

Congress is Broken – Does the Solution Come from Random Numbers?

By David R. Koenig

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As the 2012 elections approached, [the approval rating of the U.S. Congress](#) was somewhere between 10% and 20%. Yet, despite this, more than 90% of candidates for the U.S. House of Representatives that sought re-election, won. It's not a secret that this paradoxical incongruity is a problem that threatens the credibility of our system of government. The result is not random, but the solution might be.

Every ten years, following the U.S. Census, the maps of districts that our representatives represent are re-drawn. While [state laws on how this redistricting is achieved vary wildly](#), some principles are more common than others, including the need for congressional districts to be compact, contiguous, and of roughly equal population. Federal law requires that redistricting not be done in any way that disenfranchises minority groups.

But, through well-funded, well-planned, efforts suiting both major parties, these districts have often been designed to meet another, ignoble, criterion. In most states, the party that controls the state legislatures controls this redistricting process and [gerrymanders](#) the districts to their best advantage. As New York Times blogger [Nate Silver notes](#), in this past election, 242 of 435 congressional districts were “landslide districts” in which the vote tally deviated by more than 20 percent from the presidential vote. This is nearly double the number of districts falling into this category just twenty years ago and is primarily a result of efforts by both major parties to create “safe districts” for their party's elected officials.

Landslide districts are safe, and the representatives elected in those districts are, in effect, elected during the primary of their party, not the general election. They are, hence, very beholden to their parties, stalwarts of which are most likely to vote in primaries, and beholden to the funders of those parties. These sources of power are known and unchanging.

Given this construct, representative performance in support of individual constituents, broadly, is not what matters. Representative performance in support of **predictable** sources of power is.

But, what if it was much less certain who would make up the constituency of elected representatives each time redistricting occurred? What if we took that power away from parties and used math and computers to do the work? It turns out that everything could change, if it were allowed to.

As I pondered this issue of predictable sources of power, my thoughts immediately drifted toward the use of random numbers as a way to undo the predictable nature of the current construct. Consider one concept where a state's districts are determined entirely by a computer.

The process begins by using a single census block within an existing district as a “seed” or starting point. That seed is chosen at random from existing census blocks in the current district. Next, the same thing is done for each congressional district in that state.

Once the seed census blocks are known, a random number generator would be used to determine a contiguous census block to attach to the original seed block. It may be north, south, east, west, southeast, southwest of the seed block – whatever the random number generator says to do.

Next, the computer moves on to the second congressional district in the state where enough census blocks are added via the same method until the population represented by that district is roughly equal to the first. This continues around and around until all congressional districts in the state have roughly equal number of people living in them. This is the end of round one.

To complete the redistricting of the state, the process is repeated by rounds, again and again, until no census blocks are left unassigned.

The result of taking this approach is that new congressional districts are created which are both contiguous and roughly equal in population. They are also likely to be compact. And, since there is no account taken of race – the process is random, there is no intentional disenfranchisement of any minority group. These randomly generated districts have also been designed in a process that is free from political interference.

After an election is completed using these redrawn maps, the representative of the district will not know with certainty – only with some probability – who will be determining their future election fate. Maybe their district will be “safe” after the next redistricting, or maybe it will be competitive. Their financial sources of power may or may not be dealing with someone who they can assume will be in their seat for an extended period of time. And, party primary voters may have to hedge their bets by electing more centrist politicians if there is a threat that they might need independents and voters from the other party to keep their party in office.

In other words, their re-election fates are more likely to be based on their job performance for the whole district, not just on what one party wants them to do.

While the constitution calls for re-apportionment of the number of seats in the house, and thus redistricting, to happen every ten years, the ease of a seeded random number process could allow redistricting to happen before every election, making the sources of power even more unpredictable and forcing elected officials to work for the good of their whole district.

It seems like a good idea, doesn't it?

Well, it turns out that it's not quite this easy, in part, because state legislatures have taken a legislative route to try to fix the problems of gerrymandering and to instill some “values” into the process. In an excellent overview of the current state of research in the use of computers to redistrict, Micah Altman, Senior Research Scientist at Harvard University's Institute for Quantitative Social Science and Michael P. McDonald, Associate Professor in the Department of

Public and International Affairs at George Mason University look at [*The Promise and Perils of Computers in Redistricting*](#).

These problems include geographical issues, consistency with existing case law, and disparate impact on minorities even if none was intended by the process, small sample problems with random number generators, among others.

And, it may be the case that congressional districts are becoming more partisan because [people are moving into areas where people like them already live](#). Living in “safe” districts may be something people are choosing to do “with their feet.”

Still, in what seems to be a very badly broken system – where an entity that is disapproved by 80-90% of its “customers” keeps 90% of its eligible service providers in place – it’s time to use the power of randomness to take away the power of entrenchment and parties. I, for one, would welcome this change. But, it’s only going to come about if we demand it.

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