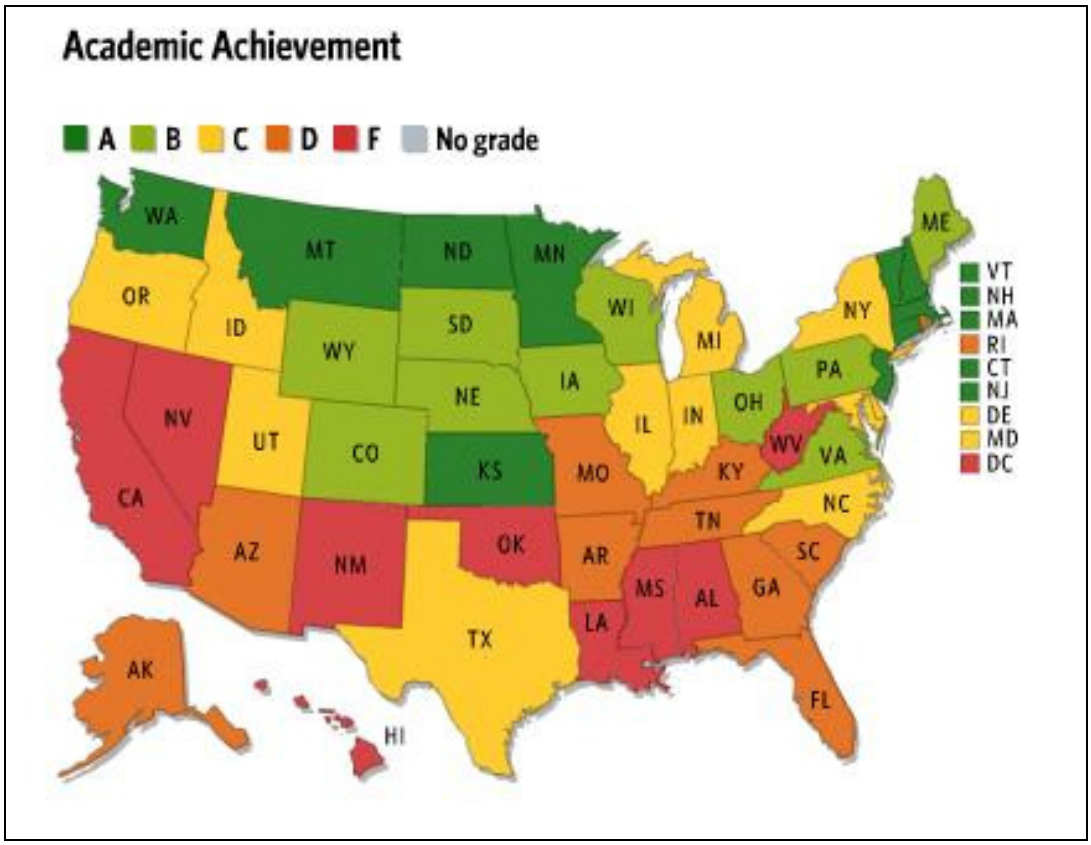

Figure source: US Chamber of Commerce, 2007

The 2007 US Chamber of Commerce Education Report Card, a political Pandora's box, and a democratic opportunity for US business

Gary Kuhn, Ph.D.
St Martin Systems, Inc.

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A 2007 US Chamber of Commerce Education Report Card

According to a 2007 US Chamber of Commerce (CofC) study[1], the measures of the shortcomings of the US education system "are stark indeed":

> Most 4th and 8th graders are not proficient in either reading or mathematics. Only about two-thirds of all 9th graders graduate from high school within four years. And those students who do receive diplomas are too often unprepared for college or the modern workplace. [1]

One motivation we can impute to the CofC seems clear and appropriate: how are businesses in the US to compete if they have to spend more money on remedial education than their competitors?

So the CofC assembled a team of experts, to organize and analyze existing evidence to reform the US education system across the country.

This team graded all 50 states and Washington, D.C., on their Kindergarten-12th grade school systems. Nine criteria were developed, "to identify both leaders and laggards, in the tough business of school performance":

1. Academic achievement overall
2. Academic achievement of low-income and minority students
3. Return on investment
4. Truth in advertising about student proficiency
5. Rigor of standards
6. Postsecondary and workforce readiness
7. 21st century teaching force
8. Flexibility in management and policy, and
9. Data quality

See [1] for a description of the CofC's grading methodology.

Figure 1 is a summary of what they found. The states and DC are score-ordered and graded. The best-scoring states are on the left, the worst scoring states are on the right.

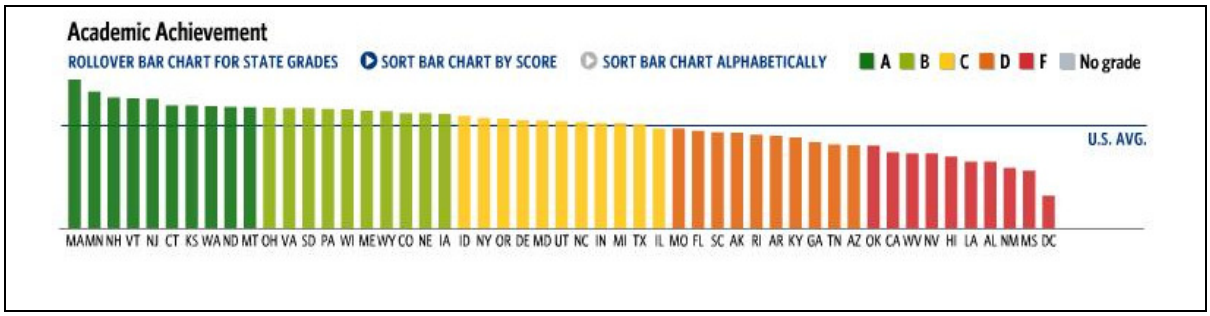

Figure 1. The score (height) and grade (color) for the K-12 education system in 50 US states and the District of Columbia. Source: US Chamber of Commerce, 2007.[1].

The height of the bar for each state or DC is proportional to its score. Using color, the CofC converted these scores to grades on a curve, awarding as nearly as possible an equal number of A's, B's, C's, D's and F's.

What do we see in Figure 1? Well, 40% of the states got a grade of A or B, not bad. And of course, there is a drop-off of scores as we look to the right.

But nothing stands out in the drop-off of scores to the right, except Washington D.C. And we all know that Washington D.C. is a special case.

So, does Figure 1 move one to demand education reform? Except for the case of Washington, D.C., it does not. Of course some states score better and some score worse. What do we expect?

The Chamber of Commerce Education Report Card Weighted by Population

But, maybe the CofC graph hides some useful information. What happens if we redraw the graph so the width of each bar is proportional to the population of the respective state or DC?

The answer is in Figure 2. The top graph is the CofC graph from Figure 1. The bottom graph is the top graph redrawn so the width of the bars is proportional to state or DC population.

