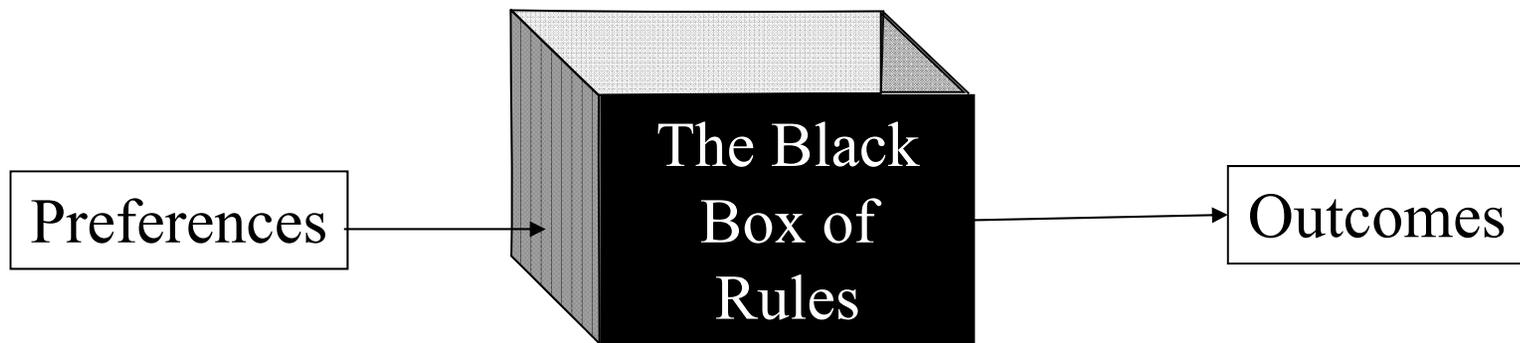


Regulating Elections: Districts

17.251/252

Spring 2016

Throat Clearing



Major ways that congressional elections are regulated

- The Constitution
 - Basic stuff (age, apportionment, states given lots of autonomy)
 - Federalism key
- Districting
- Campaign finance

APPORTIONMENT

Apportionment methods

- 1790 to 1830--The **Jefferson method** of greatest divisors
 - Fixed “ratio of representation” with rejected fractional remainders
 - Size of House can vary
- 1840--The **Webster method** of major fractions
 - Fixed “ratio of representation” with retained major fractional remainders
 - Size of House can vary
- 1850-1900--The **Vinton** or **Hamilton** method
 - Predetermined # of reps
 - # of seats for state = Population of State/(Population of US/N of Seats)
 - Remaining seats assigned one at a time according to “largest remainder”
 - “Alabama paradox”
- 1940-2010--The method of equal proportions

Source:

<https://www.census.gov/population/apportionment/about/history.html>

About the Alabama Paradox ...

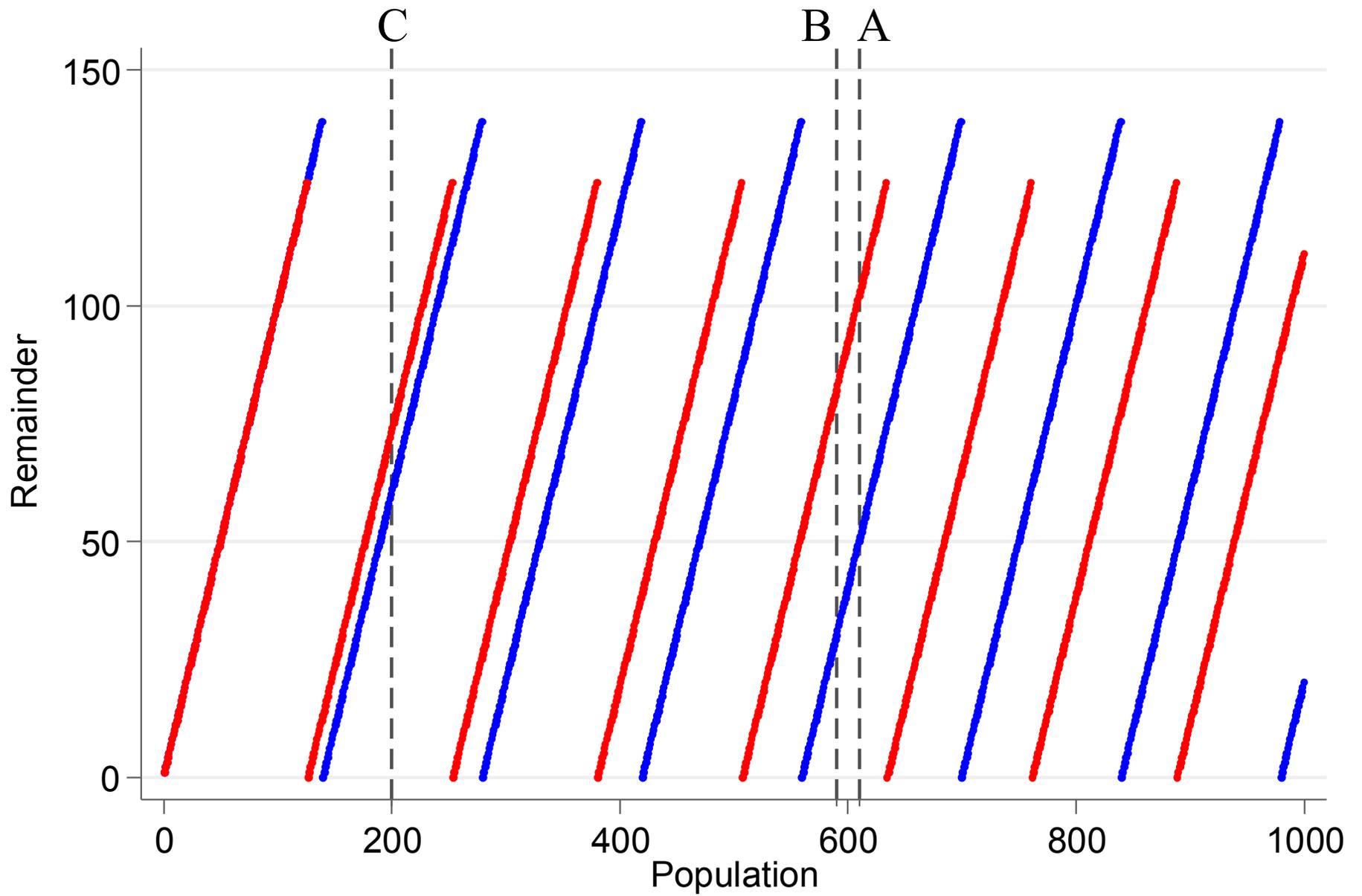
- Called the “Alabama paradox” because of the 1880 census (increasing the House from 299 to 300 reduces Alabama’s seats)
- Rule: Compute “fair share” of seats, then allocate an additional seat according to largest remainder
- Example, 3 states w/ 10 & 11 seats

		10 Seats		11 Seats
State	Pop.	Fair share	Seats	
A	610	<u>4.357</u>	4	
B	590	<u>4.214</u>	4	
C	200	<u>1.429</u>	1 → 2	
Total	1400	<u>9</u>	9 → 10	
Divisor	140 = 1400/10			

Diversion to the Alabama Paradox

- Called the “Alabama paradox” because of the 1880 census (increasing the House from 299 to 300 reduces Alabama’s seats)
- Rule: Compute “fair share” of seats, then allocate an additional seat according to largest remainder
- Example, 3 states w/ 10 & 11 seats

		10 Seats		11 Seats	
State	Pop.	Fair share	Seats	Fair share	Seats
A	610	<u>4.357</u>	4	<u>4.803</u>	4→5
B	590	<u>4.214</u>	4	<u>4.656</u>	4→5
C	200	<u>1.429</u>	1→2	<u>1.575</u>	1
Total	1400	<u>9</u>	9→10	<u>9</u>	9→11
Divisor	140= 1400/10			127= 1400/11	



• Divisor = 140 • Divisor = 127

Balinsky and Young (1982)

Fair Representation

- Any method of apportionment will yield paradoxes
- No apportionment method...
 - Follows the quota rule
 - Quota rule: If $\text{population}_s / \text{seats}_1 = I.d$, the state either gets I seats or $I+1$ seats
 - Avoids the Alabama paradox
 - Avoids the population paradox
 - Population paradox: when you have two states, and the one that grows faster loses seats to the one that grows slower

Method of equal proportions

- “Results in a listing of the states according to a priority value--calculated by dividing the population of each state by the geometric mean of its current and next seats—that assigns seats 51 through 435.”
- Practically: This method assigns seats in the House of Representatives according to a ‘priority’ value. The priority value is determined by multiplying the population of a state by a ‘multiplier.’ For example, following the 1990 census, each of the 50 states was given one seat out of the current total of 435. The next, or 51st seat, went to the state with the highest priority value and thus became that state's second seat.

