ONE PERSON, ONE VOTE: TEACHING "SIXTH GRADE ARITHMETIC"

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The opinions leading up to and comprising the Redistricting Revolution[1] of the 1960s represent the most fundamental element of the course in Election Law. The litigation in *Colegrove v. Green*,[2] *Baker v. Carr*,[3] and *Reynolds v. Sims*[4] all involved electoral districts that had substantial deviations in population between the most populated and least populated electoral districts. From these decisions, students squarely face fundamental questions about the role of courts in regulating the judicial process: When should courts police the political process and, if the courts choose to police the political process, what should they do?

The genesis of the Redistricting Revolution is well known. In *Colegrove*, a majority of the Court heeds Justice Felix Frankfurter's admonition to not enter the "political thicket."[5] In *Baker*, Justice William Brennan leads the Court in the opposite direction, employing a "yes, we can" attitude toward judicial intervention without exactly spelling out *how* "we can."[6] In *Reynolds*, the Court supplies the remedy for the wrong: the doctrine of one person, one vote that generally requires electoral districts to be "as nearly of equal population as is practicable."[7]

The one person, one vote doctrine has been much maligned. For example, Hofstra's Grant Hayden has remarked on the "false promise" of one person,

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1. While some refer to this Era as the *Reapportionment* Revolution, the proper characterization is *Redistricting* Revolution. *See* CHARLES S. BULLOCK III, REDISTRICTING: THE MOST POLITICAL ACTIVITY IN AMERICA 29–36 (2010).

2. 328 U.S. 549, 550 (1946).

3. 369 U.S. 186, 192 (1962).

4. 377 U.S. 533, 540 (1964).

5. *Colegrove*, 328 U.S. at 556.

6. *Baker*, 369 U.S. at 187, 198–99, 237.

7. *Reynolds*, 377 U.S. at 577. Technically, the roots of the one person, one vote doctrine are found in a case that preceded *Reynolds*. In *Wesberry v. Sanders*, 376 U.S. 1, 7–8 (1964), the Court applied the doctrine of one person, one vote to congressional districts. However, *Reynolds* is generally considered the more fundamental one person, one vote decision.

one vote.[8] Indeed, one person, one vote was derided from the get-go. In a companion case decided on the same day as *Reynolds*, Justice Stewart dismissed one person, one vote by describing it as the "uncritical, simplistic, and heavy-handed application of sixth-grade arithmetic."[9]

As the title suggests, this Essay will focus on the latter three words of Justice Stewart's critique—the sixth-grade arithmetic. As part of my course on Election Law, I actually teach the students how to do the arithmetic that is such a focal point of the one person, one vote doctrine. In this Essay, I'll first briefly summarize why the arithmetic is important to the doctrine, then explain my approach to teaching the arithmetic, and finally explain why I spend class time teaching sixth-grade math.

I. THE IMPORTANCE OF ARITHMETIC TO THE ONE PERSON, ONE VOTE DOCTRINE

The one person, one vote doctrine is aimed at remedying population imbalances among electoral districts. For instance, in one case involving a successful challenge to Colorado's state senate districts, the least populated senate district had 17,481 persons while the most populated senate district had 127,520 persons.[10] However, such a challenge to Colorado's senate districts would have been completely unavailing under the one person, one vote doctrine if every single senate district had exactly the same number of residents. In essence, the primary goal of one person, one vote is to make districts equipopulous, although we will see that the doctrine does not require absolute equality of population among districts.

Over time, the doctrine has developed two branches: one related to the population requirements for congressional districts and another related to the population requirements for state legislative districts. When it comes to congressional districts, the one person, one vote doctrine comes fairly close to mandating that every congressional district have the exact same amount of population or, if exact equipopulousness is impossible, to have the bare minimum population differential between districts.[11] While some very slight

8. Grant M. Hayden, *The False Promise of One Person, One Vote*, 102 MICH. L. REV. 213 (2003).

9. Lucas v. Forty-Fourth Gen. Assembly, 377 U.S. 713, 750 (1964) (Stewart, J., dissenting).

10. *Id.* at 725 (majority opinion).

11. Samuel Issacharoff & Pamela S. Karlan, *Where to Draw the Line?: Judicial Review of Political Gerrymanders*, 153 U. PA. L. REV. 541, 545 (2004). An example of what I mean by the "bare minimum" in population differential can be explained by a simple hypothetical. Start by assuming a jurisdiction with a population of 101 persons that has ten districts. Obviously, all ten districts cannot have equal population because 101 persons cannot be evenly divided by ten. Thus, the electoral districts would have the "bare minimum" of population differential if nine of the districts had ten persons and one district had eleven persons.

population variances among districts can be justified, many states have recognized that the safest course to avoiding litigation with congressional districts is to have exactly no difference or a bare minimum of difference.[12]

However, state legislative districts are a different story. State legislative districts are not held to a standard that essentially mandates the minimum of population deviation among districts.[13] Instead, state legislatures have a ten percent safe harbor.[14] What this means is that state legislative districts cannot be successfully challenged if the overall range of deviation of the plan is less than ten percent.[15] To be sure, there is some debate as to whether such a safe harbor still actually exists in light of a 2004 decision by a three-judge panel that was summarily affirmed by the Supreme Court.[16] However, the ten percent safe harbor likely remains as the benchmark for where the one person, one vote doctrine currently stands in relation to state legislative districts.