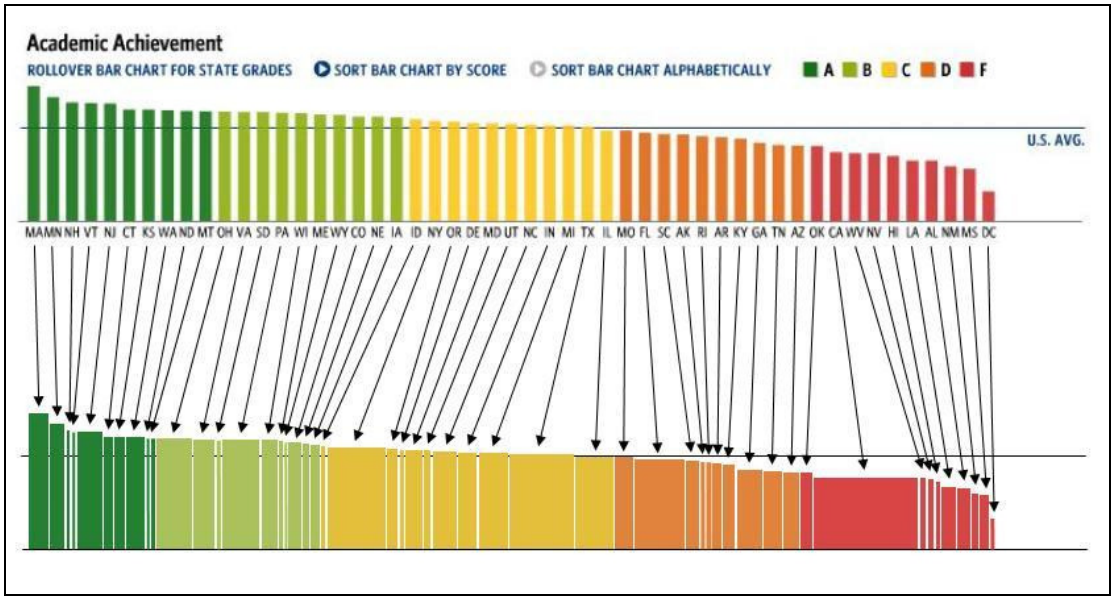

Figure 2. Top: education score and grade for 50 US states and the District of Columbia. Bottom: the same, with the width of the bars proportional to state or D.C. population.

Now what do we see? Well, there aren't as many well-educated people. How about the satisfaction we felt looking at the CofC graph, where 40% of the states got an A or a B? It is obvious that that feeling should shrink.

What else do we see? Hey, what happened to California? Are there really 34 million people with such a crummy average K-12 education? Yes, Stanford University researchers say California's K-12 education is in real trouble.[2]

The original CofC graph tells us that California is not doing well, but it doesn't show the scale of the problem, or the possibility that one fix in a single state could potentially do so much good.

What else do we see? Well, look at all 5 of the most populous states: California, Texas, New York, Florida and Illinois. They contain 103 million people with an average K-12 education grade of only D+. That's more than a third of the country. Whatever the problems may be with using a single statistic as the grade for a whole state, we have to wonder: what is the cost of poor education to those who run a business in these states?

It seems clear that the "state-based" graph at the top of Figure 2 hides some problems, while the "population-based" graph at the bottom makes us sensitive to problems and to potential solutions.

Relating Report Card Bar Graphs to Parts of the US Government

It turns out that these 5 most populous states are the states which are the most down-weighted by the elector-based system that the US uses to select its President.[3] What should we make of this correlation?

Well, it raises a question: should the US educate its most populous states very much, if politically they do not count very much? In the limit, should it educate them at all, if they did not count at all? Before you dismiss this question as outrageous, please dare to read on: you may be surprised to discover how little the most populous states do count.

So the following thought arises: if the US dropped its elector-based system for selecting its president in favor of a system based on one-person-one-vote, would it do a *better* job of educating those most populous states? Notice what just happened: looking at a population-based graph made us think of democracy and a better educated population.

But there is a problem. The widths of the bars in the bottom graph of Figure 2 do *not* correspond to the population weightings that select the US president. Why is that? Because for that purpose we need an "elector-based" graph.

An "elector-based" graph would have bar widths proportional to the number of presidential electors for each state or DC: each state gets 2 electors plus one more for each Congressional district allocated by a census-based procedure. Plus there are currently 3 electors for DC.

So in Figure 3, between the "state-based" graph at the top and the "population-based" graph at the bottom, we now put an "elector-based" graph, where the width of each bar is calculated by adding 2 to the number of Representatives in the US Congress. In this middle graph, California has a width proportional to 2 plus 53 equals 55 electors, and the 7 smallest states and DC each have a width proportional to 2 plus 1 equals 3 electors.[3]

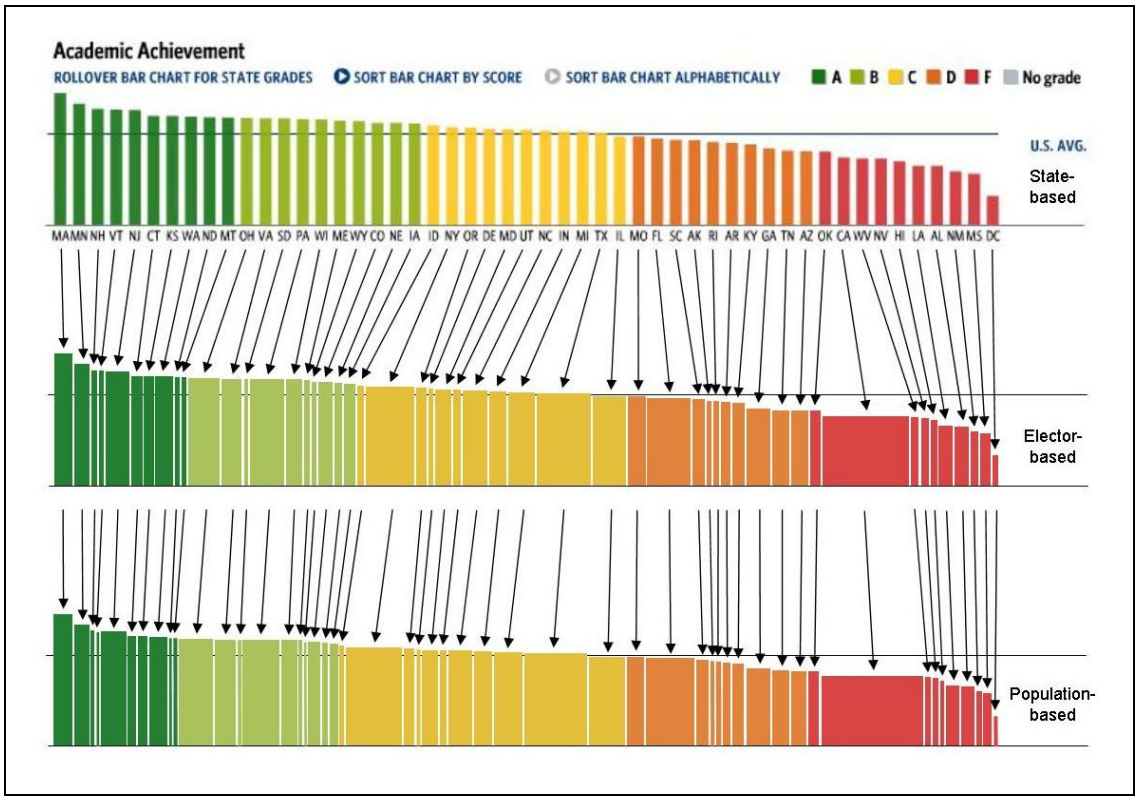

**Figure 3. Top: education score and grade for 50 US states and the District of Columbia.
Middle: the same with width proportional to number of electors.
Bottom: the same with width proportional to state or DC population.**

Notice that row by row, the widths of the bars in the graphs of Figure 3 are proportional to the influence or "weight" of the state populations in 3 parts of the US government. At the top, except for DC, we have the weights of the state populations in the US Senate: there is *no* population-based weighting here. In the middle, we have the weights of the state and DC populations in the selection of the US President: these weightings are elector-based. And at the bottom, we have the weights of the state and DC populations in the US House of Representatives: the procedure for allocation of 435 US congressional districts is proportional to population.

