The Congruence of American School Districts with Other Local Government Boundaries: A Google-Earth Exploration

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Abstract: Economists often casually assume that a school district and a city that share the same name also share the same territory, but in fact exactly congruent boundaries are rare. Using the overlap of school district and municipal boundaries available on Google Earth, I find that about two-thirds of medium-to-large American cities have boundaries that substantially overlap those of a single school district. The degree of overlap, however, varies greatly by region and state, ranging from nearly perfect congruence in New England, New Jersey, and Virginia, to hardly any in Illinois, Texas, and Florida. Larger and older municipalities tend to have boundaries that closely match those of a single school district.

The latter sections of the paper attempt to explain why school districts diverge from municipal boundaries and why they sometimes ended up with county boundaries. Modern school districts are the product of consolidations of one-room school districts from 1900 to 1970. Contrary to much historical scholarship, I argue that, outside the South, these consolidations were consented to by local voters. They preferred districts whose boundaries conformed to their everyday interactions rather than formal units of government. The South ended up with county-based school districts because segregation imposed diseconomies of scale on district operations and required larger land-area districts. The conclusion offers a "social capital" reason for the durability of school-district boundaries.

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§1. Why Municipal and School District Congruence Matters

Public education is among the most commonly used example of a local government service, but it is actually unusual for the elected officials of a municipality to control local school budgets. Districts that are so managed are called "dependent." Far more common are "independent" school districts, whose local budgets are managed by a separately-elected school board.

The issue addressed in this essay is not governance but boundaries. There are advantages to having school district and city boundaries match up, even though the two are governed by different elected officials. If a city matches up with the district, it has an incentive to consider the consequences of its zoning decisions, since the same set of voters—city and school district—will be affected by them. When the city does not match with a particular district whose land it controls, it may be happy to rezone to a higher density, even though the district may suffer overcrowded schools and higher taxes. (One might argue that even if borders are congruent, city councils may nonetheless ignore the concerns of the school board, but that suggests a failure of the voters to notice and punish officials at the polls. In most local governments, voters are the controlling element [Turnbull and Medias 1999].)

Coordination of city services that affect the school district is also more easily done if city and district match up. Public library programs can be synchronized with school curricula. A city safety and health program aimed at young people is less costly to implement if there is only one school superintendent to deal with. School facilities can more easily be utilized for city meetings outside of school hours, and city recreation facilities can be used by school athletic teams. City elections and school district elections can be held in the same time and places with less cost, and school board membership becomes a more attractive first step into the political arena if the voters in the district are the same as the voters in the city.

All of this could form the elements of a lament, since the official word is that school districts and cities really have little to do with one another any more (Campbell, Cunningham, and McPhee 1965). It is telling that the leading legal treatises on local government do not discuss school districts (e.g., Gillette and Baker 1999). The question I want to pose is whether the official word and the real world actually mesh. I knew that school districts and municipal boundaries almost always matched up in the six New England states and the state of New Jersey. This does not mean that these states do not have many multi-jurisdictional school districts. Rural places in all of these states often have consolidated school districts and regional high schools.

What distinguishes these seven states is that school district consolidations almost always involve the entire municipality. Consolidations almost never involve half of the town's area joining one school district and other half joining a separate district. When the town of Canaan, NH, joined with its neighbors to form the Mascoma Regional School District, there was no thought given to the possibility that some of the town's residents might actually be more conveniently merged with some other district. It's the whole town or city (or borough or township in New Jersey) that joins up, or none of the town. (Indiana and Pennsylvania also follow this pattern except for their larger cities, and Virginia's "independent cities" are usually also separate school districts.)

This is distinctly different from the patterns in most of the rest of the country, where school districts can run wild over the countryside without any respect for municipal boundaries. To take an extreme example, the city of San Jose, California, has within its expansive boundaries 22 school districts, most of which are not entirely within the city's limits. But how much of the country is like New England and how much is like San Jose? This question, which has puzzled me for some time, has been difficult to address because of the lack of maps that match school district and city boundaries. One can find maps of districts and maps of municipal boundaries, but there seems to have been a strong aversion to juxtaposing one over the other. At least there was until Google Earth came to my attention in the summer of 2006.

§2. Google Earth Juxtaposes Cities and School Districts

Google Earth allows one to view aerial photographs and maps of any location in the United States. The photos can be adjusted to see entire cities and school districts, and they can zoom in to display the land use within any part of the district. Municipal boundaries can be juxtaposed on school district boundaries to get a good qualitative judgment of the extent of school district and municipal overlap. Unified, elementary, and secondary districts can be shown separately. (What is "unified" about a unified district is that it contains all age-grades [K-12], not that it unites the city and the school district. A secondary school district provides high schools for what is usually a geographically coterminous set of elementary school districts.)

Google Earth's boundary markings depend on geographic information provided by the U.S. Census Bureau, and indeed the Census TIGER maps can be accessed to produce the same juxtaposition of boundaries. The big advantage of Google Earth over the Census mappings, aside from being faster and more easily manipulated, is that Google Earth allows viewers to see what is actually on the ground from the aerial photos. This allows an additional degree of judgment about district overlap that cannot easily be obtained from most maps or data aggregations.

For example, many if not most school districts in the western United States have land areas that are vastly greater than those of the municipality. From just the outlines of the municipality and school district, one would not assume that there was much congruence of interest by the voters of the city with the voters of the district. But from Google Earth one can often see that most of the excess territory of the school district is uninhabited desert or mountainous terrain and that the inhabited part of the school district is actually quite closely aligned with the inhabited area of the municipality. Alternatively, one might see on an outline map that some part of the municipality sticks out beyond the otherwise congruent school district. Based on just the boundary maps, the outlying part of the city might make you conclude that the city is really distinct from the school district. But on Google Earth, the observer can get close enough to see whether the outlying section is a neighborhood (and hence really is isolated from the district) or is an unpopulated airport, parkland, or oil refinery that the city annexed to serve its residents or add to its tax base.

After some experimentation, I decided to examine visually the Google Earth maps of all of the American cities whose population exceeded 50,000 in the 2000 Census. I excluded Alaska and Hawaii because their unique history and geography make their urban and school-district experience much different from the first forty-eight. (Hawaii has no school districts.) I did not include Urban Places that were exclusively "Census

Designated Places," which meant that their area did not correspond to a municipal or county boundary. I did include towns, townships, and villages, which in other contexts the Census (and, unfortunately, Google Earth) does not consider a municipal government. They are often important units of urban municipal governments in New England, New Jersey, Pennsylvania, New York, Michigan, and Illinois. I did my best to infer their boundaries from web-based sources and TIGER maps in conjunction with what was shown in Google Earth.

The 661 municipal governments that met these criteria were supplemented by a stratified sample of 106 cities whose population exceeded 25,000 but was less than 50,000. The smaller sample was used to determine whether smaller cities followed the same general pattern as larger cities, and in fact they did.

§3. Measuring Degrees of "Overlap" Between Cities and School Districts.

The more subjective criterion was the degree of congruence between the city and school districts. Keep in mind that I selected a group of cities, not a group of school districts, since the issue I want to examine is whether the city can transfer resources from itself to "the city's" school district. As limited-purpose municipal corporations, school districts can seldom transfer resources to other entities. I ended up with six categories. The basis for the six categories was a single question: What configuration of city and school district would make it *politically* easy to transfer resources from the city to the school district? The main consideration is the extent to which populations overlap one another, but it is possible to consider the distribution of population and other geographic features. This main consideration led to examining each city in order to place it in one of the following six categories, which are visually summarized in Figure 1 below.

1. *"Virtually Coterminous"* was the classification when the city and a single school district share the same boundaries, as they invariably did in New England and the Virginia cities and in all but one case in New Jersey (the exception there being a joint high school district in Glouster, NJ). The advantage of examining the Google Earth maps was important here, for there are many cities that do not have the formal congruence of New England towns and their districts, but whose boundaries *do* correspond so closely in reality that they belong in this classification. The close calls in this category involved minor deviations involving airports and parks that the city had annexed but the school district had not. In addition, if a discrete community with less than five percent of the larger city's population happened to be included in the bigger city's district, or if a similarly small neighborhood of a city was outside the city's school district, the city was nonetheless included in this category. Thus Cleveland is in this category despite a tiny part of the city being in the Shaker Heights School District (where the mayor of Cleveland lives, not without controversy over her apparent avoidance of her city's school district), and Pittsburgh is included despite the city's district encompassing also the Borough of Mount Oliver, population 3970.

2. *"Whole City Majority"* indicates that the city lay entirely within a single district for which the city's population was a clear majority. In this situation, the city's residents all have the same incentives with regard to a single district, but some of the transfers they might make to the district will go to noncity residents. I originally had several subdivisions of this category depending of the size of the city's majority over the rest of the district, but I concluded it was not especially useful.