When one starts to throw around terms like "overall range of deviation" combined with statistics like ten percent, one begins to understand how arithmetic enters the picture in the one person, one vote doctrine. In the next Part, I'll define these concepts in the context of explaining my approach to teaching one person, one vote.

II. TEACHING SIXTH-GRADE ARITHMETIC TO LAW STUDENTS

Before explaining how I teach the sixth-grade arithmetic of one person, one vote, a brief explanation of the moment during the course when I teach the math might help. I teach the arithmetic of one person, one vote to students before discussion of *Karcher v. Daggett*[17] and of *Brown v. Thomson*.[18]

12. *See* BULLOCK, *supra* note 1, at 39 (noting that "[s]tates learned through bitter experience . . . that a plaintiff who produces a map with less population deviation than that adopted by the state usually wins in court" and that by 2001, seventeen states had achieved minimum deviations).

13. *Compare id.* at 38–39 (examining a congressional districting case in which the Supreme Court struck down a state plan with only a 0.7% population difference), *with* Voinovich v. Quilter, 507 U.S. 146, 161 (1993) (upholding a rule that allowed a population deviation of up to 10% for state legislative plans).

14. *Voinovich*, 507 U.S. at 161 ("[M]inor deviations from mathematical equality among state legislative districts are insufficient to make out a prima facie case of invidious discrimination under the Fourteenth Amendment so as to require justification by the State. Our decisions have established, as a general matter, that an apportionment plan with a maximum population deviation under 10% falls within this category of minor deviations. A plan with larger disparities in population, however, creates a prima facie case of discrimination and therefore must be justified by the State.") (quoting Brown v. Thomson, 462 U.S. 835, 842–43 (1983)).

15. *Id.*

16. *See* Larios v. Cox, 300 F. Supp. 2d 1320, 1321, 1340–41 (N.D. Ga. 2004) (three-judge panel), *aff'd* Cox v. Larios, 542 U.S. 947 (2004).

17. 462 U.S. 725 (1983).

18. 462 U.S. 835 (1983).

Karcher constitutes the Supreme Court's most prominent recent application of one person, one vote to congressional districts. *Brown* constitutes the Supreme Court's most prominent recent application of the doctrine to state legislative districts.

There are several reasons why I teach the math of one person, one vote at this point in time. For starters, the class has already cleared the major theoretical aspects of one person, one vote: should the court intervene, how should the court intervene, and what is accomplished by the one person, one vote doctrine? Second, *Karcher* is the first case I cover that introduces concepts such as "ideal" population for a district.[19] In essence, *Karcher* is the first case on my syllabus where the Court spends time discussing numbers. Third, teaching the math before covering *Brown* and one person, one vote in relation to state legislative districts helps students get a better handle on the doctrine as it relates to state legislative districts.

Law students, especially those found in a course on Election Law, tend to be nervous about numbers. For this reason, teaching the arithmetic of one person, one vote in my class always starts out with two things: first, a joke about how I am qualified to teach law school courses but totally unqualified to teach sixth-grade math; second, a guarantee that this material will appear on the exam as it has on all my past exams and an equal guarantee that almost every student gets the points on such questions. In essence, my initial goal is to ensure that no student gets "psyched out" before we even start.

The actual substance commences with the introduction of the three important concepts—ideal population, absolute and relative deviation of individual districts, and overall range of relative deviation—through a simple hypothetical. The hypothetical (which I project on a screen using PowerPoint) involves a town that has 1,000 persons and five single-member districts.[20] The first calculation involves determining the "ideal" population for the district. The ideal population is what the population of each district would be if the districts contained the exact same number of persons.[21] Obviously, one calculates this by taking the total population of the jurisdiction and dividing it by the number of single-member districts. In the simple hypothetical, the ideal population of each district would be 200 persons.

The next step is presenting the students with five hypothetical single-member districts in order to discuss the concepts of absolute and relative

19. *See Karcher*, 462 U.S. at 731.