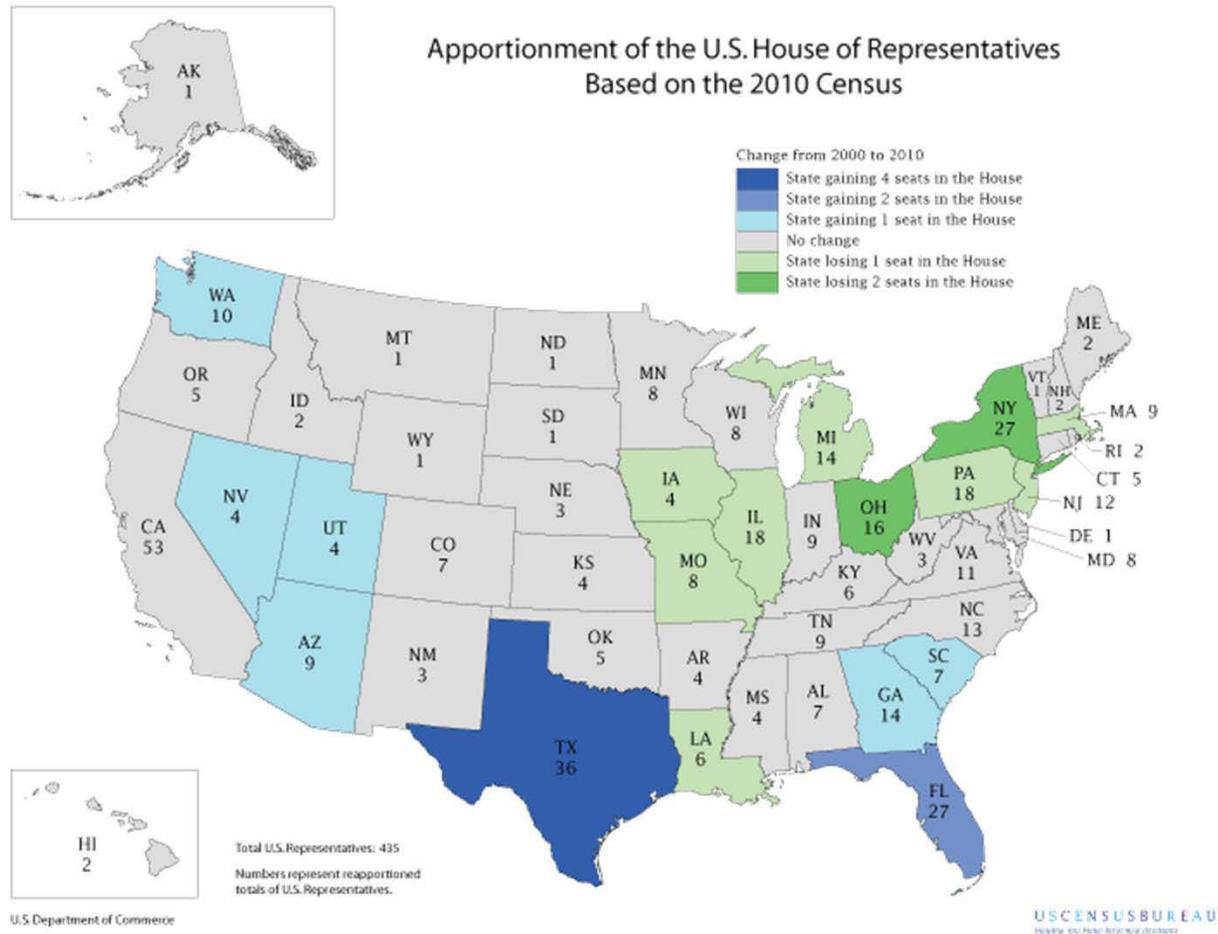
Source: <https://www.census.gov/topics/public-sector/congressional-apportionment.html>

Priority values after 2010

Seat #	State	Priority #	
51	California Seat 2	26,404,773	$\frac{37,341,989}{\sqrt{2 \times 1}}$
52	Texas Seat 2	17,867,469	
53	California Seat 3	15,244,803	
54	New York Seat 2	13,732,759	
55	Florida Seat 2	13,364,864	
...			
431	Florida Seat 27	713,363	$\frac{18,900,773}{\sqrt{27 \times 26}}$
432	Washington Seat 10	711,867	
433	Texas Seat 36	711,857	$\frac{6,753,369}{\sqrt{10 \times 9}}$
434	California Seat 53	711,308	
435	Minnesota Seat 8	710,230	
436	North Carolina Seat 14	709,062	
437	Missouri Seat 9	708,459	
438	New York Seat 28	706,336	
439	New Jersey Seat 13	705,164	
440	Montana Seat 2	703,158	

Thanks to <http://www.thegreenpapers.com/Census10/ApportionMath.phtml>

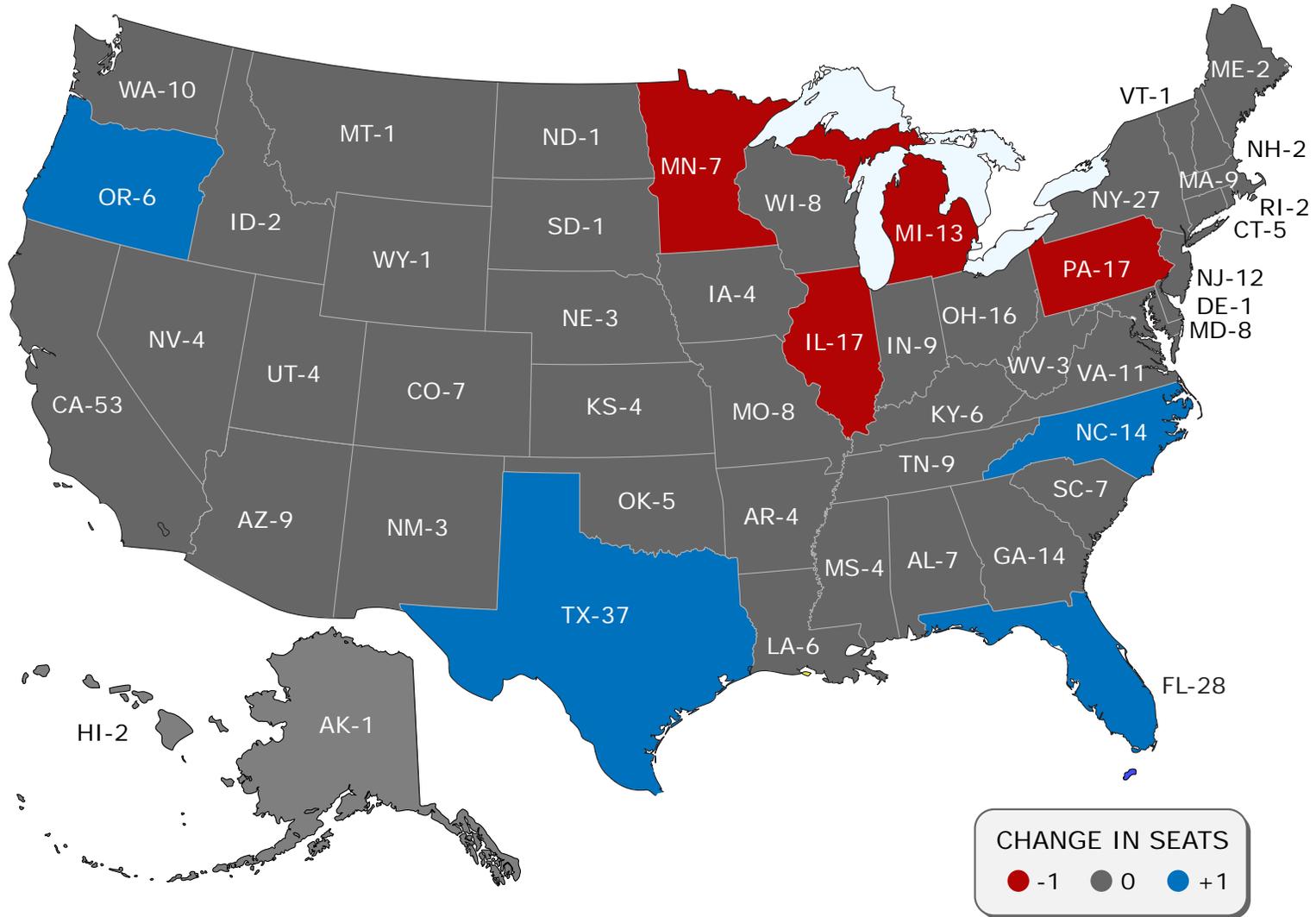
Reapportionment Change in 2010



Courtesy of the [U.S. Department of Commerce](#). This image is in the public domain.

