game*, by Steven Brams, which contains useful references to Senate hearings on Electoral College reform.

2. Write an essay on weighted voting in the Council of Ministers of the European Union. There are 27 member nations, with voting weights ranging from 29 for Germany, France, the United Kingdom, and Italy to 3 for Malta. The sum of the voting weights of all nations in the European Union is 345, and the quota to pass a measure is 255. There is also a requirement that at least 14 of the member nations must support a measure if it is to pass. Thus, the voting system for the European Council of Ministers is not actually presented as a weighted voting system. Is it equivalent to a weighted voting system?

3. California has 10.22 percent of the votes in the Electoral College, but according to Spotlight 11.4 (on p. 400), that state has more than 11 percent of the power in the Electoral College, as measured by either of our power indices. Discuss the appropriateness of each power index as a measure of voting power in the Electoral College. Is the disproportionate power of California in the Electoral College a problem that the United States should address? Assume that California has acquired additional congressional seats as a result of migration. Calculate the Banzhaf index when California has 65, 75, and 100 electors. In each case, the electoral votes that are to be awarded to California are taken from other states. What would happen if all states, except California, adopted the district system for choosing electors? See Writing Project 1 for a discussion of the district system.

4. Spotlight 11.5 demonstrates that an individual voter's probability of being a critical voter in a randomly selected voting combination is inversely proportional to the square root of the number of votes cast. If the voter is electing a representative in a weighted voting system (such as the Electoral College or a minister in the European Union), that representative's chance of being a critical voter is proportional to its Banzhaf index. Thus, the individual voter's probability of casting a vote that would change an outcome (of a U.S. presidential election, for example) is proportional to the voting weight of the representative, divided by the square root of the number of votes cast in the election of the representative. Using the principle that each individual voter should have the same chance of influencing the outcome, it follows that each representative's Banzhaf index should be proportional to the square root of the state's voting population. This is the Banzhaf square root rule. By this rule, what should the weight of each state be in the Electoral College, or in the Council of Ministers of the European Union? *Suggestion*: Make the voting weights roughly proportional to the square roots of the populations, determine the Banzhaf indices, and then make adjustments as necessary.