Re-ordering the bar graphs by population

In Figure 3, the changes in the widths of the bars from the "elector-based" graph to the "population-based" graph may seem insignificant. The A's and B's shrink, the C's expand, the D's stay the same width, and the F's expand. Some arrows point down and a little to the left, while some point down and to the right. So what?

But in Figure 4, below, we re-order the states and DC by population. Ah, now the arrows between both pairs of graphs all point down and to the right. What does that mean?

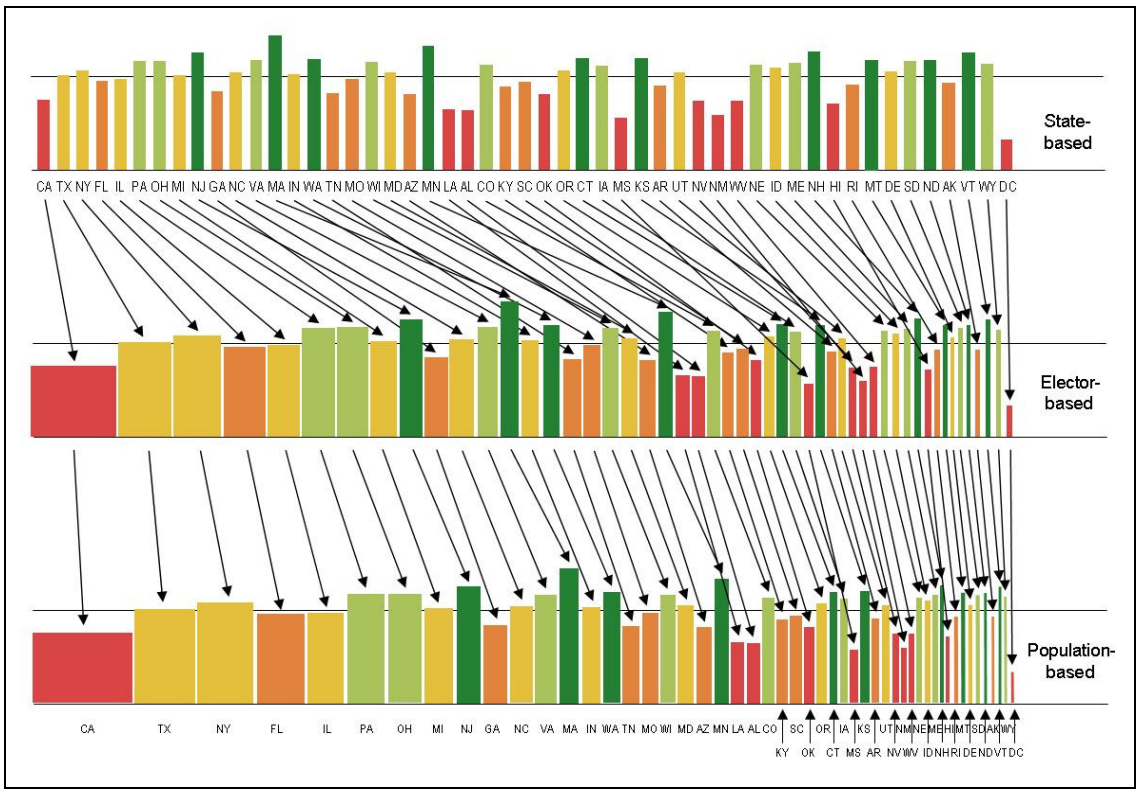

**Figure 4. Top: education score and grade for 50 US states and the District of Columbia.
Middle: the same with width proportional to number of electors.
Bottom: the same with width proportional to state or DC population.
The states and the District of Columbia are ordered by population.**

In Figure 4, the arrows all point down and to the right because as we accumulate more and more states, starting from the most populous, the accumulated percentages of states and electors only approach the percentage of the population as we include the whole country.

For example, the 16 most populous states, through Tennessee, take us only 32% of the way across the states (16/50), but 61% of the way across the electors (329/538) and 68% of the way across the population (191.4M/281.4M), as of the elector allocations after the 2000 census. All 50 states, through Wyoming, take us 100% of the way across the states (50/50) -- that would be 98% if DC were a state (50/51) -- 99.4% of the way across the electors (535/538), and 99.7% of the way across the population (280.8M/281.4M).

These percentages do not look quite high enough because a larger fraction of the right side of the elector- and population-based graphs is white space, but they are correct.

Two asides:

Note that in 1790, the most populous American state was Virginia with 691,737 inhabitants, and the least populous was Delaware, with 59,096 inhabitants.[4] The ratio of their population sizes was 11:1. In the 2000 census, the most populous state is California (33,871,648 inhabitants) and the least populous is Wyoming (493,782 inhabitants), with a population ratio of 69:1.[3]

So in the 1790's, the US Constitution was used to balance the interests of elites from states with a ratio of population sizes comparable to today's 30 most populous states (California down to Iowa), or today's 36 least populous states (Washington state down to Wyoming), but not comparable to today's 50 states (California down to Wyoming).

Also note that the US Constitution says (Article V) that a constitutional amendment must be ratified by three-fourths of the states. In the early 1790's, that requirement meant that only 4 of 15 states were needed to block an amendment. Today, it means that 13 of 50 states are needed to block an amendment.

In 1790, 7.5 % of the US population lived in the 4 least populous states. As of the 2000 census, only 4.5 % of the US population now lives in the 13 least populous states (Nebraska thru Wyoming).

So in Figure 4, a comparison of the state- and population-based graphs reminds us not only how unrepresentative of the US population the voting in the state-based US Senate is, but also that if the 13 least populous states are against it, a constitutional amendment that is desired by the other 95% of the country cannot be ratified.

Please remember these asides for the discussion below.

How bad is the elector-based representation of population?

As the example of states through Tennessee showed, the "state-based" graph is much more unrepresentative of the US population than the "elector-based" graph. Does that mean that the "elector-based" representation of population is not so bad?