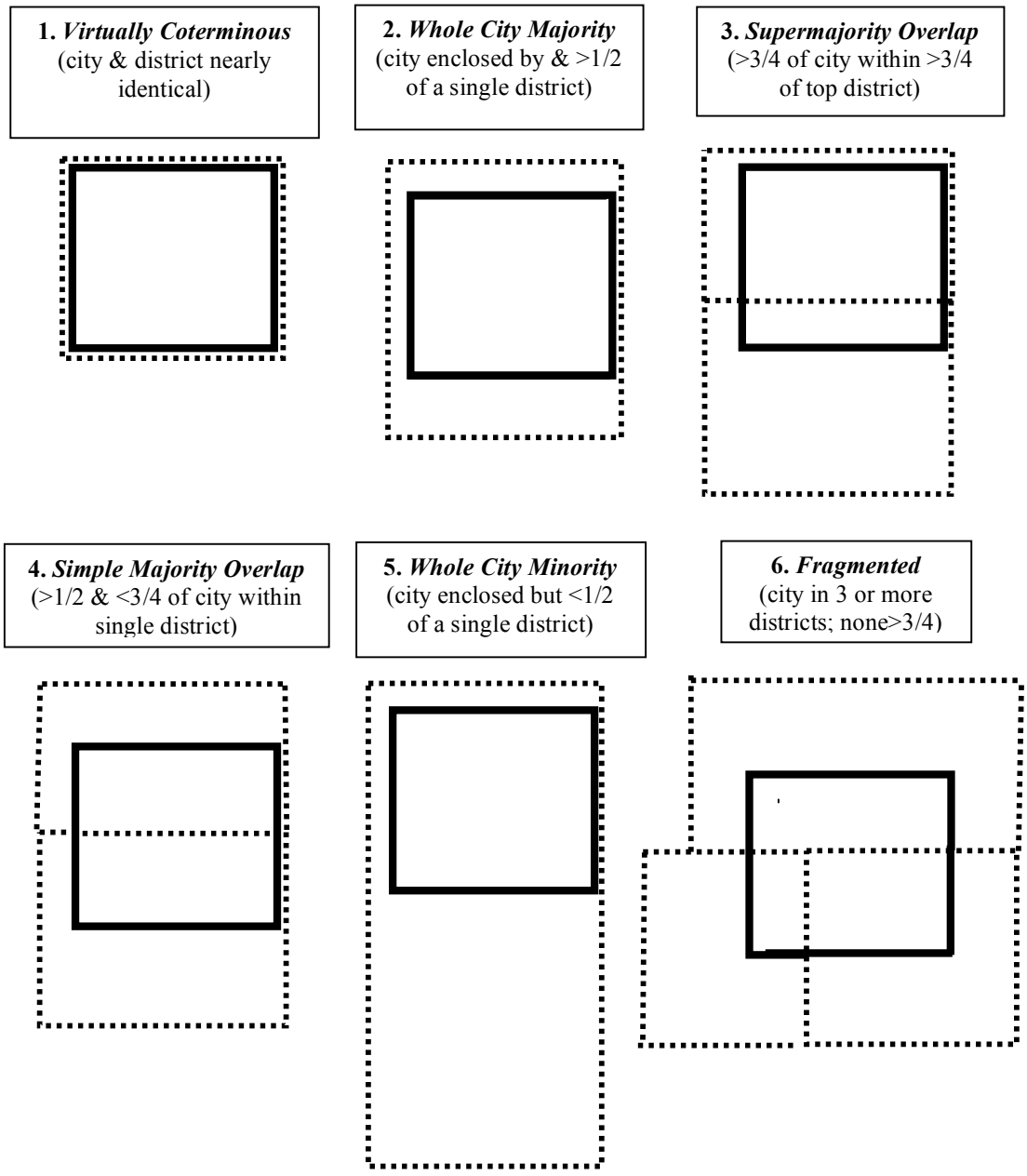
3. *"Supermajority Overlap"* is for cities that had a substantial but not exclusive overlap with a single district. This category does not have neat boundary lines. The city's boundaries might wander outside the main school district's to one or two others. Or a single district might be entirely encompassed by the city, so that outer parts of the city would be in different districts. The key for membership in this category is that at least three-quarters of the city's populated area is in a single district, and that population comprises at least three-quarters of the populated area of the district. The criteria for membership is three-quarters rather than fifty percent (as in category 2) because the political transaction costs are higher when even some of the voters in the city belong to separate school districts. Not only do these sets of voters interact less with one another (because their kids go to different schools), but their interest in transferring resources to their respective districts may vary. One part of the city might want to supplement the safety program for its school district, the other might be more interested in supplementing its schools' playgrounds. I would assume that such disputes would be less of a political barrier if a large majority of the city were in the same district.

4. *"Simple Majority Overlap"* was for cities in two districts but with less than 3/4 majorities in either the city or the district. This involved some close calls visually, and it is here that hard numbers might prove to be helpful in resolving them. But I actually don't think hard data would change many cities from category 4 to category 3 or vice versa, in part because there weren't that many close cases.

5. *"Whole City Minority"* consisted of cities that were entirely within a single district but were a minority (less than fifty percent) of the district's total population. In other words, everyone in the city had an interest in the same school district, but transfers to the district would mostly benefit nonresidents (and nonvoters) of the city. Many of the members of this category were medium and small cities in the South, especially Florida, where many school districts correspond to county boundaries. Besides these, several cities have separate elementary and high-school districts, especially in California and Illinois. (In other states, most urban districts were "unified" K-12 districts.) This necessitated a few compromise judgments, the most common being classifying a city whose elementary school(s) were "whole city majority" (category 2) while the high school was "whole city minority" (category 4) as a "supermajority overlap" (category 3).

6. *"Fragmented"* describes those cities that are divided into three or more districts and lack a supermajority (3/4) in any district. It should be noted that a number of cities in this class have a district with their names on it, but a substantial part of the city's population resides another district or districts. It is not my contention that such cities cannot transfer resources to schools within their boundaries. It is just that they will have a more difficult time obtaining the cooperation of district officials. They will have to go to at least three sets of school officials, and they will have to explain to them why they are doing something for one set of schools in the school district and neglecting others. This is not an impossible sell, but it is surely more difficult to do than in instances where the city and the school district match up more closely, as in categories 1, 2, and 3 above.

Figure 1: City and School District Overlap Categories.
Solid lines denote the municipal boundary.
Dotted lines indicate school districts.



For readers who can look at Google Earth (the download is free) and want to check my judgments, the San Francisco Bay area offers the full range of categories for cities over 50,000.

1. *Virtually Coterminous:* San Francisco, Oakland, Fremont, Vallejo, Berkeley, and Alameda. (The Bay Area is unusual in California for having so many in this category.)
2. *Whole City Majority:* Concord, Livermore, Napa, Union City, Pleasanton, Milpitas, and Palo Alto.
3. *Supermajority Overlap:* Santa Rosa, Hayward, San Mateo, Antioch, Vacaville, South San Francisco, Pittsburg, San Rafael, and Santa Cruz.
4. *Simple Majority Overlap:* Fairfield, San Leandro, and Redwood City.
5. *Whole City Minority:* Santa Clara, Richmond, and Cupertino.
6. *Fragmented:* San Jose, Sunnyvale, Daly City, Mountain View, Walnut Creek, and Petaluma.

§4. National Summary of City-District Overlap

For all 661 municipalities in the USA with more than 50,000 population in Census 2000, Table 1 indicates how the classifications fell out. The left column indicates the category of overlap (summarized above in Figure 1) and, below it, the three largest cities of each category. The cells in the right column each have two rows. The top row in each category counts cities by population weight, so that a city of 1 million counts ten times as much as a city of 100,000 residents. Thus 35% of all people in the 661 municipalities live in a district that is virtually coterminous with its municipality. The second row of each category in the right column is the unweighted percentage, in which New York City and Albany, for instance, each count the same. Thus 24% of the 661 cities have boundaries that are virtually coterminous with their school district. The $\sum$ in the lower cells is the cumulate of the corresponding figures in previous cells, so that 64% (at the top of the third row of the right column) of the population lives in a city that is either "virtually coterminous," has a "whole city majority," or a "supermajority overlap" with their school district. (The bold figures are those used in later tables.)

It is notable that very big cities are often coterminous with their school districts. Fourteen of the 30 cities whose population exceeds 500,000 belong to category 1, in which the city and school district boundaries coincide. In order of population, the fourteen are New York, Chicago, (Los Angeles is in category 2 because its school district also encompasses several smaller cities and some unincorporated area), Philadelphia, Detroit, San Francisco, Jacksonville, Baltimore, Memphis, Milwaukee, Boston, Washington, Nashville, Seattle, and Denver. The skewed distribution of city size explains why in most cases the weighted percentage in the first row exceeds the corresponding unweighted percentage in the second row of each category with but a single exception. It is category 5, the "Whole City Minority," in which relatively small cities within what are usually countywide districts are disproportionately represented.

Table 1: National Summary of City and School District Categories

1. Virtually Coterminous (New York, Chicago, Philadelphia…)	population weighted = **35%** unweighted = **24%**
2. Whole City Majority (Los Angeles, Nashville, Charlotte…)	population wtd = 16% (∑51%) unwtd = 21% (∑45%)
3. Supermajority Overlap (San Diego, Dallas, Columbus [OH]…)	population wtd = 14% (∑**64%**) unwtd = 16% (∑**61%**)
4. Simple Majority Overlap (Houston, Indianapolis, Austin…)	population wtd = 12% (∑76%) unwtd = 11% (∑72%)
5. Whole City Minority (Las Vegas, Miami, Arlington [TX]…)	population wtd = 9% (∑85%) unwtd = 15% (∑87%)
6. Fragmented (Phoenix, San Antonio, San Jose…)	population wtd = 15% (∑100%) unwtd = 13% (∑100%)

The summary tables below reduce the foregoing six categories to two statistics. The middle column shows the percentage of cities in the state or region that fall into category 1, in which city boundary and a single school district are "virtually coterminous." The right-hand column shows the *cumulative* percentage of cities than I classified as either 1, 2, or 3, which I label "substantial overlap." I would maintain that for cities in the "substantial overlap" group, a stranger who asked a local city official about the city's schools would find the conversation directed to a single district.

Table 2: National City and School District Overlap

US 48 states (661 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	35%	**64%**
unweighted	24%	61%

What most surprised me about this table is how much city and school districts do overlap. Over one-third (35 percent) of the population in cities over 50,000 live in a city that is "virtually coterminous" with their school district. This would seem like a surprise if one reads the usual school district literature that states that they are formed on an entirely different basis than cities. But for those social scientists who blithely assume that city and school district are the same, the complementary number will be the surprise: Almost two-thirds of all city dwellers do not live in a city that is exactly the same as its school district. For the disappointed social scientist, I offer the comfort of the right-hand column figure, which shows that 64 percent of all city-dwellers (and 61 percent of all

cities) have a "substantial overlap" with a single school district. As a social-science generalization, merging the interests of a city and a single school districts is not grossly inaccurate.