20. All of the hypotheticals I use to teach the math of one person, one vote involve electoral structures that are entirely composed of single-member districts. The calculations are different when the method of election combines districts with at-large seats. *See* Bd. of Estimate v. Morris, 489 U.S. 688, 701–02 (1989). The discussion in this Essay proceeds on the assumption that the only type of plan under discussion is one comprised entirely of single-member districts.

21. *See Karcher*, 462 U.S. at 731–32.

deviation for each district. The five hypothetical districts have populations of 200, 200, 200, 220, and 180 persons. From that, we calculate the absolute deviation of each district by taking the population of each district and subtracting the ideal population, resulting in the following absolute deviations: 0, 0, 0, 20, -20. Relative deviation indicates the proportion by which an individual district exceeds or falls short of ideal population. Relative deviation is expressed as a percentage that is calculated by dividing the absolute deviation of the district by the ideal population for the district.[22] The relative deviation of the five districts in the hypothetical are: 0, 0, 0, 10%, -10%.

The final step, and the one that seems most important to the one person, one vote doctrine created by the Supreme Court, is the overall range of relative deviation.[23] The overall range of relative deviation is calculated by finding the district that is most *over*populated (i.e., the one with the highest relative deviation above the ideal) and finding the district that is most *under*populated (i.e., the one with the lowest relative deviation below the ideal).[24] In the simple hypothetical, the overall range of relative deviation is 20% because the most overpopulated district has a relative deviation of 10% and the most underpopulated district has a relative deviation of -10%.[25]

After explaining the basic concepts through this simple hypothetical, students then engage in two in-class exercises without my assistance. The first exercise again stays relatively simple with small numbers that divide relatively easily. The second exercise involves larger numbers (a jurisdiction with a total population of over 225,000 and districts with tens of thousands of persons). With the first exercise, I allow students to work as individuals; with the second exercise, I allow students to work in small groups of two and three.

Following completion of these exercises, we go over them in class. This process provides a second and a third opportunity for me to explain the key concepts multiple times—most of which are foreign to the students at the beginning of the class. At the end of the lesson in sixth-grade arithmetic, the

22. *See, e.g.*, Abate v. Mundt, 403 U.S. 182, 184 n.1 (1971) (referring to the relative deviation of each district as the "percentage deviation").

23. The Court sometimes refers to this calculation as the "total deviation," Abate, 403 U.S. at 184, "maximum deviation," Brown v. Thomson, 462 U.S. 835, 839 (1983), or "maximum total deviation," Voinovich v. Quilter, 507 U.S. 146, 161 (1993).

24. *See Abate*, 403 U.S. at 184.

25. The hypothetical is obviously very simplified. Indeed, some might worry that it's too "dumbed down." Yet I think when making law students confront numbers, it's important to start at the very bottom and work up to more difficult problems. Indeed, the initial one person, one vote hypotheticals I use seem not much less complex than a simplified redistricting problem used in a leading Election Law casebook. *See* SAMUEL ISSACHAROFF ET AL., THE LAW OF DEMOCRACY: LEGAL STRUCTURE OF THE POLITICAL PROCESS 761–63 (3d ed. 2007).

students receive a handout that explains and reinforces what has been discussed in class.[26]

After the students understand the concepts of ideal population, relative deviation, and overall range of relative deviation, we then discuss the cases.[27] In particular, the students confront the important doctrinal language from *Brown*, holding that a state legislative plan with an overall range of deviation below ten percent is presumed to comply with one person, one vote.

III. WHY TEACH SIXTH-GRADE ARITHMETIC

On one level, the reason why I teach the arithmetic of one person, one vote merely reflects the manner in which I first learned about important redistricting principles. In the mid-1990s, just out of undergraduate studies at the age of twenty-two, I served as a Section 5 analyst in the Voting Section in the United States Department of Justice ("DOJ"). At that time, attorneys and Section 5 analysts at the DOJ were given redistricting training during their first weeks on the job. A portion of that training involved learning how to calculate the statistics related to one person, one vote.

In a sense, then, the reason I teach one person, one vote reflects my own unique practice background, but it's more than that. The DOJ is, perhaps, the largest redistricting law firm in the country and has been for some time.[28] If lawyers who are among the preeminent practitioners in the area think it's important for new attorneys to understand how to calculate one person, one vote then teaching the arithmetic of the doctrine probably can't be incredibly far off the mark.

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26. The handout is the first few pages from a posting on the Minnesota State Legislature's website. Redistricting Task Force for the Nat'l Conference of State Legislatures, *Equal Population*, MINNESOTA SENATE, http://www.senate.leg.state.mn.us/departments/scr/redist/red2000/ch2equal.htm (last updated Oct. 31, 2003).