Unfortunately it does not. Scholars have listed lots of reasons why the "elector-based" weighting that the US uses to select its federal executive is terrible for representation of the population.[5]

If you were born and raised in the US, and you learned in 8th grade that the country is a democracy, and you are not familiar with this scholarship or other similar scholarship, then brace yourself, but don't feel alone: many Americans are surprised and disappointed when they learn for the first time about the reasons listed below. Here are the 3 main reasons:

1. All states do not influence presidential campaigns

In US presidential elections, most of the campaign money and promises goes to a small fraction of the states, the ones that appear to be in play. For example, in the last month of the 2004 US presidential campaign, 99% of the money was spent in only 17 states, 1% in 11 more states and 0% in the remaining 22 states.[6]

So, are you from a state that appears "solidly" 45% Democrat, only 31% Republican, and the rest an independent-minded mix? Your state is probably not in play. So Democrat, Republican or independent, unless your issues are raised in states that are in play, there is little chance they get attention in a presidential campaign.

"Spectator states" is a name for the states that are not in play in the US presidential elections. The spectator states for 2008 may include 12 of the 13 least populous states (all but New Hampshire) and 9 of the nation's 13 most populous states (California, Texas, New York, Illinois, New Jersey, North Carolina, Georgia, Virginia, and Massachusetts), or more.[7] These 21 states have a total of 253 electoral votes, but we can expect a lack of interest in them by presidential candidates.

2. All votes for president do not count nationally

In 6 elections that determined the US president for 24 of the last 60 years, namely 1948, 1960, 1968, 1976, 2000 and 2004, if just a few thousand votes were denied to the national popular vote leader, or switched from the national popular vote leader to the second-place candidate, in just 1 or 2 states, that tiny reduction in what was a much larger national popular vote advantage would have let the second-place candidate win -- and actually did in 2000.[6]

A second-place candidate can win because, under "winner-takes-all-electors" rules in all 50 states, only those votes that enjoy a plurality in the state are allowed to count nationally. Yes, Maine and Nebraska allow a plurality winner in each district to take that district's elector, and the state-wide plurality winner takes the 2 additional electors. But so far, the same winner has taken all electors state-wide, even in these 2 states.[8]

Figure 5 illustrates this scholarly reasoning for the election of 2004.

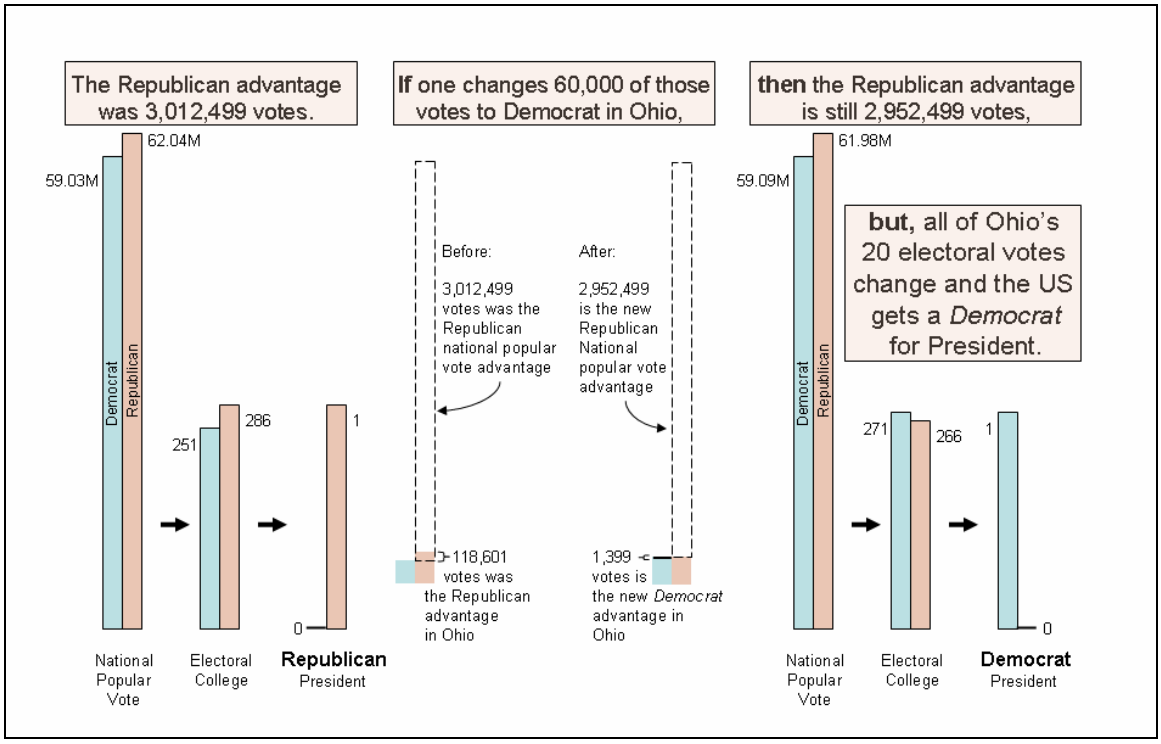

Figure 5. Because the winner takes all electors, in 2004 a loss in Ohio of 1/50th of its national popular vote advantage would have cost the Republican Party the US presidential election

On the left of Figure 5 is what actually happened.[9] In the middle we model a tiny reduction in the Republican candidate's huge winning margin. On the right is what would have happened as a result. Now the details.

On the left, the 3.01 million national vote advantage for the Republican candidate produced a 35 vote advantage in the Electoral College, which produced a Republican president.[9]

In the middle, we see that the 3.01 million national vote advantage for the Republican candidate, the tall dashed rectangle, included a 118,601 "red" vote advantage in Ohio ("before"). Now we model 1/50th of the Republican candidate's national advantage, only 60,000 votes, as being switched to the Democrat candidate in Ohio, leaving the Republican with a 2.95 million national vote advantage but losing Ohio by a mere 1,399 "blue" votes ("after"). 98% of the national vote advantage (49/50th), the new dashed rectangle, remains with the Republican candidate.

On the right, the remaining 2.95 million national vote advantage for the Republican candidate produces a 5 vote *dis*-advantage in the Electoral College, which produces a *Democrat* president. This kind of voter-defeating result is what could easily have happened in 1948, 1960, 1968, 1976, 2000 and 2004, and actually did happen in 2000.[6]

Such voter-defeating results are due to the "winner-takes-all-electors" rules, which have been in use in some states since the first presidential election in 1789.[10] Such rules are not inconsistent with the US Constitution. The US Constitution (Article II) leaves it to each state to decide how it will choose and instruct its electors.

So we see that under the US presidential election system, it is frequently the case that the outcome of an election can be changed by making just a small percentage reduction in a much bigger national popular vote advantage. Such a system is too vulnerable to misbehavior by officials.

In just 1 or 2 states, if you can tempt just a few officials to believe that it is in the country's interest, say, to design a confusing ballot that makes the tallied voting more random, or dispossess a few voters, your second-place candidate can become president, despite the fact that another candidate got many more votes nationally.

3. All votes for president do not count equally

All votes for president do not count equally under the US elector-based system. There are many ways to show this. Here we make 3 comparisons.

We compare (1) California to Wyoming, (2) the 25 most populous states to the 25 least populous plus Washington, D.C., and (3) the 21 most populous states to the 29 least populous plus Washington D.C.