Last seat given			Next seat at	
435	VA 12 (+1)		436	AL 7 (n.c.)
434	NY 34 (n.c.)		437	OR 6 (+1)
433	CA 54 (+1)		438	AZ 10 (+1)
432	TX 39 (+3)		439	MT 2 (+1)
431	CO 8 (+1)		440	MN 8 (n.c.)
			...	
			446	RI 2 (n.c.)
			...	
			746	WY 2 (+1)

ANTICIPATED GAINS/LOSSES IN REAPPORTIONMENT 2015 ESTIMATES

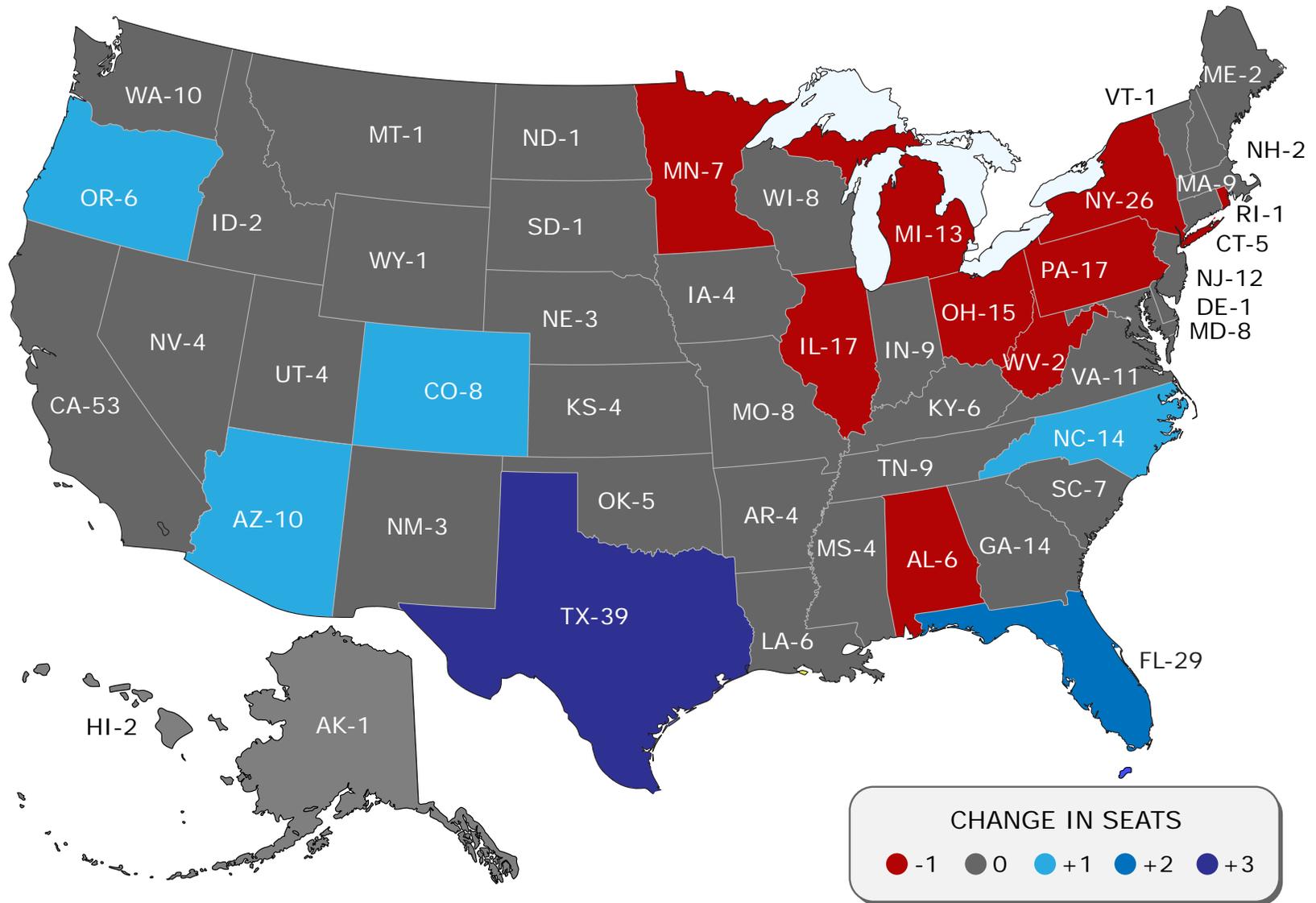


State numbers reflect number of congressional house seats after change put into effect.

Based on Census Bureau estimates released 12/22/2015

Image by MIT OpenCourseWare.

ANTICIPATED GAINS/LOSSES IN REAPPORTIONMENT 2020 PROJECTIONS



State numbers reflect number of congressional house seats after change put into effect.

Projections to 2020 based on 2010-2015 trendline from Census Bureau estimates released 12/22/2015

Image by MIT OpenCourseWare.

Recent Reapportionment Court Challenges

- *Department of Commerce v. Montana*, 12 S. Ct. 1415 (1992) & *Franklin v. Massachusetts* 112 S. Ct. 2767 (1992)
 - Method of equal proportions OK
- *Department of Commerce v. United States House of Representatives*, 525 U.S. 316 (1999)
 - The Census Bureau can't sample
- *Utah v. Evans*, 536 U.S. 452 (2002)
 - “Hot deck” imputation challenged
 - Mormon missionaries miscounted

DISTRICTING

Districting

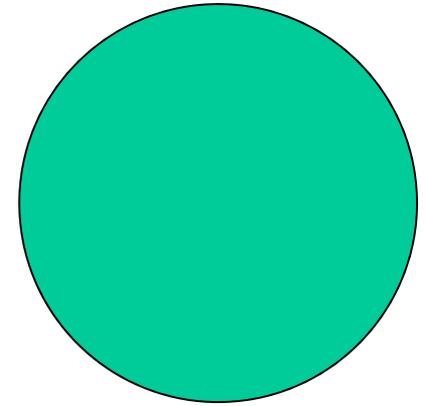
- Districts required in House races since Apportionment Act of 1842
- Effects of districting
 - Can influence overall responsiveness
 - Can influence quality of representation at a micro level

Districting principles

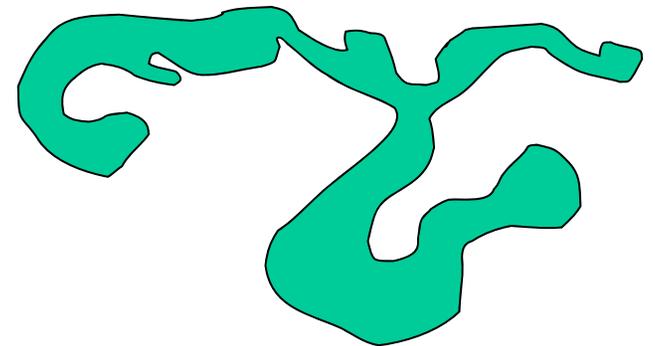
- Universal principles
 - Compactness and contiguity
 - Equal population
 - Respect existing political communities
 - Political/partisan fairness
- Distinct US principle
 - Civil rights constraints

Principle 1: Compactness

- General idea: $\min(\text{border}/\text{area})$
- Types of measures (~30 in all)
 - Contorted boundary
 - Dispersion
 - Housing patterns



Good



Bad

Three major measures

Convex Hull



Figure 6: Convex Hull: ratio of the district area (solid blue) to the area of the minimum bounding convex polygon (green stipple)

Polsby-Popper

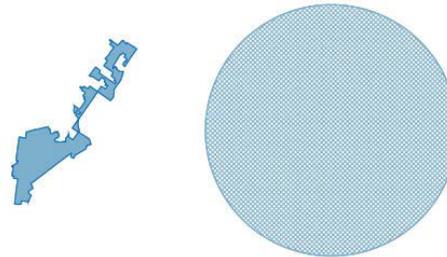


Figure 7: Polsby-Popper: ratio of the district area (solid) to the area of a circle with the same perimeter (cross hatches)