§5. Regional Variations in Overlap

The first subdivisions of data summarized in Table 2 follow the three official US Census divisions of regions of the country. The West consists of the 11 states from the Rockies to the Pacific Ocean. The 16 states of the South are located south of Pennsylvania and the Ohio River, plus Texas, Oklahoma, Louisiana, and Arkansas. The 21 states of the North are everywhere else in the lower forty-eight.

Table 3: Regional Variations

North (267 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	59%	**80%**
unweighted	42%	74%

South (176 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	26%	**53%**
unweighted	18%	49%

West (218 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	11%	**53%**
unweighted	8%	54%

The pattern that emerges from these three regional tables is that city-school district overlap is strongest in the North by almost any measure of overlap. The population weighted figures for the "virtually coterminous" group are skewed by the presence of New York and Chicago in the North, but some skewness is evident for other regions, too. Big cities are more likely to have their own school district than other cities.

The next grouping of these data takes the three regions and subtracts a few states, each for different reasons. In the North, I subtracted the six New England states and New Jersey. The cities of these states are almost invariably in category 1, "virtually coterminous," and I wanted to see if the rest of the "North" (which extends from the Atlantic coast through the Great Plains) was overly influenced by the uniformity of this relatively small part.

Table 4: Subregional Variation: Northern States

North without New England and New Jersey (192 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	52%	**76%**
unweighted	19%	64%

It appears that New England and New Jersey do not have that much influence. Only in the unweighted count of "virtually coterminous" cities does the North's percentage drop considerably (from 40 percent to 19 percent), mostly because New England and New Jersey have numerous small cities. In all other measures, the North maintains a considerable lead over the rest of the country in city and school district congruence.

In Table 5, Texas and Oklahoma are subtracted from the South because the two states share less of the climate and history that make the rest of the South a cohesive region: Western Texas and Oklahoma have less rainfall than the rest of the South, and slavery and the Civil War were less important in their later political development

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Table 5: Subregional Variation: Southern States

South without Texas & Oklahoma (125 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	41%	**66%**
unweighted	25%	50%

It was something of a surprise to me that the rest of the South becomes more like the North in terms of city-school district overlap without Texas and Oklahoma. Counties play a much larger role as school districts in the South, which would have lead me to believe that there would be less overlap between cities and school districts. But closer inspection showed that the South's most typical arrangement is a rural county school district surrounding a single, separate central-city district. Most of the South lacks the multitude of independent suburban jurisdictions that characterize the North and the larger cities in the West. Thus the main city of a moderate-sized county is often coterminous with its school district (exactly so in the Virginia cities), and the "suburban" parts of the county are contained in a single county district. Exceptions to this Southern pattern are the states that have county-only districts: Maryland, West Virginia, Louisiana, and Florida.

The third subdivision of a region involved simply taking California away from the rest of the West. This was not because of any cultural or historical divide, but just because the rest of the West is submerged by California's size, and one wonders if there is a distinctly different pattern of school district and city congruence that is concealed in the larger figures. There apparently is not. The figures for the rest of the West are not much different from California, which generally reflects the larger districts of the arid parts of the country.

Table 6: Subregional Variation: Western States

West without California (74 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	13%	**41%**
unweighted	8%	55%

The small-city table below is for the 106 cities that I sampled to get a sense of the smaller places. I calculated the proportion of the US population in each state and assigned cities in whole numbers to each state. Thus California got 12 cities, New York and Texas 7 each, Florida 6, and so forth. I added one city each to the states (not counting Alaska and Hawaii) that were too small to have a whole number, which is why the sample is 106 instead of 100. Then for each state I selected the city or cities closest to 25,000 and, if more than one city was to be counted in that state, added the next largest city, and so forth. Mean city size was thus about 30,000, and Nevada and South Dakota were omitted because they had no cities larger than 25,000 and less than 50,000. (I did not include boroughs, villages, or townships in this sample, which were included for previous tables, because it was too difficult to locate their boundaries, so this may slightly understate the degree of overlap.)

Table 7: Smaller Cities

Sample of 106 Smaller Cities (pop. > 25,000)	Virtually Coterminous	Substantial Overlap
Population weighted	19%	**61%**
unweighted	19%	61%

The table for this sample suggests that the pattern for the larger (50,000 or more) cities is fairly similar to those in the 25,000 to 40,000 range. The unweighted group of "substantial overlap" cities is exactly the same (61 percent) for both groups. (Because the small-city sample was chosen within a narrow population range, weighted and unweighted percentages are the same.)

§6. Variation in Overlap among the Largest States

The remaining tables show the same calculations for each of the 13 largest states, which contain 62 percent of the U.S. population. To allow for regional comparisons, they are listed counterclockwise from the northeast (starting with Massachusetts), westward to California, eastward to Florida and then back north. It would not be difficult to do all other states, but the small number of 50,000-plus cities in most of them—Vermont has none—would make generalizations dicey.

There is a fair amount of variation among the states, which suggests that a regional focus, which puts the North as having the most city-district overlap, hides a good deal of state-specific variation. Except for their largest cities (Chicago and Detroit), Illinois and Michigan have considerably less city-district overlap than the other large states of the

North. Another intraregional contrast is in the South. The very high numbers for Virginia and Georgia (from the city-county "doughnut" configuration of school districts) contrast with the extremely low overlap of Florida (which has exclusively county-wide districts).

Table 8: Overlap in the Thirteen Largest States

Massachusetts (23 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	100%	**100%**
unweighted	100%	100%

New York (34 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	71%	**75%**
unweighted	32%	47%

New Jersey (28 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	97%	**100%**
unweighted	96%	100%

Pennsylvania (14 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	92%	**100%**
unweighted	79%	100%

Ohio (18 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	31%	**95%**
unweighted	22%	89%

Michigan (29 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	37%	**68%**
unweighted	14%	52%

Illinois (26 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	59%	**74%**
unweighted	4%	35%

California (144 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	10%	**60%**
unweighted	8%	53%

Texas (47 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	1%	**36%**
unweighted	2%	53%

Florida (40 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	14%	**21%**
unweighted	3%	8%

Georgia (9 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	71%	**94%**
unweighted	56%	89%

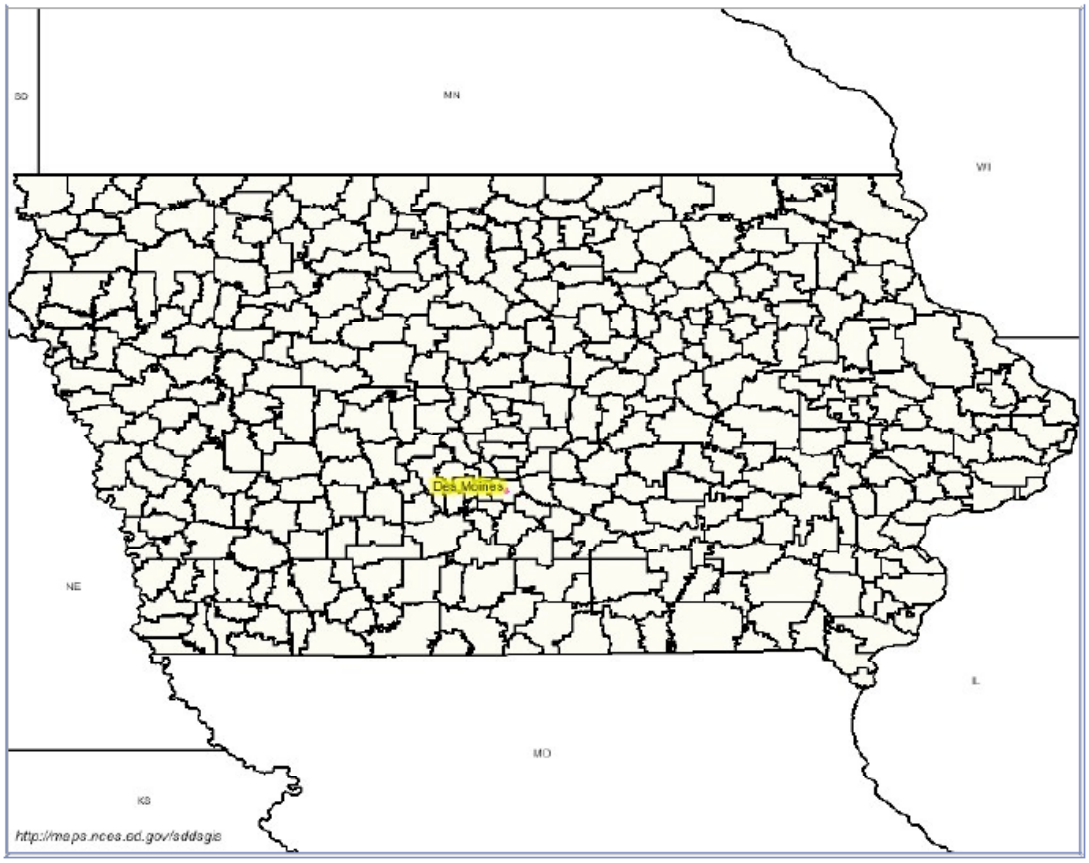
North Carolina (15 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	0%	**61%**
unweighted	0%	40%

Virginia (12 cities)	Virtually Coterminous	Substantial Overlap
Population weighted	100%	**100%**
unweighted	100%	100%

§7. Rural Consolidations Eliminated One-Room School Districts

Although the great majority of American school children are now in urban and suburban districts, the configuration of these districts, especially the suburbs, evolved from rural schools. Once a consolidated district was formed, it was unusual for it to be broken up, though not unusual for it to consolidate further. Thus the evolution of rural districts explains much of the metropolitan structure of school districts. The rural regions of the states, which comprise most of their territory, have distinctive school district patterns if one examines statewide maps. The North, outside of rural New England, has a jigsaw-puzzle look to its school districts, with the pieces somewhat smaller in urban areas except for the largest municipality. Most of the North outside of New England has a pattern that looks like that of Iowa in Map 1.