First, in California there is 1 electoral vote for every 615,000 people; in Wyoming, there is 1 electoral vote for every 164,000 people.[3] Assume that an equal percentage of people actually does vote in each state. It follows that in the Electoral College, a voter in California counts or "weighs" only 0.27 as much (164,000/615,000) as a voter in Wyoming, in his or her electoral contribution. So here we are, face-to-face with California voters only counting ¼ as much, and we should remember this question: why should the US educate Californians very much if their votes don't count very much?

Second, in the 25 most populous states there is 1 electoral vote for every 566,000 people, while in the 25 least populous states plus Washington D.C., there is 1 electoral vote for every 378,000 people.[3] Under the same assumption as above, it follows that in the Electoral College a voter in the 25 most populous states weighs only 0.67 as much (378,000/566,000) as a voter in the 25 least populous states plus Washington D.C., in his or her electoral contribution.

As I pointed out in [3], some people fail to grasp the significance of this down-weighting. Decreasing the weight of each voter has the same effect as giving full weight to some of those voters but denying the existence of the others. In the Electoral College the result would be the same: down-weighting a population by a fraction has the same effect as pretending that some number of people does not exist.

So, by decreasing the weight of persons in the 25 most populous states such that they weigh only 0.67 as much, their effective population is reduced to 157 million, one-third less than the 235 million people who actually live in those states: i.e. in the Electoral College, the effect is the same as if 78 million of these people do not exist.

Finally, third, because of its down-weighting in the US Electoral College, the population of the 21 most populous states is effectively reduced by more people than exist in the entire rest of the country.[3] If this claim too appears outrageous, please dare once again to read on.

Figure 6 shows graphically how this happens [3]:

The 217 million people in the 21 most populous states currently get 380 electors, i.e. they get 1 elector per 572,000 people.[3] The 63 million in the 29 least populous states plus Washington, D.C., get 158 electors, i.e. they get 1 elector per 403,000 people.[3]

The down-weighting factor for the 21 most populous states is therefore 403,000 / 572,000 = 0.70. The effective population of the 21 most populous states is therefore 0.70 * 217 = 153 million.

The effective *loss* of population in the 21 most populous states is therefore 217 - 153 = 64 million, more people than exist in the entire rest of the country.[3]

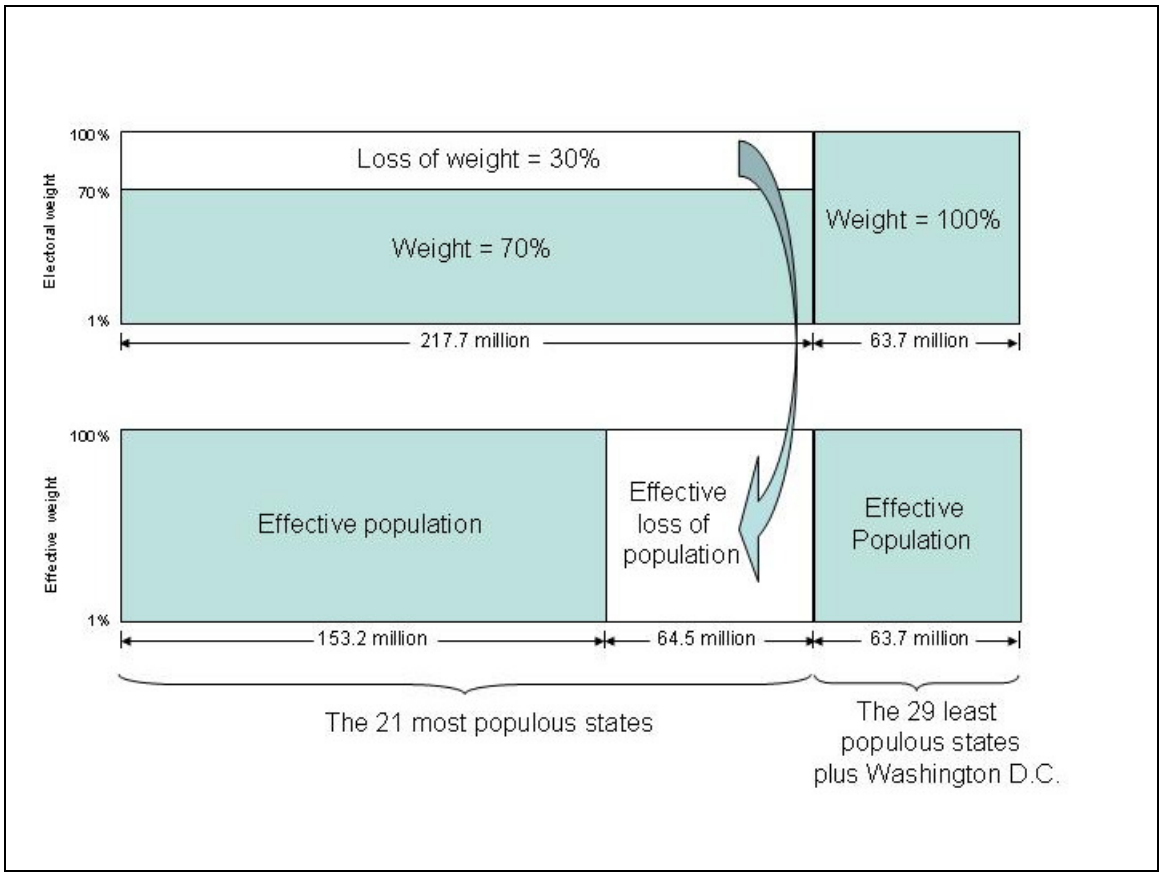

**Figure 6. Top: the electoral weight of the 21 most populous states versus the 29 least populous states plus Washington D.C.
Bottom: the effective population of the 21 most populous states versus the 29 least populous states plus Washington D.C.**

As of the year 2000, the 21st most populous state is Minnesota (MN). Referring back to Figure 4, it looks like states thru Minnesota get about 90% of the electors they would get, on the basis of an equal allocation by population. So how can the down-weighting of the 21 most populous states be 70%, with an effective population loss of 64 million?

The answer is the 21 most populous states get 70.6% of the electors for their 77.4% of the population, a *down*-weighting to 91.3%. But at the same time the 29 least populous states plus DC get 29.4% of the electors for their 22.6% of the population, an *over*-weighting to 129.7%. The ratio of 91% to 129% is 70%.

In other words, if the weighting of people in the 29 least populous states plus DC is the unit of comparison, the 21 most populous states are down-weighted by 0.70 with an effective population loss of 64 million people, more people than exist in the rest of the country. Similarly, you can pick another "x" and calculate the effective population loss for your "x" most populous states.

If the US has a population down-weighting presidential election system with the same effects as another, population-ignoring system that we would, on democratic principles, find appalling, the question is: when should the US admit that its system *is* that other system, and do something about it?

To sum up this scholarly reasoning, the US elector-based system for selecting the federal executive does not let all states count in presidential campaigning, does not let all votes for president count nationally, and does not let each citizen's vote for president count equally.

It is sometimes asserted that the people in the least populous US states, e.g. the 4.8 million residents of the 7 least populous states, should not want a change in this system, because their current overweighting is supposed to be to their advantage. We should not assume that all residents of these states agree.