Schwartzberg

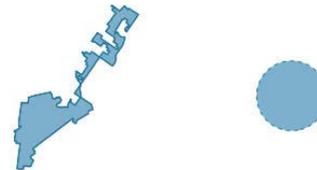
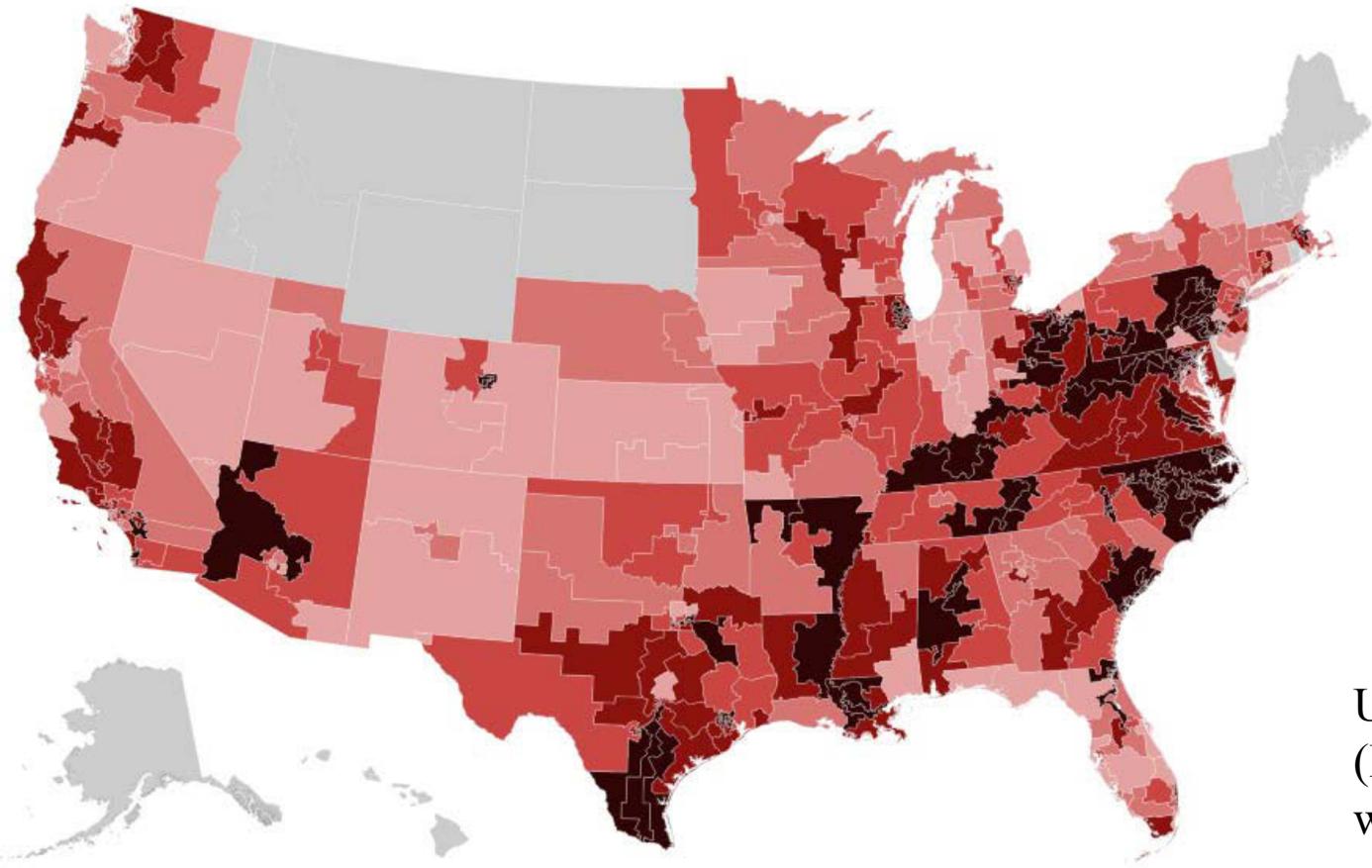


Figure 8: Schwartzberg: ratio of the perimeter of the district (solid line) to perimeter of a circle of equal area (dashed line)

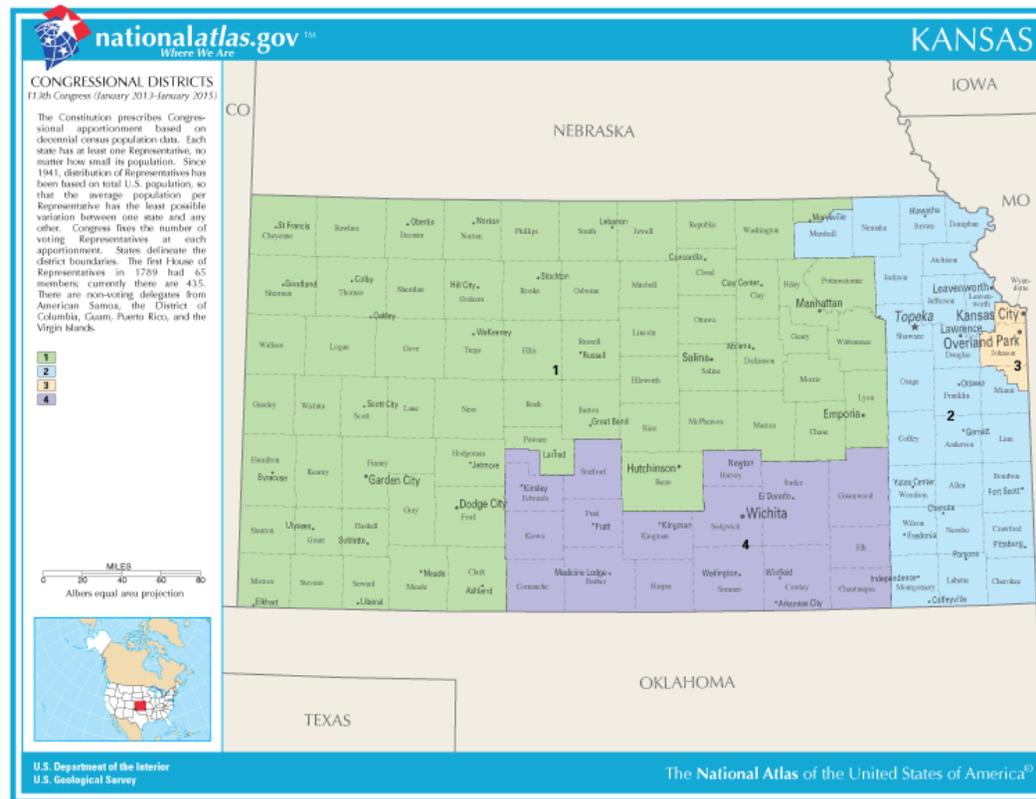


Uses Polsby-Popper method
(Ratio of district's area to a circle
with the same perimeter)

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Source: Ingraham, Christopher. "How Gerrymandered is Your Congressional District?"
The Washington Post. May 15, 2014.

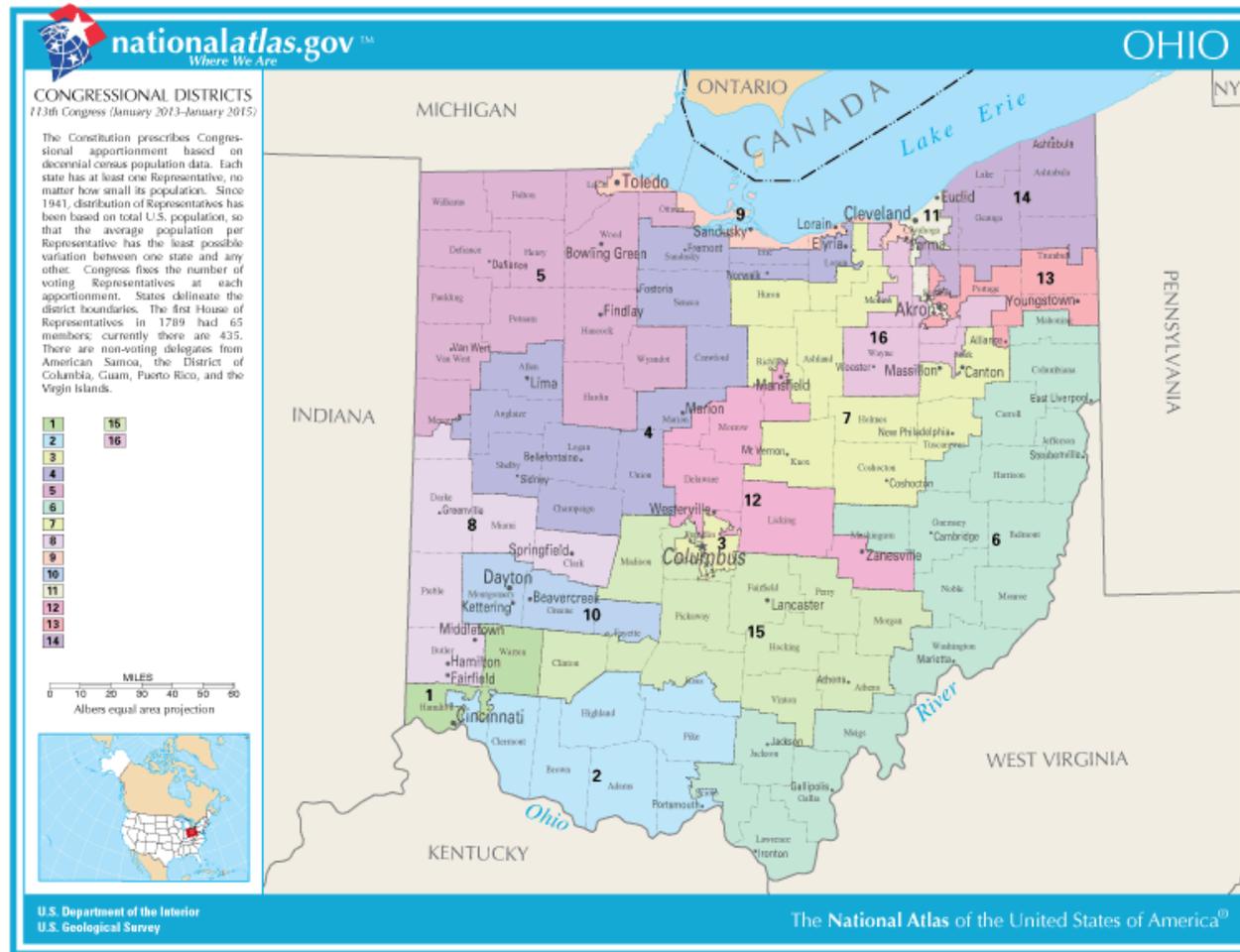
Compactness in the real world: Kansas 2011 (Good)