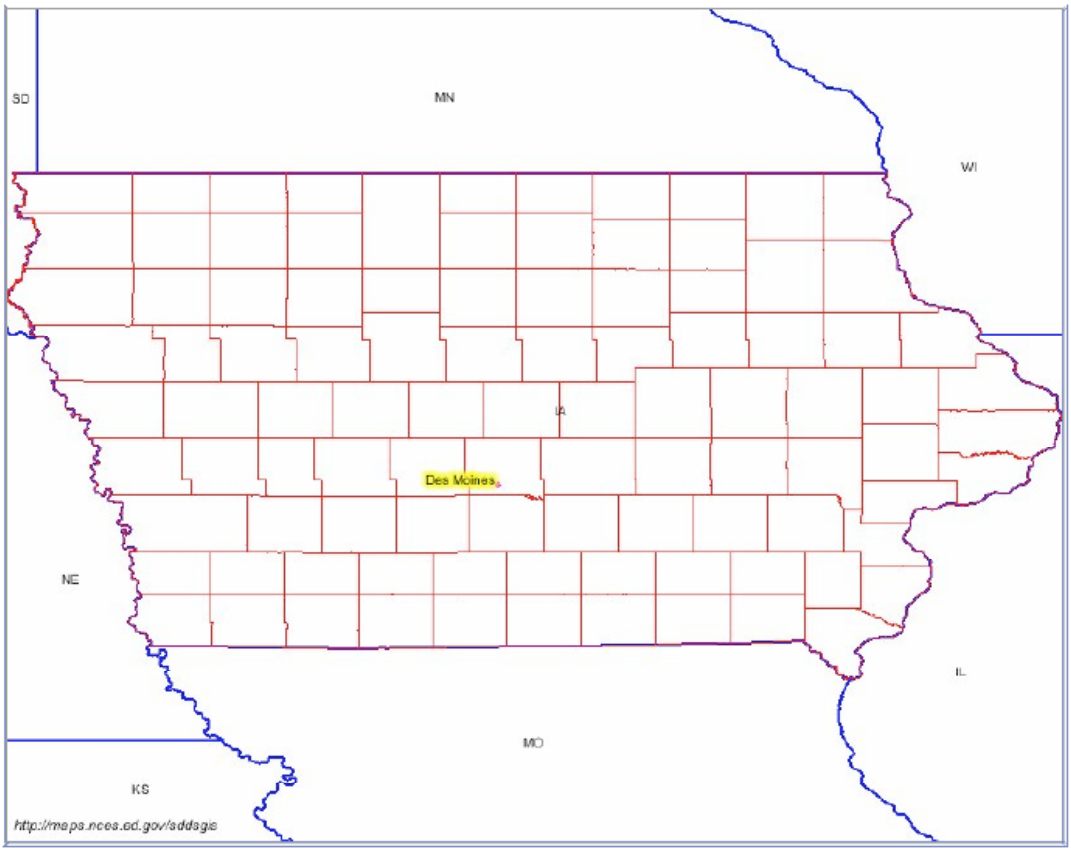
Map 1: Iowa School Districts, year 2000.



It is important to note that most of these school districts do not correspond to another government's borders. Iowa is laid out in 99 counties, the outlines of which are shown in Map 2 below. County lines and school districts have almost no correspondence. In fact, none of Iowa's counties has all of its school districts entirely within its borders. Districts wander across the county boundary almost at will. Iowa's cities do have some correspondence with school districts, but none is "virtually coterminous" by the standards described in section 3 above.

To understand why school districts in most northern states ignore other boundaries, it is necessary to recount the process of formation of modern districts and a few historical facts. The most critical facts are that farm and rural populations became a minority of the American population in 1900, and rural population declined in absolute numbers in most states between 1920 and 1970. In 1900, there were more than 200,000 school districts. Most of them were rural districts that operated a single one-room (one-teacher) school. Most of these schools did not have age-grading as we now understand it, and even the school year was not standardized, with many still holding separate terms in winter and summer, as they did in the nineteenth century (Fischel 2006b). Age-grading started in cities, and cities led in the development of high schools in the late nineteenth century.

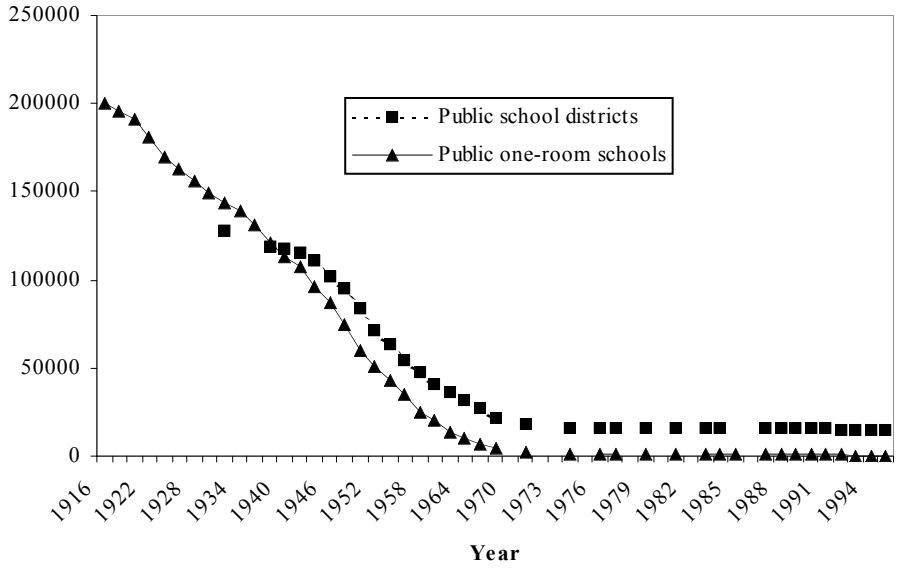
Map 2: Iowa Counties in year 2000



As the nationwide demand for high school grew in the twentieth century, most elementary schools attempted to divide students into first, second, third, etc. grades. One-room schools were not well equipped to do this, since the teacher's time had to be divided among too many students of various ages (Cuban 1984). (When one-room schools were not age-graded, the teacher could divide students into fewer and more functional groups.) The chief barrier to consolidation was transporting a low-density rural population to a central school (Reavis 1920). Once rural roads were improved enough and motor buses could be used to transport children (they became the norm in the late 1920s), one-room school districts agreed to join with other one-room districts to form consolidated school districts that could provide multi-room classrooms for an age-graded education.

The process of rural school and school-district consolidation went on until 1972, after which the number of one-rooms was statistically zero, and after which the number of district consolidations virtually ceased, as Figure 9 indicates. The decline in school districts from over 200,000 in 1910 to about 15,000 now was almost entirely brought about by consolidation of tiny, usually one-room, rural school districts. City and suburban consolidations were only a small fraction of the total.

Figure 9: Twentieth-Century Decline in One-Room Schools and School Districts



Source: Nora Gordon (2002) [from U.S. Department of Commerce, Bureau of the Census (1975); U.S. Department of Education, National Center for Education Statistics (various years)]

§8. Most Consolidations Occurred Only by Consent of the Voters

My more controversial contention about consolidation is that it was almost entirely consensual. The commonly-told story has it that consolidation was forced on rural districts by a wise or imperious (depending on one's view of the result) state education establishment (Fuller 1982; Tyack 1974; West 1967). It is true that state education officials were eager to create consolidated, age-graded schools. But they had been so inclined throughout the nineteenth century, yet they had almost no effect on rural districts. I maintain that the success of consolidation in the twentieth century was mainly the product of voters' demands for such schools. Once rural residents became convinced that consolidated schools were in their interests, they assented to state-generated plans.

Almost all contemporary accounts of consolidation indicate that the chief reason for eliminating the one-room school was the difficulty that the one-room setting had for preparing students for high school (Campbell 1927; Dabney 1936; Jennings 1927). High schools demanded a broader and more uniform level of education than one-room schools could typically provide. Rural children from one-rooms had to take a special test to enroll in high school, which was typically located in a separate district in a nearby city. Many students failed to pass the test or were deterred by their meager preparation from taking it at all. Oral histories in Leight and Rinehart (1999) also highlight the anxieties that country children had about fitting into a sophisticated, town-bred cohort in ninth-grade.

The remoteness of the city school also deterred many able rural students from attending. Many who did actually boarded in town with relatives or in dormitories. Students in the city district, by contrast, were seamlessly funneled into the ninth grade from their graded elementary schools. Rural consolidation offered farm children the opportunity to attend graded schools and then proceed to a village high school without having to take special examinations and without having to travel intimidating distances (physical and social) to the city high school.

The contemporary source that addresses rural consolidation in greatest detail was a mid-century collective work, *Your School District,* by the self-designated National Commission on School District Reorganization (National Commission 1948). The project was conceived by the University of Chicago's Rural Education Project and a committee of the National Education Association. Its various authors give an overview of the situation and then detailed chapters on Arkansas, Illinois, Iowa, Kansas, New York, Washington, and West Virginia, and thumbnail sketches of ten other states. The project was undertaken as one-room rural schools were still a majority of all districts, even though they enrolled fewer than 15 percent of all children. The book describes how rural consolidation took place in the past and offers advice on how to finish the job. The volume's various authors clearly think consolidation is a good thing, but they are also aware of the nuances of state and local politics. (Other studies confirming the inferences I draw from the National Commission are Able [1923] and Barron [1997, chap. 2]; a fifty-state survey of post-War consolidation by Hooker and Mueller [1970]; and single-state histories such as Jorgenson [1956] and Link [1986].)