I ask you: are all the people of the 7 least populous states better served by the overweighting of 21 partly representative electors, than they would be by the equal weighting of all their fully representative votes? We could ask a Republican in "blue" New Hampshire, or a Democrat in "red" Montana. But in principle, if you believe in democracy, I do not understand how you can answer "yes".

How bad is the state-based representation of population?

In the discussion of Figure 3 we associated the state-based bar graph with the US Senate. That association reminds us that a jurisdiction does not become a US "state" based on its population.

Similarly, because each state has the same 2 votes in the US Senate, one for each of its Senators, voting in the US Senate is not based on population.

Equal-weighted voting in the Senate, i.e. voting that is not weighted by population, contributes to the US Congress being insensitive to population-based problems, problems such as the education problems illustrated in our modified CofC bar graphs in Figures 2 and 3.

There is also equal-weighted voting by US states on amendments proposed for the US Constitution. So, voting by state will cause the constitutional amendment process also to be insensitive to population-based problems. As we saw, we end up with the fact that 4.5% of the population, if they are in the 13 least populous states, can veto an amendment that is wanted by the other 95% of the population.

This combination of granting equal votes to each state in the US Senate, and granting equal-weighted votes to each state in the constitutional amendment process, must surely make the US less responsive to population-based problems than it would be with, say, population-based voting in the Senate, and population-based voting in the constitutional amendment process.

The education problem is only one of the population-based problems. So, our question was: how bad is the state-based representation of population? The answer depends on how bad the whole set of population-based problems is that the US may need to address.

So, how bad is the following set of population-based problems: besides (1) K-to-12 education, there is (2) health-care, (3) illegal drugs, (4) violent crime, (5) homeland security, (6) retraining of unemployed adults, and (7) support for

retirement. Are there other population-based problems that you would like to add to this list? How about the population-based exhausting of natural resources like oil?

Given any similar list of important population-based problems, the state-based representation of population is bad.

To be fair to the CofC, it is understandable that they should think of dividing up the US and summarizing its education statistics by states. But there is another tiling of the US that has a lot to do with K-12 education, namely the local tiling by counties.

Counties are very sensitive to their population sizes. These sizes affect reimbursements, e.g. for the number of student days in county schools, or the number of patient days in county hospitals.

It is easy to imagine that counties have fewer people than states, because each state includes many counties. But in fact, according to the U.S. census, in 1990 there were 96 counties that had bigger populations than the state of Wyoming in 2000. [11]

And 11 of those counties had bigger populations in 1990 than any of the 13 least populous states (Nebraska thru Wyoming) in 2000. Table 1 lists those 96 counties by population and identifies the states they are from.

S		Popn_90	County		S		Popn_90	County		S		Popn_90	County	
MI	1.	8863164	Los Angeles	CA		33.	961437	Franklin	OH		65.	669016	Ventura	CA
AZ	2.	5105067	Cook	IL		34.	959275	Milwaukee	WI		66.	667490	Fresno	CA
MS	3.	2818199	Harris	TX	MT	35.	874866	Westchester	NY		67.	664937	Jefferson	KY
AR	4.	2498016	San Diego	CA		36.	866228	Hamilton	OH		68.	663906	Suffolk	MA
	5.	2410556	Orange	CA		37.	863518	Palm Beach	FL		69.	651525	Jefferson	AL
	6.	2300664	Kings	NY		38.	851783	Hartford	CT		70.	649623	San Mateo	CA
UT	7.	2122101	Maricopa	AZ		39.	851659	Pinellas	FL		71.	648951	Fulton	GA
	8.	2111687	Wayne	MI		40.	836231	Honolulu	HI	ND	72.	633232	Jackson	MO
NV	9.	1951598	Queens	NY		41.	834054	Hillsborough	FL		73.	616087	Norfolk	MA
	10.	1937094	Dade	FL		42.	827645	Fairfield	CT	VT	74.	606900	D.C.	DC
	11.	1852810	Dallas	TX		43.	826330	Shelby	TN		75.	599611	Oklahoma	OK
NE	12.	1585577	Philadelphia	PA		44.	825380	Bergen	NJ		76.	596270	Providence	RI
	13.	1507319	King	WA		45.	818584	Fairfax	VA		77.	591610	El Paso	TX
	14.	1497577	Santa Clara	CA		46.	804219	New Haven	CT		78.	586203	Pierce	WA
	15.	1487536	New York	NY		47.	803732	Contra Costa	CA		79.	583887	Multnomah	OR
	16.	1418380	San Bernardi	CA		48.	797159	Marion	IN		80.	576407	Travis	TX
	17.	1412140	Cuyahoga	OH	DE	49.	781666	DuPage	IL		81.	573809	Montgomery	OH
	18.	1398468	Middlesex	MA		50.	778206	Essex	NJ		82.	553124	Monmouth	NJ
	19.	1321864	Suffolk	NY		51.	757027	Montgomery	MD		83.	553099	Hudson	NJ
	20.	1336449	Allegheny	PA	SD	52.	741459	Clark	NV		84.	547651	Delaware	PA
ID	21.	1287348	Nassau	NY		53.	736014	Baltimore City	MD		85.	543477	Kern	CA
	22.	1279182	Alameda	CA		54.	729268	Prince George's	MD		86.	545837	DeKalb	GA
ME	23.	1255488	Broward	FL		55.	725956	Salt Lake	UT		87.	541174	Bucks	PA
HI	24.	1203789	Bronx	NY		56.	723959	San Francisco	CA		88.	516418	Lake	IL
	25.	1185394	Bexar	TX		57.	717400	Macomb	MI		89.	511433	Mecklenburg	NC
	26.	1170413	Riverside	CA		58.	709705	Worcester	MA		90.	510784	Davidson	TN
	27.	1170103	Tarrant	TX		59.	692134	Baltimore	MD		91.	506325	Bristol	MA
	28.	1083592	Oakland	MI		60.	678111	Montgomery	PA		92.	500631	Kent	MI
RI	29.	1041219	Sacramento	CA		61.	677491	Orange	FL		93.	503341	Tulsa	OK
	30.	1032431	Hennepin	MI		62.	672971	Duval	FL		94.	502824	Camden	NJ
	31.	993529	St. Louis	MO		63.	671780	Middlesex	NJ		95.	496938	Orleans	LA
	32.	968532	Erie	NY		64.	670080	Essex	MA		96.	493819	Union	NJ
										WY				

Table 1. According to the US census, 96 US counties had bigger populations in 1990 than the population of the state of Wyoming in the year 2000. Column "S" shows the smallest state with a bigger population than a county to its right. Column "Popn_90" shows the county's 1990 population. Column "County" shows the county's name and state.

Here is how to read Table 1. Row 1 says that Michigan (MI) is the least populous state with a year 2000 population bigger than the population of Los Angeles County, California, in 1990, which was 8,863,164 people. Los Angeles County includes just the city of Los Angeles. As a reminder from Figure 4, Michigan is the 8th most populous state in the United States.

Row 2 says Arizona (AZ) is the least populous state with a population bigger than Cook County, Illinois. Cook County includes just the city of Chicago. Arizona is the 20th most populous state in the United States.

At the bottom of Table 1, Wyoming is a state with a smaller population than Union County, New Jersey. The city of Elizabeth is located in the north-east corner of Union County.