Courtesy of the [U.S. Department of the Interior/U.S. Geological Survey](http://www.nationalatlas.gov). This image is in the public domain.

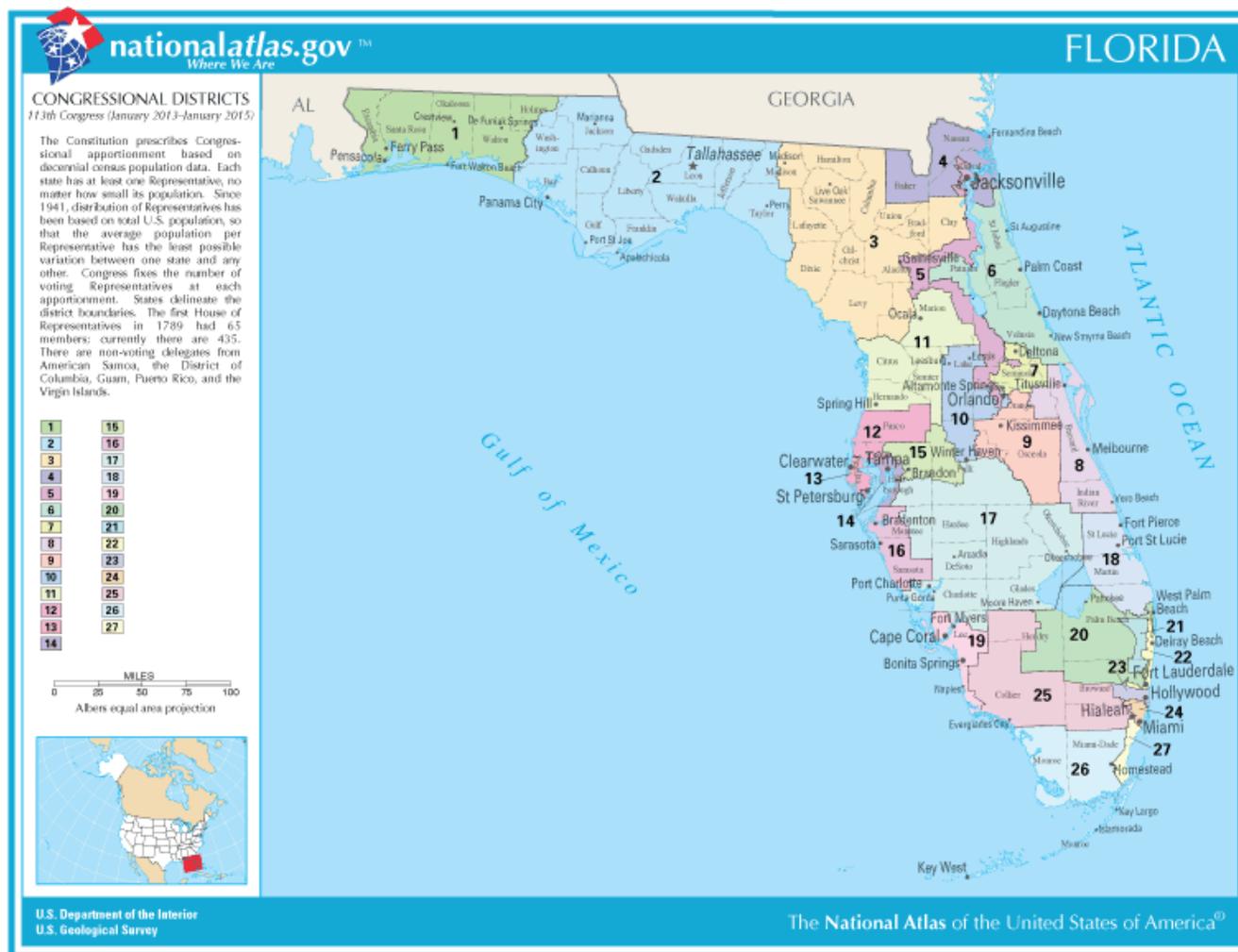
Compactness in the real world

Ohio 2011 (not so good)



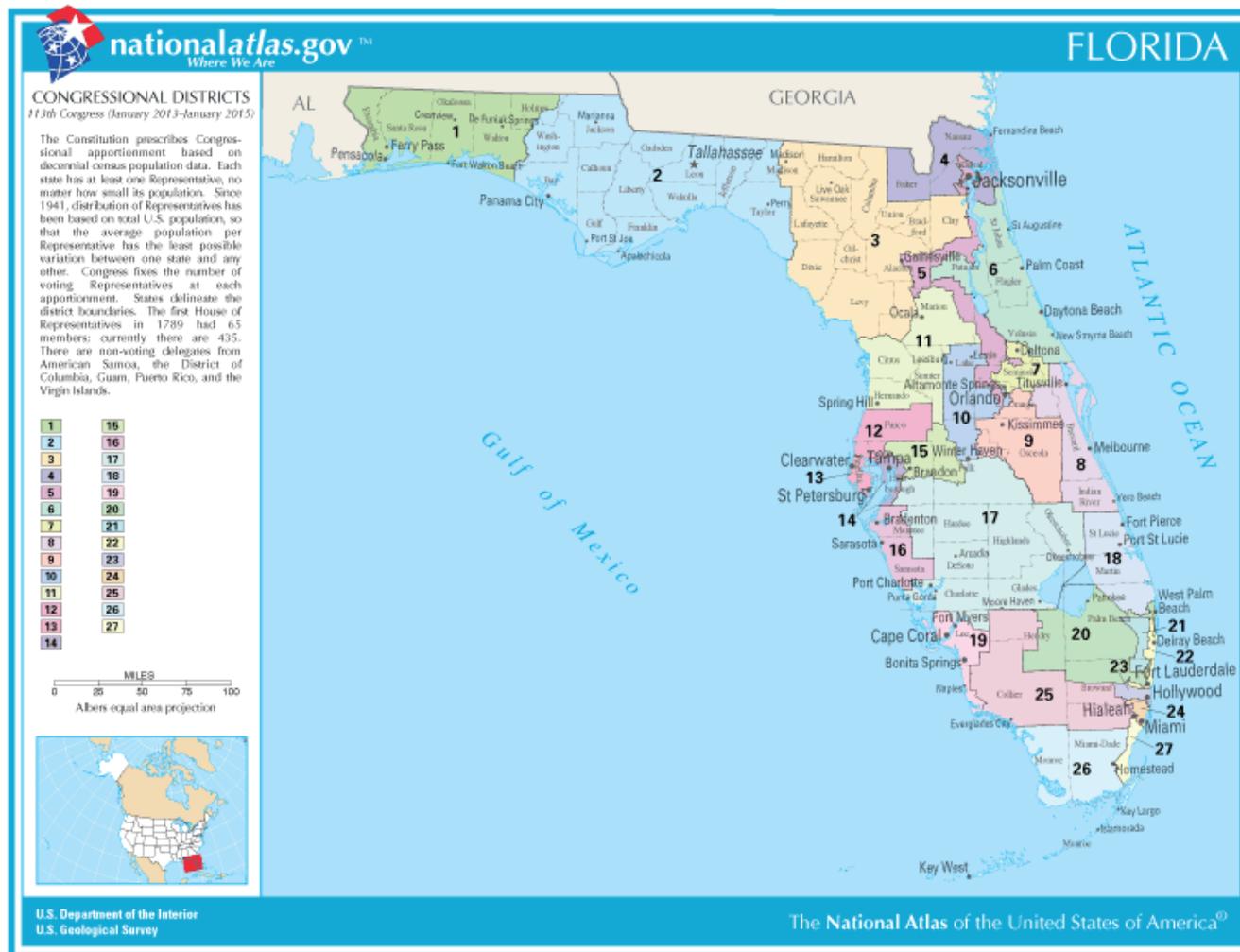
Courtesy of the U.S. Department of the Interior/U.S. Geological Survey. This image is in the public domain.