27. If someone were looking for a discussion of the calculations in a case, the best discussion probably appears in the following paragraph from *Chapman v. Meier*, 420 U.S. 1 (1975):

> The second aspect of the court-ordered reapportionment plan that is challenged by appellants is the population divergence in the various senatorial districts. Since the population of the State under the 1970 Census was 617,761, and the number of senators provided for by the court's plan was 51, each senatorial district would contain 12,112 persons if population equality were achieved. In fact, however, one district under the plan has 13,176 persons, and thus is underrepresented by 8.71%, while another district has 10,728 persons, and is overrepresented by 11.43%. The total variance between the largest and smallest districts consequently is 20.14%, and the ratio of the population of the largest to the smallest is 1.23 to 1.

Id. at 21–22.

28. *See* Office of Attorney Recruitment and Mgmt., DEP'T OF JUSTICE, http://www.justice.gov/oarm/ (last updated Aug. 2011) ("The Department of Justice is the world's largest law office, employing over 10,000 attorneys nationwide.").

Another reason why I teach the arithmetic is that I think it's important to students' understanding of the doctrine. Here is a constitutional doctrine that really and truly revolves around mathematical calculations. I could, of course, just throw the numbers at them quickly with a wave of my hand and a statement like: "Over ten percent, problem; under ten percent, no problem." Or I could do a little more by giving them an abstract lecture involving what the numbers mean. Yet law students are already number-phobes, and my suspicion (untested as it is) is that students would not understand the doctrine as well if I merely presented them with basic numbers and an oral explanation of the concepts.

Teaching the arithmetic of one person, one vote also helps students learn the importance of math and statistics in law. The cliché adage that I almost always break out in a class somewhere every year is that "I went to law school because I couldn't do math." Yet numbers play an important role for lawyers in all sorts of unexpected places. Students in an Election Law class might enter with the mistaken assumption that numbers only matter to, say, tax lawyers. Yet numbers and statistics play an important role in civil rights litigation. Indeed, one doesn't have to look much further in my own Election Law class for the next place in the syllabus where statistics play an important role: the racially polarized voting analysis in Voting Rights Act cases.[29]

The nice thing about the arithmetic of one person, one vote, though, is that it's relatively simple—it *is* sixth-grade math. In contrast, teaching regression analysis related to racially polarized voting would be far more difficult and would probably leave students lacking in confidence. Teaching sixth-grade arithmetic gives confidence to students who tend to be math averse. Indeed, when I present students with a problem on the exam where they need to calculate the deviations needed to resolve a one person, one vote problem, virtually every single student will get it right.

The final reason to teach the arithmetic of one person, one vote relates to the concrete nature of the arithmetic in relation to the fuzziness of the rest of the Election Law course. My impression is that students come into Election Law with the assumption that it will be a relatively easy course. In my view, this couldn't be further from reality. The opinions we read in Election Law tend to be long, difficult, and extremely divided. Take *Baker v. Carr* (where my course starts) as an example. That case involves six separate opinions and covers about ninety pages if you were to go "old school" and look at the federal reporter in which it appears.[30] As Justice Clark recognized in *Baker*:

29. *See, e.g.*, Thornburg v. Gingles, 478 U.S. 30, 52–54 (1986) (discussing the statistical analysis related to racially polarized voting).

30. Baker v. Carr, 369 U.S. 186 (1962) (featuring opinions by Justices Brennan, Douglas, Clark, Stewart, Frankfurter, and Harlan). The number of opinions is even more amazing considering that Justice Whittaker did not participate. *Id.* at 237.

"One emerging from the rash of opinions with their accompanying clashing of views may well find himself suffering a mental blindness."[31] Or try understanding the interrelation between constitutional vote dilution, Sections 2 and 5 of the Voting Rights Act, and racial gerrymandering to take another example of the confounding nature of the course.[32] The arithmetic of one person, one vote provides at least something concrete for students to grasp in a course that generally totally lacks firm footing.

There are undoubtedly downsides to teaching the math of one person, one vote: the most obvious downside is the amount of time it takes. Typically, teaching the math of one person, one vote takes about forty-five minutes of class time. It's quite possible the amount of time spent is not worth the benefits described above. To some extent, though, the amount of time I spend on teaching the arithmetic reflects a classic trade-off all professors face in any course: depth versus breadth. When it comes to one person, one vote, I opt for the former line of the divide.

CONCLUSION

Any law school course reflects the personal predilections of the professor in charge. As I always tell my Civil Procedure students early on in class: "It's Civil Procedure by Pitts, not Emanuel." One of my personal predilections in Election Law relates to teaching sixth-grade arithmetic. It's undoubtedly different than the approach many professors take in teaching the class, but in my view, students gain from this experience.

31. *Id.* at 251 (Clark, J., concurring).

32. *See, e.g.*, Shaw v. Reno, 509 U.S. 630 (1993) (featuring a majority opinion by Justice O'Connor and four separate dissenting opinions considering the interrelation of these issues).