The picture of consolidation that emerges from the National Commission might be summarized as "the state proposes, the voter disposes." Most consolidations were arranged by state or county-level commissions, but very few were adopted without a vote by the residents of the districts affected. It was not that simple, of course. The process of consolidation was varied among the states and over time. Sometimes the districts themselves proposed consolidation with their neighbors under the auspices of a permissive statute without any special prodding. In rare instances (chiefly in the South), the state legislature or a county superintendent would bypass local voting entirely.

The more typical scenario that I glean from the 1948 National Commission's report is one of legislative and bureaucratic learning, a kind of political tattonement. In the late nineteenth and early twentieth century, it became apparent to many educators that rural schools would do better if they were consolidated. Most education officials realized that this would require pupils to be transported by wagon or motor bus, so funds for these conveyances had to be forthcoming to induce consolidation. Even where consolidation was not controversial, there were legitimate reasons for the state to attempt to coordinate them. The purely bottom-up, voluntary consolidations sometimes produced a patchwork, gerrymandered pattern of consolidated schools. The drawback of this was that an oddly configured district might forestall later consolidations among its neighbors, since it was always difficult to break up an existing school district.

In many states, the first attempt to rationalize the process of consolidation was to propose that pre-existing political units such as counties and townships would become the basis for consolidated schools, at least in the rural areas. Almost all of these efforts were failures, and the legislation was repealed. (These efforts are summarized by the National Commission [1948] on pp. 113-14 and also described in the chapters about individual

states.) For example, New York in 1917 passed a law that attempted to channel consolidations along town boundaries, areas that were often more that 36 square miles. This generated enormous political dissatisfaction, and within two years the law was repealed. Illinois attempted to create township high school districts in 1905 without much success. Kansas and Iowa tried both the county and the township as a unit for providing high schools in the late nineteenth century, but local voters did not accept the change. Arkansas initially established the township as the school district because of land-grant gifts, but local residents soon opted for smaller districts. West Virginia followed a path similar to Arkansas, except that the township-sized "magisterial district" was the basic unit. Again, local school control and financing became fragmented. (West Virginia was the only one of the seven states that the Commission studied in detail that had adopted the county system, which was imposed by the legislature without local voters' consent after a property-tax revolt in the Great Depression curtailed most local funds.)

Although the 1948 National Commission does not point this out, the political phylogeny of consolidation they describe had been followed by New England states in the nineteenth century. As described by Hal Barron (1997, pp. 47-50), Massachusetts had been urged since 1840 by its famous superintendent of schools, Horace Mann, to consolidate its many independent school districts into townwide districts so that grading and high school could be offered. But Mann acknowledged that only persuasion of local voters by township school committees would work, and that took time. To push the process along, the Massachusetts legislature on several occasions voted to abolish or undermine the local district system, but it always reversed itself or tempered its actions within a year or two. The legislature was composed of representatives elected by towns, and the legislators took political heat from voters if the state pushed too hard. When the legislature finally did abolish the last vestiges of the district system in 1882, only forty-four (of more than 300) towns were affected. All the rest had previously consolidated voluntarily. The same pattern of legislative feints was evident in Vermont, Maine, and New Hampshire. The New England "townwide" district was regionwide only by 1894.

The National Commission (1948) described the reaction of state officials after twentieth-century voters in other states rejected the county and town as a basis for rural district organization. Most states pursued a more subtle approach. A state would set up local (usually county) commissions to propose consolidation zones. The commissions undertook sociological studies to see where the "natural" community boundaries might be, and they held public meetings to determine the ideal districts. To improve the chances of public acceptance, the commissions were dominated by local nonprofessionals.

As it turned out, local commissions were so dedicated to the concept of natural boundaries that they often allowed proposed consolidated districts to cross county lines. Township lines were adhered to only if they corresponded with the everyday interactions of people, and in the Midwest, that was seldom the case. Once the commissions came up with a plan for consolidation, they sent it up to the state education department for approval. The reason for this step was to avoid the gerrymandering and otherwise undesirable geographic configurations. After state approval, the proposed consolidation was given to the voters to accept or reject.

In most instances, the vote required concurrent majorities of every district in the proposed consolidation. If district A approved by a 100 to 50 vote but district B disapproved by a 30 to 20 vote, the consolidation failed. (Usually more than two districts

were involved in a proposed consolidation, since most were aimed at setting up a K-12 district.) But in some states (or at other times in the same state's history), the total vote of the combined districts would be all that was necessary, and in the foregoing numerical example, the consolidation would prevail. In this latter case, District B could complain that the state had forced consolidation upon it, and collections of these instances doubtlessly contributed to the overall impression that consolidation was "top down." Purely local autonomy was potentially breached by adopting an at-large count of the votes. It is a stretch, though, to say that this meant that such consolidations were not undertaken by the consent of the governed. The number of satisfied local voters in the "at large" instance given here is 130 while the number of dissatisfied voters is 70.

The theoretical point aside, most consolidations did involve concurrent majorities. States that authorized at-large majorities stirred up enough dissent that they usually changed back to the concurrent majority model or a hybrid model. The hybrid established size or organizational thresholds for giving the districts veto power. A sizeable village that was to be annexed to several small rural districts might be given the right to reject the consolidation, while the rural districts would have their votes aggregated as a group. Or extremely small districts that had no more than 12 or 9 or 0 pupils enrolled (these were actual thresholds) might not have the power to veto a proposed consolidation. These low numbers were not fanciful. In 1940, Illinois had 9665 one-teacher school districts, of which 2211 had fewer than seven resident pupils (Weaver 1944).

§9. Agenda Control and State Subsidies

The commission study process that the National Commission described might suggest to political economists that the state authorities were exercising agenda control, which is said to allow bureaucrats to manipulate the election's outcome (Romer and Rosenthal 1979). Some degree of agenda control, however, was considered desirable by local voters. Many were said to realize that uncoordinated consolidations would yield undesirable results. Voters in one district would be harmed if two neighboring districts went their separate ways. But it still remains a question as to whether states may have exercised additional agenda control and proposed more consolidation than local voters might have thought desirable.

Agenda control was subject to an important discipline. The voters could say no to a consolidation proposal and fully expect that in a few years another proposal would be presented. The votes on each consolidation were up or down, but it would have been a naive set of voters who would have thought that a "no" vote would mean that consolidation would never happen. Many districts repeatedly rejected consolidation over decades until they were presented with a proposal that was acceptable.

State aid for school districts was often essential to overcome local resistance to consolidation. Kenny and Schmidt (1994) indicate that a growing state fiscal presence was strongly associated with consolidation in the 1950 to 1980 period. Dangling state aid or, much more rarely, threatening to withdraw existing aid, might be thought of as a mode of coercion for local districts that otherwise wanted to stay independent. This neglects two important factors. One is that state aid for bus transportation and a new building was often warranted by the declining populations and lower farm income of many rural areas. The low density of population meant that busing was essential for assembling students in a consolidated school. Farmers were high in taxable wealth but

low in cash income, and consolidation on a purely local basis would often raise the burden of taxes on farm owners and reduce them on the village dwellers where the school was to be located. State aid and assessment reforms to offset these burdens were often essential to the deal.

The other neglected part of the "state bribed us to do it" story is that state legislatures were controlled for almost the entire period by rural legislators. Most legislators saw themselves as representatives of the locality from which they were elected (Burns and Gamm 1997). The education "establishment" was very small during most of the consolidation period (Barron 1997). Teacher-union militancy did not begin until the 1960s, long after most consolidation was done. The most consistently influential rural interest group in most states was the agriculture lobby, and its members were well attuned to the fiscal and educational concerns of rural communities.

Even if one simply counts voting strength, representatives from rural areas were a powerful group. Rural population began to decline in absolute numbers after 1920, but it was not matched by a reduction in rural influence in state legislatures (David and Eisenberg 1961). Some state constitutions required representation from each county, which gave more voting power to rural areas. Some put a cap on representation on county electoral districts, which constrained urban areas. Often malapportionment was just reluctance by rural legislators to reapportion themselves at all as rural populations declined. The U.S. Supreme Court's decision in Baker v. Carr, 369 U.S. 186 (1962), which finally pushed the state legislatures to abide by the "one person, one vote" ideal, was fully implemented only by 1970, by which time rural school consolidation was nearly over. By any measure of legislative apportionment, rural areas in every state retained a disproportionate share of the seats at least up to 1960.

The malapportionment of state legislatures meant that residents of the rural school districts themselves held the state's purse strings. The money they allocated for state aid to assist rural consolidation had an opportunity cost. The funds could have been used instead for farm programs, road building, health care, and irrigation projects. State aid was indeed important in rural consolidation, but state aid was mainly pulling money from the left pocket and putting it in the right pocket. To use it as an example of "top down" coercion neglects the control of the legislature by rural voters and local interests generally.

The reason for this diversion into state politics is to lay the foundation for the proposition that the school districts that we see today represent a configuration of government that is highly attuned to local conditions. Districts may formally be, as legal scholars point out, "creatures of the state," (as are municipalities and, for that matter, most private corporations), but their modern borders are very much the product of on-the-ground, consensual associations. Most states tried at one point to make the school district fit into a pre-existing government pattern, usually the county or the township, but voters usually rejected those lines and chose consolidation only when the new district fit with their ideas of a coherent community.

§10. Township Districts in New England and the "Congressional Township"

The exceptions to the generic-district pattern of which Iowa was the paradigm (section 7 above) occur along three lines, New England townships, Southern counties, and older big cities. The less important but perhaps more puzzling group are the states

that maintain the township as the building block for school districts. As mentioned earlier, rural school districts in New England, New Jersey, and, to a lesser degree, Pennsylvania and Indiana, usually correspond to township lines or some aggregation of whole townships. In other regions, consolidated school districts were formed without much attention to township lines. (In Pennsylvania and Indiana, city school districts can intrude on the township pattern, an intrusion that is rare in New England.)