Compactness in the real world: Florida



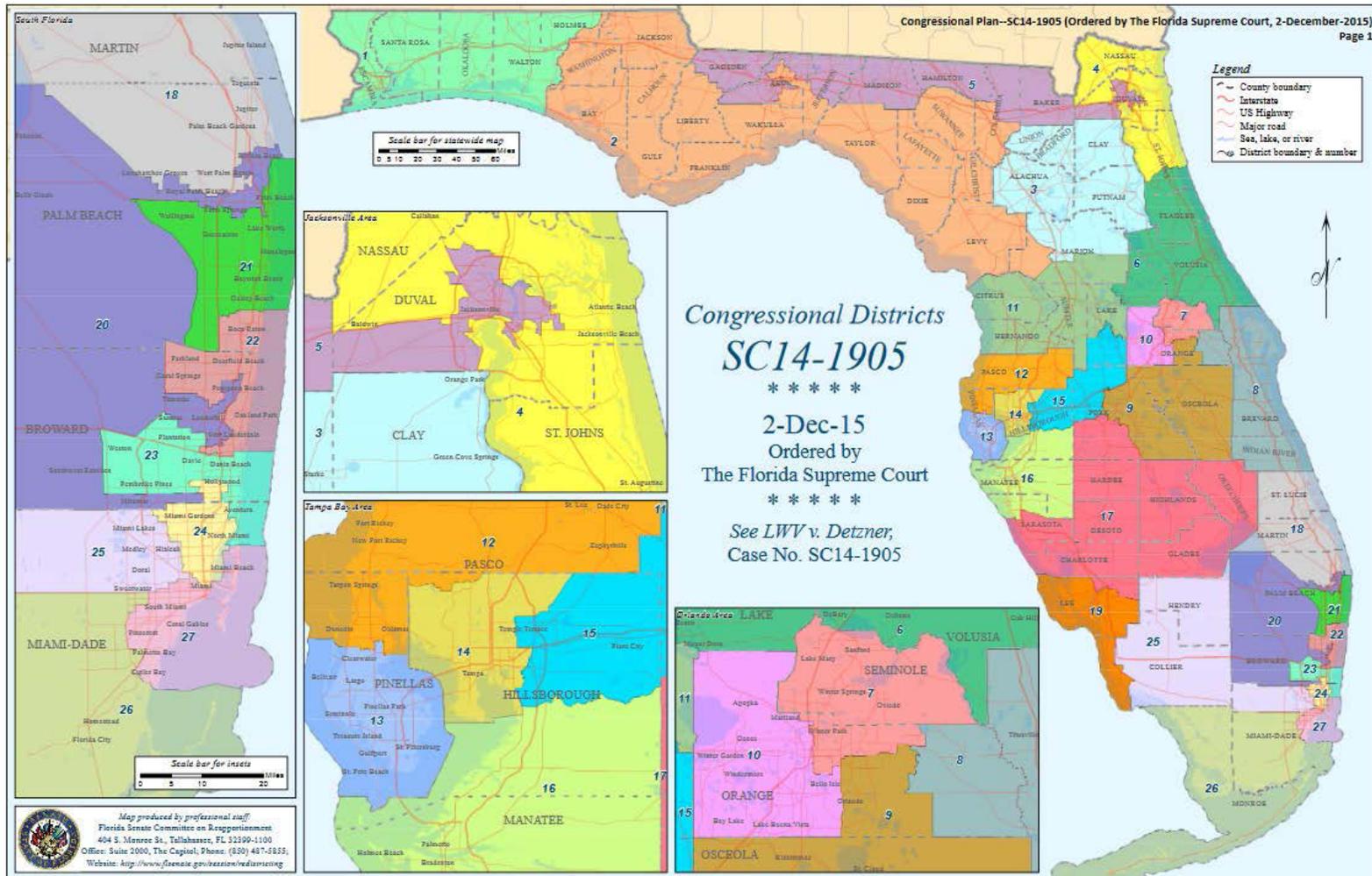
Courtesy of the U.S. Department of the Interior/U.S. Geological Survey. This image is in the public domain.

Old Florida Map



Courtesy of the U.S. Department of the Interior/U.S. Geological Survey. This image is in the public domain.

New Florida Map

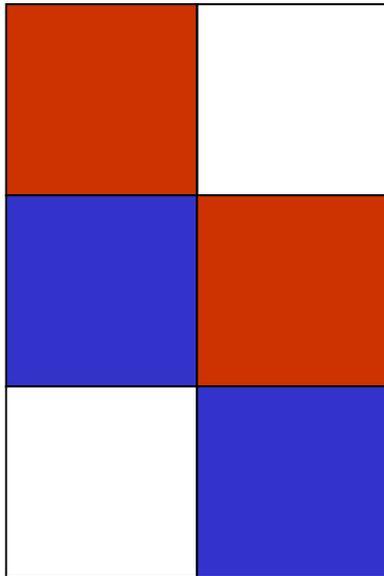


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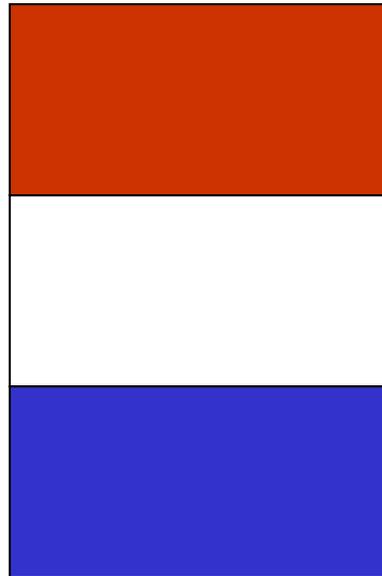
Principle 2: Contiguity