By giving the 493.7 thousand people of Wyoming, approximately the population of Elizabeth, New Jersey, the same weight in the US Senate as the 33.8 million people of California, what is the US doing? The answer is: the US is turning off its sensitivity to population-based problems, like the problem of K-12th grade education.

By giving the 493.7 thousand people of Wyoming, approximately the population of Elizabeth, New Jersey, a right to vote on amendments to the US Constitution equal in weight to that of the 33.8 million people of California, what is the US doing? The answer is: the US is turning off its ability to adapt to population-weighted problems, like the problem of K-12th grade education.

Does the CofC education report card open a political Pandora's Box?

It is no coincidence that sensitivity to population-based problems, and ability to adapt to population-based problems, were turned off in the US Constitution. This was a price paid to get the elite of each small colony to agree to join a new federation which included the behemoth known as Virginia. This price bought a highly population-insensitive federation and a high degree of immunity from changes to that federation in the foreseeable future.

Readers who have visited the Court House at Colonial Williamsburg, Virginia, may have seen a map of North America on the wall. Dating from 1750, that map showed Virginia claiming land from the Atlantic Ocean all the way to what is present day Chicago. Virginia was a behemoth that elites of small colonies wanted protection from.

So in 1780, it may have seemed beneficial to make sacrosanct a system for 13 colonies clinging to the eastern seaboard of North America. Those 13 colonies included 3.6 million people, about as many people as the population of Connecticut today.

But whatever those benefits were in 1780, in 2007 they are swamped by the dangers of failing to adapt to planet-wide problems in a world whose human population has increased by a factor of 6 in the last 100 years to a total of 6 billion. Again, we are talking about problems like K-to-12 education, health-care, illegal drugs, violent crime, homeland security, retraining of unemployed adults, support for retirement, and exhausting of natural resources

So, yes, this discussion of the CofC education report card opens a political Pandora's Box. But, before you shoot the messenger, ask yourself: what will happen if these problems of the US's surprisingly unrepresentative government are ignored?

Can the US afford to ignore the fact that it doesn't have population-based voting for the US president, population-based voting in the US Senate, and population-based voting for changes to the US Constitution, or should it move in these directions? Should the US chose a course of inaction or a course of action on these matters?

Let's argue that inaction is an adequate plan. In this case, the hypothesis is: the US can make do with its present, surprisingly unrepresentative government.

The US government has certain difficult issues that it must deal with. Take the problem of the large number of people using oil.

As the world depletes the 1 trillion barrels of proven oil reserves, imagine how vicious or how self-sacrificing the US may become.

Option 1: the US will act increasingly unilaterally and viciously, unafraid of *increasing conflicts* to protect its access to oil; or Option 2: the US will act increasingly multilaterally, and urge self-sacrifice from all, including itself, *minimizing conflicts* for oil.

How willing are the people of the US to support vicious acts taken in their name by an unrepresentative government? How willing are they to support self-sacrifice for an unrepresentative government?

I assume that large numbers of the unrepresented will think: this unrepresentative government favors some elite, and to hell with them.

I assume the unrepresented will resist this government and resent it, even if in a specific case that government is asking them to do the "right" thing, whatever that is.

I assume that the unrepresented will not accept that an unrepresentative government is acting legitimately.

So, I assume that the combination of (1) inaction on making the government more representative and (2) increased pressure for certain difficult decisions to be taken, will lead the unrepresented to react to a perceived illegitimacy of the government via civil and uncivil unrest. It is only a matter of time.

How much time does the US have to avoid inaction? Consider the decisions that have to be made about oil.

If technologies that permit reducing oil consumption are not introduced in a massive way, a reasonable estimate for the world's oil pumping rate over the next two decades is 100 million barrels a day. We are currently at 84 million barrels a day.

At this rate, the world would deplete the 1 trillion barrels of proven oil reserves in 10,000 days, namely, by November of 2033.

If so, the US has less than 26 years to revise its unrepresentative government, and give the new government time to generate wide consensus for difficult decisions to be taken in its population's name.

Tick, tock, tick, tock...

A democratic opportunity for business

So the next question is: how should the US Chamber of Commerce (CofC) and US business in general respond promptly to the double challenge of (1) poor K-12th grade education, and (2) the broader political Pandora's box of an unrepresentative government with additional, urgent, population-based problems?

One alternative is that business could tackle the education problem now, and leave the governmental and other problems for somebody else, or for a later time. Perhaps some business interests would prefer this, imagining a "big enchilada" of education privatization that gets contracts flowing at once.[12]

But where will enough money come from to do the job right? Who believes that a population-insensitive government is willing and able to raise enough additional taxes to pay for enough additional work to make a measurable difference on a huge, population-based problem like K-12th grade education for the whole US? Who believes the private sector alone should take on this burden?

Remember: we assume that US business is not interested in mere window-dressing; US business really needs enough progress on education that work done in the US is cost-effective. Without more money, isn't it a risk that education managed by the private sector will fail as much as public-sector education does?

Another alternative is that business simultaneously offers its assistance for education reform *and* government reform, in increments that are only gradually more expensive, and that allow the US population to become convinced of business's expertise on the one hand, and its democratic good intentions on the other.

This democratic alternative makes sense for business, because historically, business has benefited handsomely from the democratization of government, although some efforts took a long time to succeed:

Four centuries ago, when European settlements were started in the New World, European societies and governments were based on classes or so-called "estates". One estate was the clergy, another was the royals and a third was the commoners, including business people. Now consider the benefits that democratization has brought for business since that time.

Consider, for example, the democratization of France since Charles IX. In 1572, Queen Mother Catherine de Medici made King Charles change his mind about making peace with wealthy business Protestants (Huguenots). Charles had business people murdered, and unleashed the infamous St Bartholomew's Day Massacre around the country.[13] Business people fled France, but since the French Revolution, they have benefited under the rule of a series of republics.

Or, consider the democratization of the United Kingdom since James I. In the early 1600's, life-time royal tenures were invented just to be a source of revenue for the kingdom. Did you want the title of Earl? You paid official George Villiers 20,000 pounds and then hoped he didn't find an excuse to throw you out and resell your title to the next bidder.[14] Business taxes were another source of revenue. When the business community demanded reform, James dissolved their Parliament and found a pretext to send much-admired lawyer and reformer Francis Bacon to the Tower of London until he paid a ruinous sum to get out.[14] Today, however, the Queen must ask a member of Parliament elected by commoners to form the government.

Compared to the drama and time-scale of these historic events, the democratic opportunity that we might recommend to US business today would proceed by steps that are small and fast. One immediate goal is to improve K-12th grade education. Another is to avoid the threat of uncivil unrest within the next 26 years, as predicted above.

A first step in this democratic opportunity for US business today would be to support full, population-based selection of the US president, by a system of one person, one vote. Since 1944, multiple polls have shown that anywhere from 65% to 81% of the US population want such a system.[15]

Unfortunately, the route for passing a constitutional amendment for population-based selection of the US president is still encumbered by the requirement of a 2/3 majority in the US Senate, which is not population-based, and a ¾ majority in voting by the states, which is also not population-based.