In the middle of the twentieth century, the National Commission (1948) regarded the aforementioned states as desirably centralized. Townships were almost always larger than the generic, one-room school districts of the Midwest. (The New England town or township was the model for the six-by-six mile township of the national land survey, to be discussed presently, but imperfections in surveying, the vagaries of Colonial grants, and some early secessions made the New England prototype more irregular in size and shape.) But consolidation in the Midwest and Western states has proceeded to such an extent that by the twenty-first century (actually, by 1970) it is difficult to tell the pattern of the two groups (township and Midwestern consolidated) apart on a map.

New England towns are different from most of the rest of the country because almost all of them were settled by proprietors who stood to profit by land sales within their boundaries (Martin 1991). The towns then became units of government as soon as they were settled in the Colonial period, and almost all of the region's territory, except in the mountains and northern Maine, was organized into local government units by 1800. The concept of territory not having a local government and instead being governed by the county—an administrative organ of the state—did not exist in New England. Representation in the state legislature was by town, not county units. Hence the "natural community" that twentieth-century school consolidators sought in other states was in New England usually the town itself. When New England one-room school districts finally consolidated by the end of the nineteenth century (as described in section 8 above), they reverted to townline boundaries.

The town remains the sacrosanct atom for school districts in New England. The many towns without sufficient population to support a high school have joined with other (whole) towns in regional districts, or the town pays tuition for their resident-students to attend whatever local high school they choose in another town. Under the this prototypical voucher plan, is not uncommon for residents of a small town to attend high schools in several larger towns, usually depending on which is closest to their neighborhood. State lines are sometimes ignored in these choices, so Vermont residents sometimes attend a nearby New Hampshire high school and vice-versa.

Townships in other states were intended to be units for school finance under the Land Ordinance of 1785, which implemented Thomas Jefferson's survey plan for the nation west of the Allegheny Mountains. The national survey divided the land into townships of thirty-six square miles. Each square mile was a "section." As an inducement to settlement and faster land sales (which meant more revenue for the U.S. Treasury), Congress reserved a section of each township in the new territories for education. Education had long been used as bait for settlers in Colonial America (Hibbard 1924). In the Congressional debates about land policy, marketability was the primary factor. "The thought of laying a permanent foundation for a public school system seems not to have entered into the discussion of the matter" (Taylor 1922, p. 13).

The reserved "sixteenth section" (near the center of the township) was not a school site. It was to be leased or (in a later period) sold and the proceeds used for education for the inhabitants of the township. Because the first prospective buyers of the Ohio lands were from New England, Congress tailored land tenure (Land Ordinance of 1785) and governance arrangements (Northwest Ordinance of 1787) to make settlers feel right at home. So eager were members of the Congress to market the land to New Englanders that the famous prohibition on slavery in the Northwest Ordinance was approved by a congressional committee dominated by Southern slaveholders (Taylor 1922, p. 40).

Governance of the "congressional townships" in the Midwest soon departed from the New England model. Few of the townships were purchased by groups of proprietors, and few settlers had the cohesive social and religious ties that original New England town settlers had. When new states were created from the territories, the sixteenth-section donation was vested by Congress in the new state government. New states could use the "school section" as seed money to finance education.

This sometimes created a conflict (Fairfax, Souder and Goldenman 1992). The 1785 Land Ordinance (adopted before states were admitted) had assigned the sixteenth section for school funds to the individual township's residents, not the state. Early federal grants affirmed that language. But in most cases, the state subsequently appropriated the funds from the sale or lease of the sections and distributed them for schools throughout the state. (Indiana v. Springfield, 6 Ind. 67 [1854] made that state an exception, which may account for the township-based "New England" look of its school districts.) When Michigan was admitted in 1837, the federal hand-off explicitly granted the "school sections" for statewide use. By the twentieth century, individual townships were no longer proprietors of their school-section lands, and so there was little reason for them to reorganize school districts along township lines, as New England had done. In any case, the funds from "school lands" were by the twentieth century a trivial source of school funds even in states where mismanagement and fraud had not dissipated them.

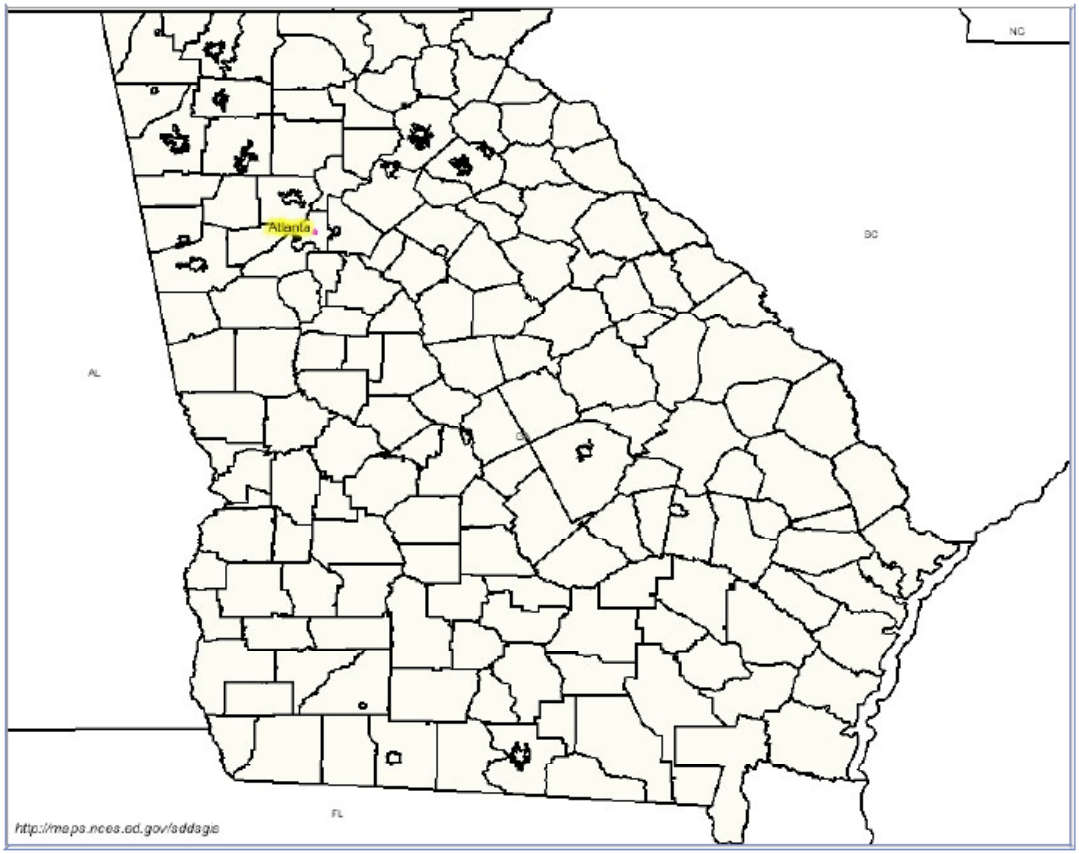
In New Jersey and Pennsylvania, it was the township that may have been modified to conform to the "natural" school district. Townships there were not laid out along the congressional survey lines (they predated the United States), so their borders were more often the "natural communities" around which other states later sought to create consolidated school districts. Pennsylvania in 1834 made townships, cities, and boroughs units for school districts, and, unlike most other states, townships were not further subdivided into subdistricts (Wickersham 1886). Instead, townships themselves apparently split into two or more townships or compact "boroughs" when tastes for schools were too heterogeneous. The enormous spate of borough formation in the 1890s in New Jersey was said to have been motivated by a desire to separate urban graded districts from rural one-room school districts (Wolfe [no date]). However, it is difficult to explain why this pattern did not also emerge in rural New York, whose "towns" and "villages" closely resembled townships and boroughs in New Jersey and Pennsylvania. New York's generic pattern of consolidation resembled that of the Midwest rather than neighboring New England, Pennsylvania, and New Jersey.

§11. The Diseconomies of Segregation Begat County School Districts in the South

Rural districts in the South usually run along county lines, sometimes with a "hole in the doughnut" for a separate city district. Georgia is a good example of the South's county-based school district system, as shown in Map 3 below. The boundary lines of all but a few city-districts—the Rorschach blots mostly in the northern part of the state—correspond to a county boundary. The city districts seldom cross county boundaries. Atlanta, whose school district conforms to city lines and occupies parts of Fulton and DeKalb counties, is the main exception. (Other exceptions are districts on large military bases.)

The Georgia pattern is repeated in greater or lesser degree throughout the South, including the non-Confederate border state of Kentucky. The pattern takes the extreme of county-only districts in Louisiana, Florida, West Virginia, and Maryland. (Virginia is also "county only" if one designates, as the Census does, its "independent cities" as counties, but such city-school districts are so numerous that they should be considered separately from counties.) The county-based pattern curiously does not extend to the part of the Census-designated South that is west of the Mississippi River. The school-district patterns of Texas, Oklahoma, and Arkansas resemble the noncounty, jigsaw-puzzle pattern of Iowa (Map 1 above) rather than Georgia.

Map 3: School Districts in Georgia, year 2000



The South has county-based schools because of its history of racial relations. Both before and after the Civil War, the rural South had local, one-room schools that were governed more or less like those of the North (Dabney 1936; Link 1986). The Southern districts were fewer and thinner on the ground before the Civil War because only whites could attend schools, and much of the rural population consisted of black slaves. Private education was often the rule on large plantations.

After the Civil War, the South set up separate subcounty district schools for both blacks and whites (Harlan 1958). Up until about 1890, the difference in spending between white and black schools was not large in most of the rural South. Spending was low on both black and white schools, which were usually one-room affairs. The black and white district schools were entirely separate, and black parents actually did have some say in very local matters concerning their schools. Sometimes states would try to separate the local tax base, so that white schools would be financed by "white" property and black schools by "black" property, but the state courts would strike such fiscal segregation down (Harlan 1958, p. 265).