- General idea: keep the district together

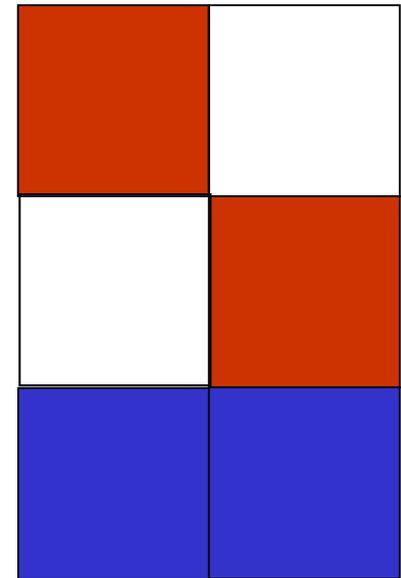
Bad



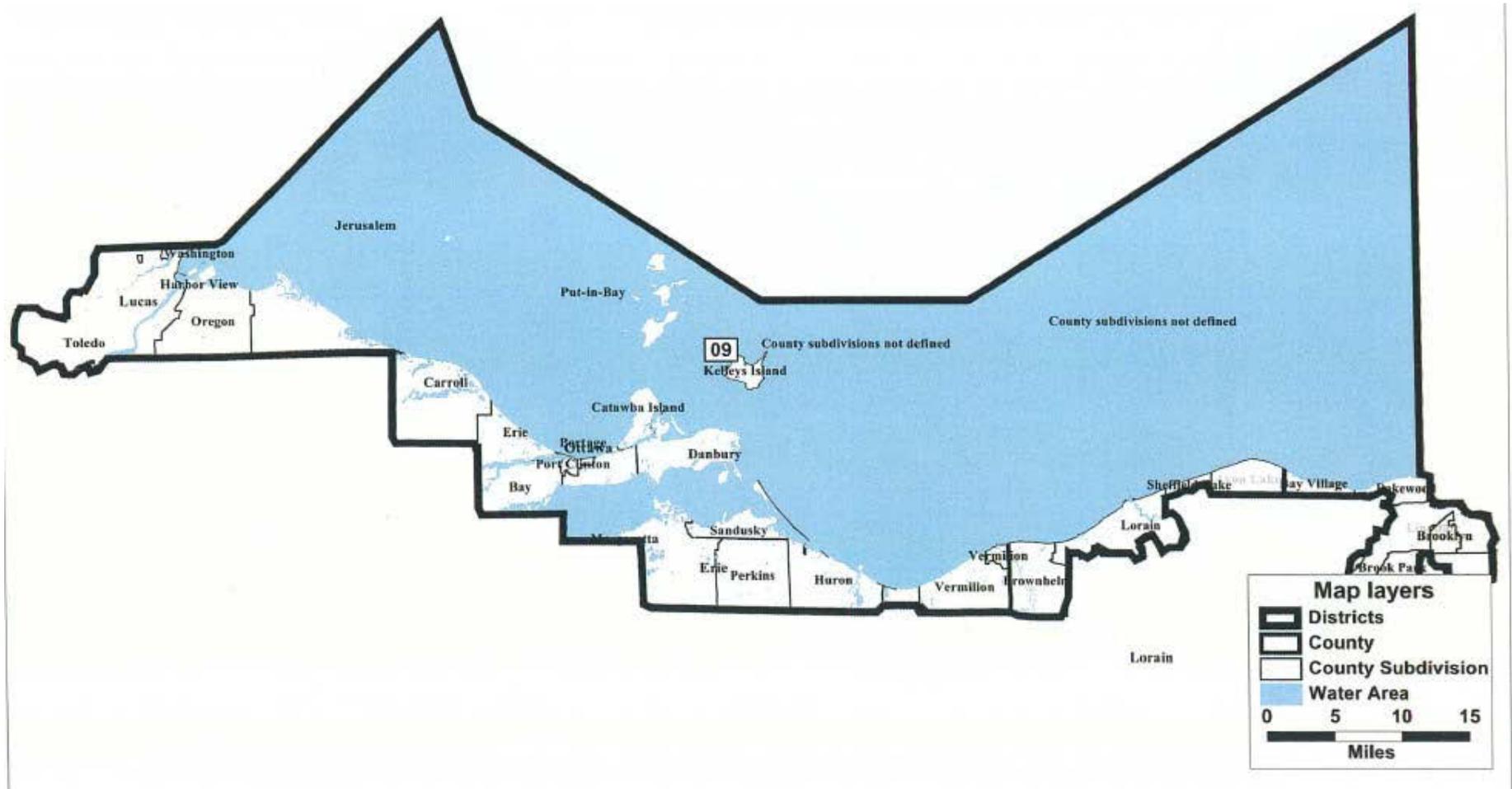
Good



?



Contiguity in the real world: Ohio in 2010



Courtesy of the [Ohio Secretary of State](#). Used with permission.

Principle 3: Equal population

- Implied by having districts
- Bad: Many states before 1960s
 - Illinois in 1940s (112k-914k)
 - Georgia in 1960s (272k-824k)
- Good: equality?

Equality in 2000

	Ideal District Size	Percent Overall Range	Overall Range (# of people)		Ideal District Size	Percent Overall Range	Overall Range (# of people)
Alabama	636,300	0.00%	-	Montana	N/A	N/A	N/A
Alaska	N/A	N/A	N/A	Nebraska	570,421	0.00%	0
Arizona	641,329	0.00%	0	Nevada	666,086	0.00%	6
Arkansas	668,350	0.04%	303	New Hampshire	617,893	0.10%	636
California	639,088	0.00%	1	New Jersey	647,257	0.00%	1
Colorado	614,465	0.00%	2	New Mexico	606,349	0.03%	166
Connecticut	681,113	0.00%	0	New York	654,360	0.00%	1
Delaware	N/A	N/A	N/A	North Carolina	619,178	0.00%	1
Florida	639,295	0.00%	1	North Dakota	N/A	N/A	N/A
Georgia	629,727	0.01%	72	Ohio	630,730	-	-
Hawaii	582,234	-	-	Oklahoma	690,131	-	-
Idaho	646,977	0.60%	3,595	Oregon	684,280	0.00%	1
Illinois	653,647	0.00%	11	Pennsylvania	646,371	0.00%	19
Indiana	675,609	0.02%	102	Rhode Island	524,160	0.00%	6
Iowa	585,265	0.02%	134	South Carolina	668,669	0.00%	2
Kansas	672,105	0.00%	33	South Dakota	N/A	N/A	N/A
Kentucky	673,628	0.00%	2	Tennessee	632,143	0.00%	5
Louisiana	638,425	0.04%	240	Texas	651,619	0.00%	1
Maine	637,462	-	-	Utah	744,390	0.00%	1
Maryland	662,061	0.00%	2	Vermont	N/A	N/A	N/A
Massachusetts	634,910	0.39%	-	Virginia	643,501	0.00%	38
Michigan	662,563	0.00%	1	Washington	654,902	0.00%	7
Minnesota	614,935	0.00%	1	West Virginia	602,781	-	-
Mississippi	711,165	0.00%	10	Wisconsin	670,459	0.00%	5
Missouri	621,690	0.00%	1	Wyoming	N/A	N/A	N/A

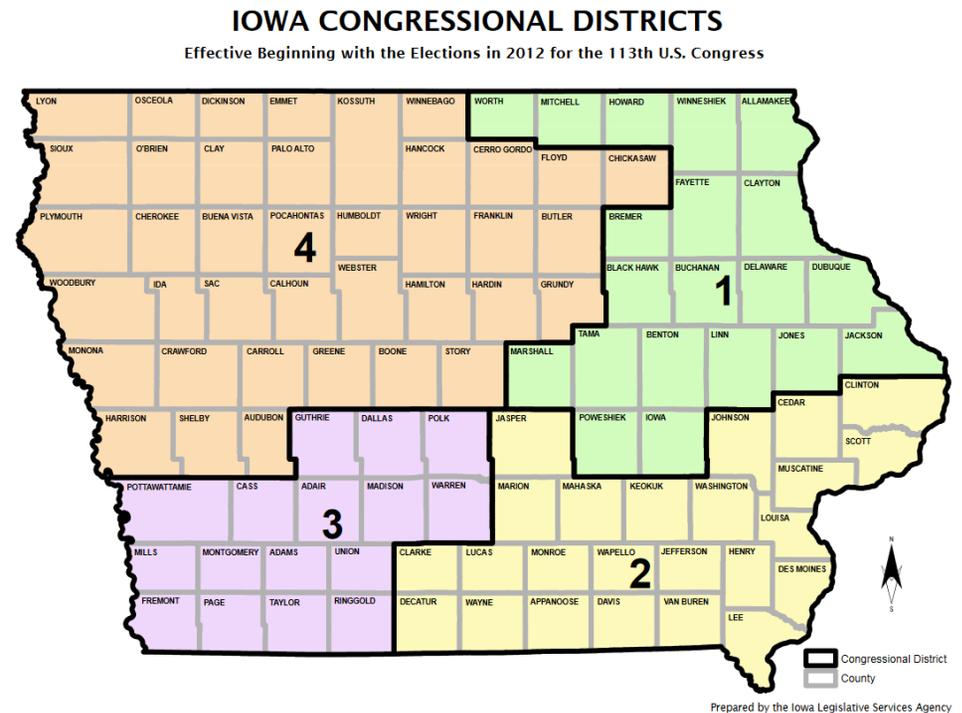
Source: National Conf. of State Leg.

2012 Supreme Court Case: W.Va. Deviations Acceptable

- Tennant vs. Jefferson County Commission
 - Overturns “as nearly as practicable” rule
- Originally passed bill had zero population variation
- Final bill:
 - 1st dist: 615,991
 - 2nd dist: 620,682
 - 3rd dist: 616,141

Principle 4: Respect for existing political communities*

- Iowa
- Politicians like it
- May be better for citizens
- Getting more difficult with computer drafting of districts and (nearly) equal populations