So, as those who tried it in the 1970's found out [16], it is *unrealistic* to try to implement population-based selection of the US President by passing a constitutional amendment. The brakes that the elite originators of the US federation put on the amendment process still work. Women's suffrage took 80 years.

However, Article II of the US Constitution is also still in effect. Each state still has the right to decide how it will choose and instruct its electors. So a group known as "National Popular Vote" has developed a state-by-state compact called an "Agreement Among the States to Elect the President by National Popular Vote".[6]

This compact would take effect once it is adopted into law by states that control a majority of the votes in the Electoral College, i.e. at least 270 electoral votes. One way this compact could take effect is if the 11 most populous states sign it, representing more than 160 million of the United States' 281 million people, or 57% of the population as of the 2000 census.

Another way the National Popular Vote compact could take effect is if the 21 spectator states sign it, representing 135 million people with 253 electoral votes, along with additional down-weighted states with a total of 17 electoral votes.

On April 10, 2007, within just 411 days of its introduction, the National Popular Vote compact was passed by the state of Maryland. It has already been introduced in 47 states, and has been endorsed or voted for by 10% of the nation's state legislators.

In other words, there are many ways for the National Popular Vote compact realistically to succeed in circumventing the normal way of *not* changing the US Constitution, namely constitutional amendment, and to do so in record time.

The prospects for prompt passage of this compact to make the US president fully sensitive to population-based problems make us optimistic that this democratic opportunity that we might recommend to US business today can indeed proceed by steps that are small and fast.

However, if the National Popular Vote compact approaches the needed 270 Electoral College votes, we can be sure that the US Supreme Court will weigh in, as an arbiter on such constitutional issues as "equal protection" and the so-called "impairments" of contracts. So US business must be prepared for some risks in terms of effort and delays.

But think of the larger risks. Without a population-sensitive government, business people will be fighting with one another for the few dollars available for K-12th grade education in essentially a zero-sum game: for your education business to do better, the next one has to suffer. And the prospects for long-term success with insufficient funding are not good.

On the upside, if a population-sensitive government is able to fund education, funding could also open up for the whole list of population-based problems. Your business could afford to offer solutions for education. Maybe you'd even like to begin with pre-Kindergarten education.[17] And you could go on to offer solutions for health-care, and illegal drugs, and violent crime, and homeland security, and retraining of unemployed adults, and support for retirement, and the exhausting of natural resources.

There would be no question that, working diligently on these activities, you can meet your payroll. You could prove that an entitlement for public-sector workers is not necessary or best. You could prove that business is competitive.

So what do you say, CofC and US business, are we up to it? If so, please announce your support for National Popular Vote, and bring the first step of this democratic opportunity for US business to fruition. Further steps, like population-based voting in the US Senate, and population-based voting for amendments to the US Constitution, could be built on your success!

Summary

According to a 2007 US Chamber of Commerce (CofC) study[1], the measures of the shortcomings of the US K-12th grade education system "are stark indeed". We analyzed a state-based summary of this study and discovered that the results are even worse when viewed in population-based terms.

By comparing results in state-based, elector-based and population-based terms we quantified insensitivities of the US presidency, the US Senate and the US constitutional amendment process to population-based problems, and an inability of the US government to adapt to population-based problems.

We named a large number of population-based problems that the US must address, which include in addition to K-to-12th grade education: health-care, illegal drugs, violent crime, homeland security, retraining of unemployed adults, support for retirement, and the exhausting of natural resources like oil.

We argued that it is urgent for the US to address these problems, which means that the US must respond promptly to the double challenge of (1) poor K-12th grade education, and (2) the broader political Pandora's box of an unrepresentative government with additional, urgent, population-based problems.

We argued that without action on the insensitivity of government to population-based problems, there will not be enough public money to address the education problem, let alone the other problems, and that with insufficient funding, business-managed education risks failing just like public-sector education before it.

This double challenge presents a democratic opportunity for business, which has benefited historically from the democratization of government.

A first step would be to support full, population-based selection of the US president, by a system of one person, one vote. The next question was how to accomplish this step promptly when the normal way of *not* changing the US Constitution, namely the constitutional amendment process, is still in place.

The answer was to pass a state-by-state compact called "National Popular Vote", which has already been introduced in 47 states and adopted by 1 state (Maryland).

If the US Chamber of Commerce and US business are up to it, we asked them to please announce their support for National Popular Vote, and we foresaw that further steps, like population-based voting in the US Senate, and population-based voting for amendments to the US Constitution, could be built on business's success in this first step.

October 12, 2010, update:
The National Popular Vote compact has now been passed in Maryland, New Jersey, Illinois, Hawaii, Washington, Massachusetts and the District of Columbia, and has 28% of the 270 electoral votes that it needs to take effect.

References:

[1] http://www.uschamber.com/icw/reportcard/default
[2] Loeb, Susanna. 2006. California schools, go back to the drawing board.
[3] http://www.stmartinsystems.com\elector.htm
[4] http://www.npg.org/states/va.htm
http://www.npg.org/states/de.htm
[5] Hill, Steve, R. Ritchie. 2003. Fixing Elections.
http://www.populist.com/03.18.elections.html
Raskin, Jamin B. 2003. Overruling Democracy. New York, Routledge.
Kuhn, Gary M. 2004. When it comes to US presidential elections, is it true that 78 million of us do not exist?
http://www.stmartinsystems.com\elector.htm
Shane, Peter M. 2004. Repair the Electoral College, Four Steps Would Help Balance Majority Rule With Minority Rights.
http://www.washingtonpost.com/ac2/wp-dyn/A10803-2004Oct29
Ackerman, Bruce. 2005. The Failure of the Founding Fathers. Cambridge Mass., Harvard.
Koza, John R., B. Fadem, M Grueskin, M.S. Mandell, R. Richie, J.F. Zimmerman. 2006. Every Vote Equal. National Popular Vote Press.
Lewis, Rachel, R. Richie, J. Santucci. 2006. Majority Rule in International Presidential Elections, The Dominant Role of Runoffs Around the World.
http://www.fairvote.org/?page=1867
[6] http://www.nationalpopularvote.com
[7] http://www.nationalpopularvote.com/pages/misc/hl_20070722_31states.php
[8] http://www.FairVote.org
[9] http://www.fec.gov/pubrec/fe2004/federalelections2004.shtml
[10] http://www.fec.gov/pdf/eleccoll.pdf
[11] http://www.census.gov/population/www/censusdata/cencounts.html
[12] Kozol, Jonathan. 2007. "The Big Enchilada". Harpers, August, p 7-9.
[13] http://www.newadvent.org/cathen/13333b.htm
[14] Dodd, Alfred. 1946. The Martyrdom of Francis Bacon. London; Rider. P 59
[15] http://www.nationalpopularvote.com/pages/polls.php
[16] http://en.wikipedia.org/wiki/Birch_Bayh
[17] Shure, John. 2007. Pre-Kindergarten Programs Pay Big Dividends, and Not Just for Kids
http://www.njpp.org/pr_20070502.html

About the author: Dr. Kuhn is a former head of the Adaptive Information and Signal Processing Department of Siemens Corporate Research, and currently President of St Martin Systems, Inc., both located in Princeton, New Jersey. He does technical research for the US Government, but he alone is responsible for the views expressed here.