Up to about 1900, most of the funds for both white and black schools came from the state. County governments usually distributed these funds to the local districts. After the removal of Federal troops and restoration of white-controlled legislatures in the 1870s, county distribution of funds was controlled by whites. Wary of renewed federal intervention and of the lingering voting power by blacks, white officials distributed funds on a relatively evenhanded basis (Bond 1934).

Real inequality of spending did not come until Southern reformers responded to popular demand for high school education in the same way that Northern states did (Margo 1990). They began to consolidate districts, gradually eliminating one-room schools and transporting children to multi-room, graded schools in towns and villages. It was on this occasion that whites truly cut blacks out of advances in the education system. Additional taxes were required for consolidation, and white voters at the local and state level were unwilling to pay for black consolidated schools. "If the county superintendent could 'devise some plan for leaving the negro out', the community was eager to proceed" with consolidation (Link 1992, p. 131).

To assure that local white politicians would not be tempted to win a close election by promising better schools to black voters, the South embarked on an aggressive campaign to disfranchise almost all black voters. "So long as blacks could vote…it was politically dangerous to tamper too much with the educational system" (Tyack, James, and Benavot 1987, p. 150). Prior to 1890 or so, blacks often held the balance of power between contending white politicians. With black voters out of the way, both local taxation and consolidation of districts to build and maintain multi-room elementary and high schools for whites was acceptable to the remaining voters. Rural blacks remained stuck in one-room schools, which seldom led to high school, until at least the 1930s (Margo 1986).

Disfranchisement succeeded too well. It virtually eliminated the black vote, but because states could not simply single out blacks, the various indirect means of preventing them from voting also deterred many rural whites from voting (Margo 1990, p. 35). And even before disfranchisement, they had less to vote for. V.O. Key (1949, p. 541) observed that after Reconstruction was abandoned in 1876, "local self-government" was "radically subverted" by having governors appoint local officials in order to assure

white supremacy in black majority counties. The local political forces that in the North resisted efforts to consolidate beyond the "natural community" boundaries were less robust in the rural South. When legislatures formed committees to consolidate rural districts in the South, they had less of the "problem" that their Northern counterparts had, which was resistance from the local voters.

A Southern school-district reorganization committee also had better reason to form large school districts. Running segregated schools was more expensive (Margo 1990, p. 22). The whites for whom they were organizing the district were scattered more thinly on the landscape than they were in a Northern state with a similar population. Several states had black majorities (in population, not in elections), and blacks were disproportionately located in rural Southern counties. So a white consolidated school was in fact more expensive than in a Northern state, since whites had to be transported longer distances. This spatial diseconomy was compounded after the 1930s, when NAACP court victories began to pressure the South to move toward the "equal" side of "separate but equal" facilities (Bolton 2000; Donohue, Heckman, and Todd 2002). The gap between spending on black and white schools reached its peak in about 1930 and began to narrow steadily after that.

Running two parallel, if not exactly equal, school systems over the same territory meant that school districts had to be bigger. As Louis Harlan (1958, pp. 11, 15) pointed out, "each community by maintaining two schools made districts too large, except in urban areas, and schools too small. … And it was in the country districts that both the financial and social costs of the dual school system were heaviest. In the cities Negro and white school districts were coterminous with areas of residential segregation, whereas in rural areas children of the two races were scattered out side by side."

If a Northern rural school district's optimal size was fifty square miles, a Southern school district faced with the same rural population density might have had to extend itself over a hundred square miles. Having separate facilities for every aspect of education—some states actually required separate textbook storage facilities—doubled the administrative cost of running a district and thus required larger districts. Although the county-wide school districts were often not formally established until after World War II, the greater role of the state-controlled county in school administration (to make sure whites controlled the funds), the lack of other local political organization (because of disfranchisement), and the diseconomies created by segregation made it easier eventually to sweep away county subdistricts.

My emphasis on the economic geography of race as the source of county-based school districts is distinct from the usual story. The conventional wisdom about the South is simply that the county was the traditional unit of governance in an agrarian, patrician society that lacked localized democratic traditions (Tyack, James, and Benavot 1987, p. 60). It is true that the consolidated districts of the South more often got that way without a locally concurring vote. But the pre-Civil War South was not an undemocratic place (Collins 1985), and its district-school system, while less developed, was not obviously different than that of most rural Northern states. Plantation agriculture did create inequalities of wealth greater than elsewhere, but such inequalities would seem to have been an opportunity for the average Southerner to vote for schools, since someone else would be paying much of the taxes to support them.

The idea that the county was "natural" to the South is also belied by other evidence. Southerners who migrated in groups to northern states did not bring county governance with them (Jorgenson 1958, p. 41). They instead embraced the generic district system that was supposedly invented in New England but which in fact was simply a rational response to geographic conditions. The county was the primary unit of government in most of the rural West prior to statehood, but the West did not follow the South into the county-based system except when geographic conditions made it necessary to do so.

§12. The Arid West Required Larger-Area Districts

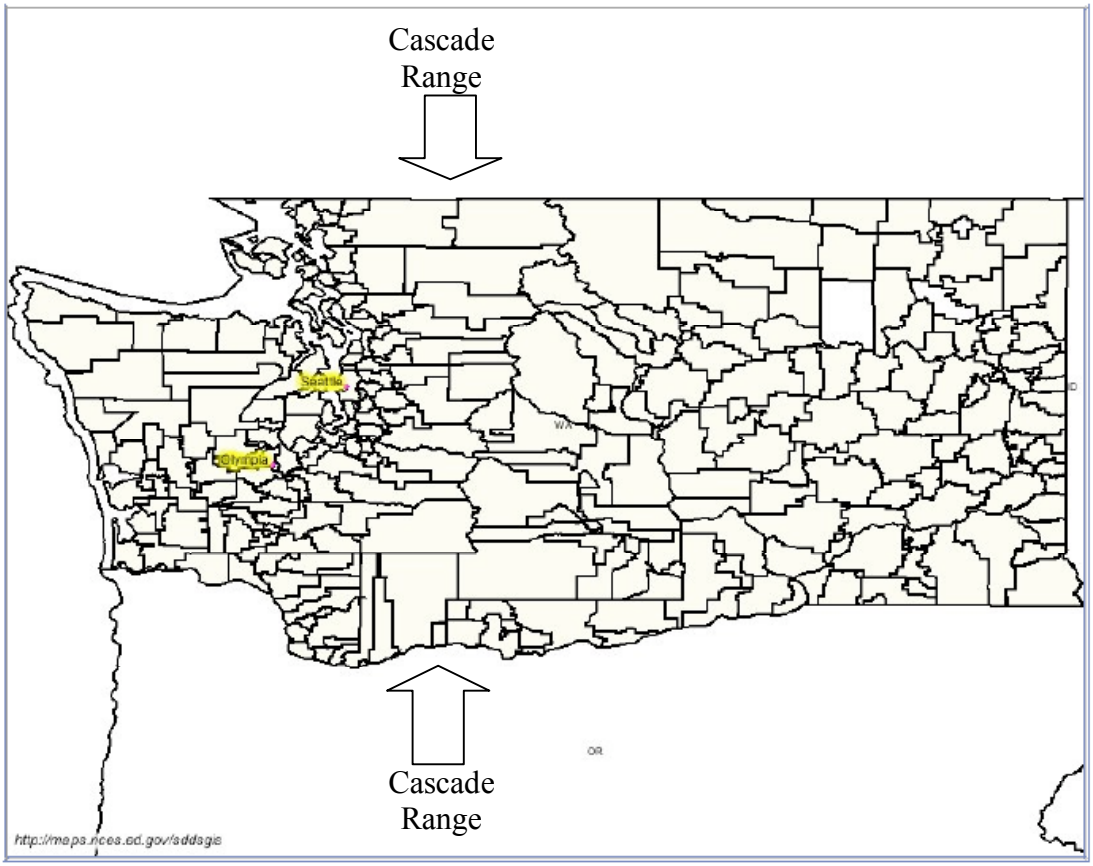
Western states have what looks like a hybrid system of school districts. Some encompass whole counties, and others have the Iowa-like "jigsaw-puzzle" patterns that defy county boundaries. The county became the rural education unit for many of the arid Western states because the population density was so low. Early one-room districts were like those of other states. Accounts of district consolidation in states like Utah and Nevada, which are like the county-based districts of the South, indicate that on many occasions local one-room districts were simply corralled into the larger district without a locally concurring vote (Moffit 1946). In one sense, this parallels the county-district story of the South, except that in the South it was racial segregation that made population density artificially low.

In a truly low-density area, it is necessary to obtain all of the children from a large area to form a consolidated, multi-grade school district. In rainy Illinois, where farms and one-room school districts were thick on the ground, it was possible to allow some districts to opt out of the consolidation plan and still be able to run a consolidated rural school district with those that wanted one. Utah, Nevada, and New Mexico could not afford to let local districts choose to stay out of a consolidation plan. The Western legislatures that approved these consolidations, or at least set them in motion, were as sensitive to local voter preferences as legislators in Iowa and Ohio. The difference was that the dry-western states knew that they had to make an all-or-noting choice in many instances, and so they forced dissenting local districts into the consolidation.

Evidence of this can be seen in district maps of the far western states. The coastal counties, which had high rural populations because of ample rainfall or early irrigation projects, have relatively small, fragmented local districts. The inland, arid (east of the mountains) districts are more like those of Utah and Nevada. They look "Southern" in their land area, and they often are bounded by county boundaries, but that is largely the product of a naturally low population density. A typical example is Washington, shown on Map 4 below.

As one can see from Map 4, Washington's school districts are thick on the ground in the Puget Sound area, north and south of Seattle. In the mountains and in the arid region east of the Cascades, the districts are much larger, several approaching the size of entire counties, if Washington's counties were the size of Georgia's. (Counties west of the Rockies are about twice the area of those in the East.) The districts get slightly smaller on the far eastern part of the state, near Spokane, as agricultural densities of the Palouse wheat region get larger. Washington's school district boundaries only sometimes cross county boundaries, but that is mainly because the counties are so large that there are fewer lines to cross.

Map 4: School Districts in Washington State, Year 2000



My conclusion is that Western school districts are large because of rainfall, which in turn determined the density of rural settlement. In places they superficially resemble those of the South in their land area dimensions, but the rainy South's large school districts are the product of a social-historical factor that had little to do with overall rural population densities. Southern blacks occupied the land along with whites, but their segregation, first as slaves, then as second-class citizens, induced Southern states to adopt overly large school districts, for which the county was the eventual boundary.

§13. Big City Districts Once Had a Monopoly on High School

The final pattern to be explained is the existence of very large districts that are coterminous (or nearly so) with the boundaries of large cities. The explanation is again historical. The large city districts that I listed in section 3 as "virtually coterminous" with their school districts all reached their status as very large cities early in the twentieth century. Urban districts were the first to adopt multi-grade elementary schools, which began in the mid nineteenth century, and also the first to start public high schools.

As in most aspects of public education, state governments were seldom leaders in developing high schools; they usually systematized institutions that had begun through local initiatives (Tyack, James, and Benavot 1987; Cheney 1888). High population density and a wealthier citizenry made it possible for cities to run high schools for those few students who could continue beyond the "common-school" (we would now say "elementary") education. Their large amount of commercial and industrial property also

made public schools attractive. City voters could view taxation of business property as taxes paid by someone else. Farmers lived on and owned their own business property, and so most rural voters perceived the full cost of local taxation.

After 1900, popular demand for high school education increased dramatically in response to the demand for a more educated work force (Goldin 1997). The fraction of the eligible population attending approximately doubled every decade up to 1950. Rural districts nearest the city were often willing to join with the urban district rather than form their own. One of the attractions of becoming annexed by a city was joining its school district and getting local children on the highway to high school. Up to about 1920, cities could easily annex their suburbs, even if the suburbs were incorporated, and there was little suburban resistance (Jackson 1972).

By the 1920s, however, high school began to be a norm in all districts. Consolidated rural districts started their own high schools—that was usually the reason for rural consolidation—and if the rural district was the beneficiary of population gains from the suburban growth of a nearby city, its high schools could begin to match the sophistication of city schools. Being annexed by the city for municipal purposes no longer required that the city's school-district boundaries also had to be adjusted. Perhaps not coincidentally, the 1920s were also the turning point in central-city annexation of suburbs (McKenzie 1933). Suburban towns began to resist the city's offer of annexation, and they became instead separate municipalities. Even when municipal annexation did occur, the rapid growth of "independent" school districts—those not run as departments of the city government—meant that the newly annexed suburban territory did not necessarily have to merge with the old city's school district.

Evidence for this can be seen by examining the largest American cities in 1920 and 2000. The twelve municipalities in 1920 with more than 500,000 people were, by population rank, New York, Chicago, Philadelphia, Detroit, Cleveland, St. Louis, Boston, Baltimore, Pittsburgh, Los Angeles, Buffalo, and San Francisco. Most of them had annexed suburban territory until early in the twentieth century. Every one of them in the year 2000 was still "virtually coterminous" (as defined in section 3 above) with its school district except Los Angeles. They had become large cities in the days when city school districts were attractive to suburbs because of their superior high school system. (Some still-independent suburbs of Los Angeles joined its school district during the Depression, and the LA Unified School District also serves parts of unincorporated Los Angeles County, but the city of Los Angeles is by far the largest component of LAUSD.)

Twenty-one cities joined the half-a-million club by 2000. (Some of the 1920s' members dropped out, but that is not at issue here.) All but three are in the South and West. By population rank, the newbies are Houston, Phoenix, San Diego, Dallas, San Antonio, San Jose, Indianapolis, Jacksonville, Columbus, Austin, Memphis, Milwaukee, Washington, Nashville, El Paso, Seattle, Denver, Charlotte, Fort Worth, Portland, and Oklahoma City. Only six of this new group were, like the 1920 list, "virtually coterminous" with their school district in 2000: Jacksonville, Memphis, Milwaukee, Washington, Seattle, and Denver. Another two were entirely within a single district (like Los Angeles) of which they were by far the largest element: Nashville and Charlotte. Of these eight exceptions, all but three are in the county-district South where racial segregation trumped local autonomy. The other three cities, Milwaukee, Seattle and

Denver, are arguably more like the "old" cities of the Northeast. As a rule, newer cities outside the South are not coterminous with their school districts.

The supersize school districts of older central cities thus seem to be artifacts of their early, local monopoly on high schools. In the period 1870 to 1920, city high schools were the most attractive game in town. After 1920, the new big-cities whose municipal boundaries moved into rural territory failed to have their school district boundaries moved along with them. The suburbs had their own consolidated districts already in place. Houston, for example, has annexed much of the formerly unincorporated territory of Harris County, but the state did not change the school district boundaries so that Houston Independent School District would correspond to its municipal boundaries. The same story appears to be true in the other "new" cities the West and Southwest. Suburban influence in the state legislatures appears to have succeeded in keeping the suburban districts independent.

One incentive for independence by school districts in the suburbs is that they are less likely to be subject to racial desegregation orders. The U.S. Supreme Court in Milliken v. Bradley, 418 U.S. 717 (1974), disallowed cross-district busing remedies where the suburban district had not engaged in overt discrimination in school assignments. It is tempting to see this as causal in the formation of suburban districts, and it surely is one reason it is difficult to get districts to merge further. But this story is upset by the fact that suburban school-district independence began in the 1920s and grew steadily long before racial desegregation of schools was contemplated.

§14. Conclusion: Continuity and Social Capital

The original impetus for this paper was simply to determine how closely city and school district boundaries match up. My conclusion on that front was that almost two-thirds of cities have extensive overlap with a single school district. In most such cities, coordination of municipal and school district activities would not be deterred by mismatched boundaries.

My Google-Earth survey of cities revealed, however, a great deal of regional variation in city and school district congruence, and the second part of the paper represents my attempt to explain this regional variation. The four great variations are, broadly speaking: (1) the township-based New England districts (2) the county-dominated school districts of the South; (3) the large-area districts of much of the West; and (4) the close match of city and district in the older cities of the North. My explanations for those differences are (1) proprietary settlements in New England (2) race in the South, (3) climate in the West and (4) early high-school development in the North.

All of these factors would seem to lend credence to the view of school districts as arbitrary boundaries whose past purposes no longer serve the present. Proprietary townships did not spread to the rest of the nation; legally-imposed racial segregation is a thing of the past; water is not much of a constraint on Western urban development; and high school has long been the norm for every metropolitan school district. But there is another side to my enterprise that cautions against treating school districts as arbitrary boundaries. This comes from the flip side of my finding that a large majority of cities have at least "substantial" overlap with their district.

Why don't cities *always* overlap with their school district? More generally, why are state systems of school districts not built upon other local government boundaries? In

most states outside the South and New England, rural and suburban school districts wander about without much regard for the boundaries of counties, cities, townships, towns, boroughs, and villages.

My explanation for the "jigsaw-puzzle" patterns of so many states also points to historical factors. One-room school districts had to be consolidated in order to offer rural students age-graded schools and a smooth pathway to high school. But here the history is not driven by external events such as climate, race relations, and urban high schools. The pattern of consolidation was the product of consensual politics. Local voters had to agree to consolidate, and they usually rejected proposals by state-initiated commissions that would have swept them into township or county units. Voter reluctance to consolidate into still larger units kept governance in their own hands (Rose and Sonstelie 2003). Large-area districts were only imposed from above in the South because of racial segregation and in parts of the arid West where a K-12 district was impossible without a large-area catchment.

The consolidated rural districts that make up the "jigsaw puzzle" got their shapes from social and economic relations that residents had formed. The "natural communities," to use the phrase repeatedly invoked by chastened state officials who proposed them, were the product of locally-generated associations, not external conditions. For this reason, they would seem to deserve more respect than boundaries that were formed because of racial prejudice, no-longer-binding water constraints, or the big city's former monopoly on high school.

Rural school districts no longer educate a large fraction of the population. The school-district boundary issue since 1970 has been between suburban and city schools. Most suburban districts were founded along the lines of a previous rural school district that was just outside the city. The new suburban residents took over these schools and made them their own. Innumerable economic studies show that housing prices are affected by school district boundaries. The price premium for a "good" school district is greater than for almost any other location factor (Brasington and Haurin 2006; Oates 1969). This means that homebuyers think they will last a long time. Why are their borders so durable?

Much of the home-value benefit of a desirable school district appears to emerge from factors other than the educational services of schools (Bayer, McMillan, and Ferreira 2003). It is possible to interpret this in a negative light, in which school districts are just markers for exclusivity (Rothstein 2003). But there may be a more benign reason for the attractiveness of school districts and their durability.

As I have argued in another paper (Fischel 2006a), schools are the basis for *adult* social capital. You move into a community and you don't know anyone besides your immediate neighbors (if them) until your kids go to public school. Then you know lots of people because you meet the parents of your children's schoolmates. The public-school-based web of social capital makes communities work better at providing services other than schools. If you know other adults in the community, it is a lot easier to round up a posse to get the city council to do something to fix the sidewalks, get a crossing guard, or stop unwanted commercial development. Indeed, there is some evidence that newly-formed municipal governments—it still happens in the West—are often formed along pre-existing school-district boundaries (Fischel 2001, chap. 9). Getting a municipal incorporation going requires considerable cooperation among residents, and it is

undoubtedly easier to get the cooperation of adults you know from child and school-related events. The benefits of this network of social capital and the fear of breaking it may account for the durability of school district boundaries.

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