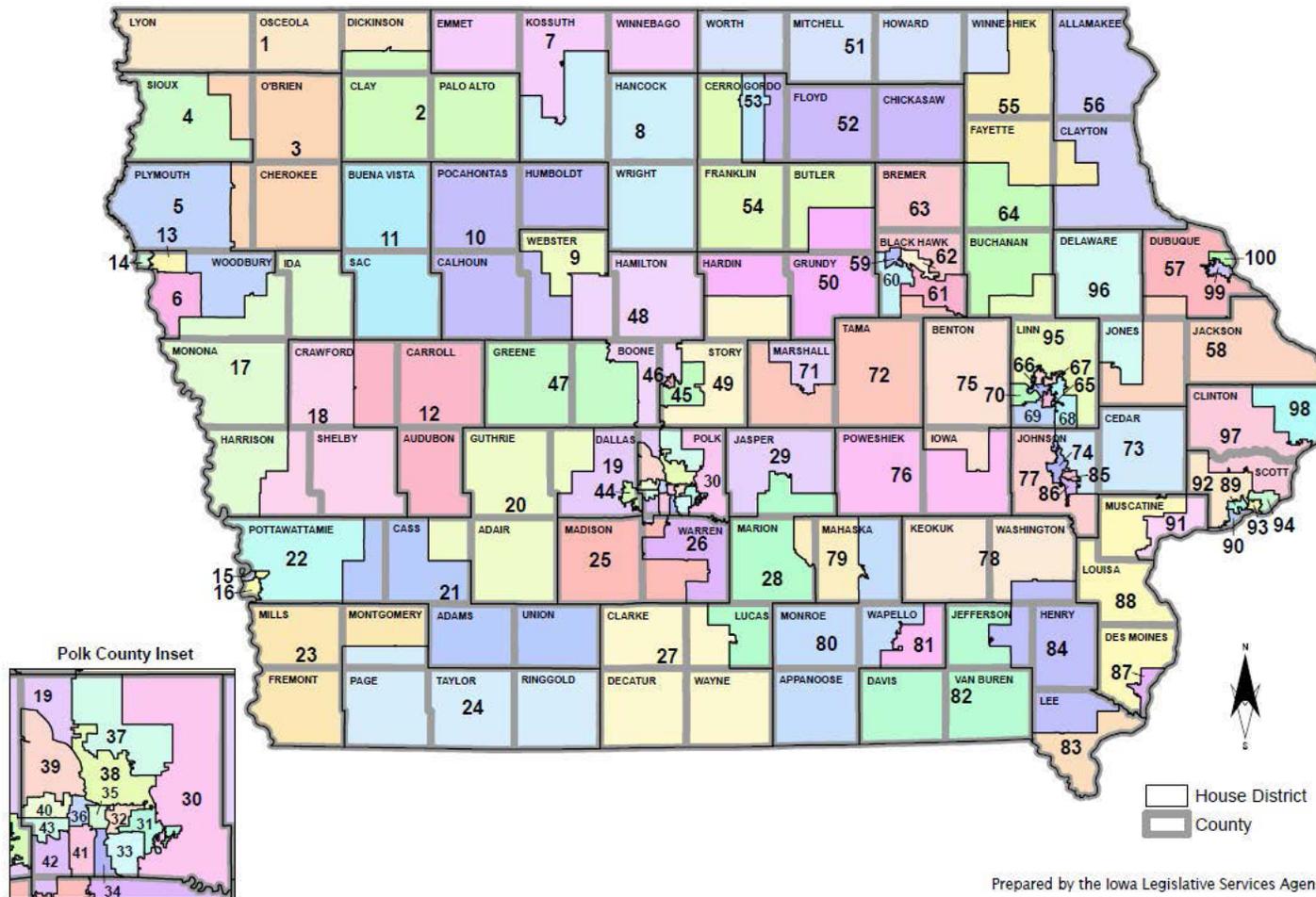
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*Upheld in *Tennant v. JCC*

But, the Assembly's another matter

IOWA HOUSE DISTRICTS

Effective Beginning with the Elections in 2012 for the 85th General Assembly

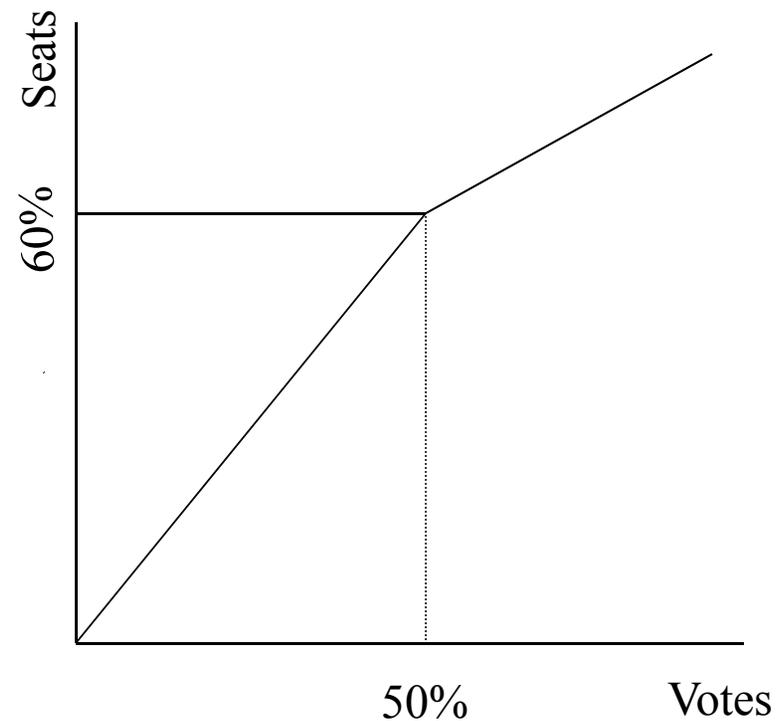
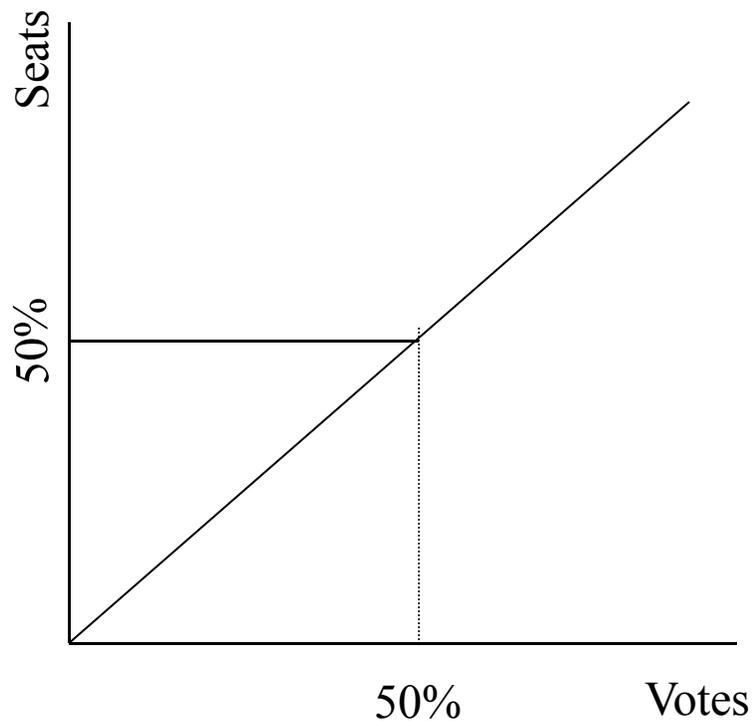


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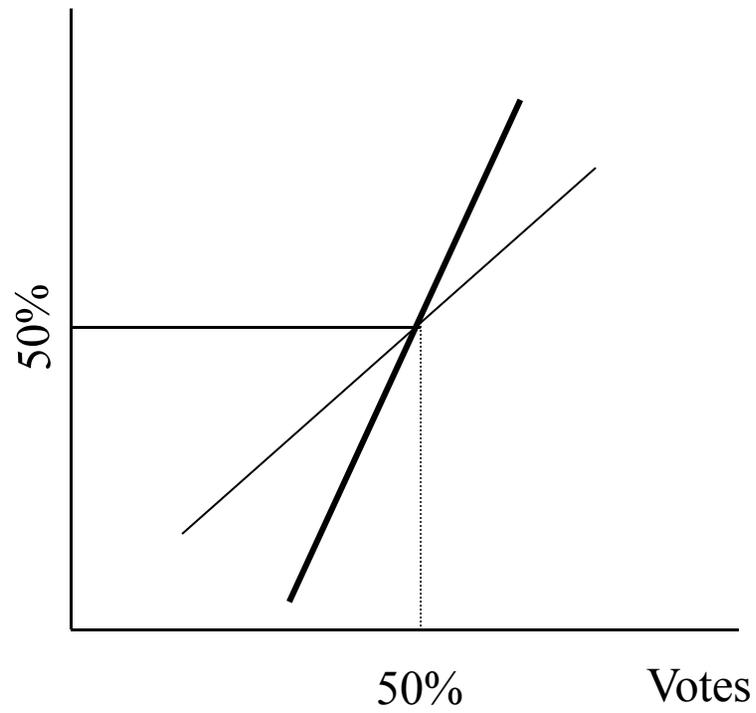
Principle 5: (Partisan) Fairness

- Results should be symmetrical
- Results should be unbiased



Partisan Fairness

- What is the right responsiveness?

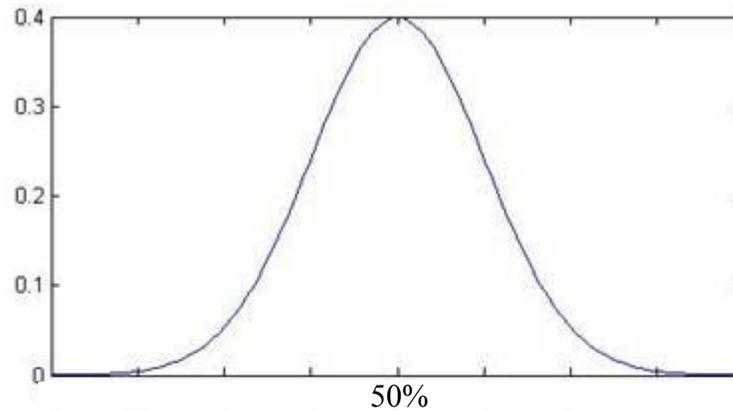


Swing ratio

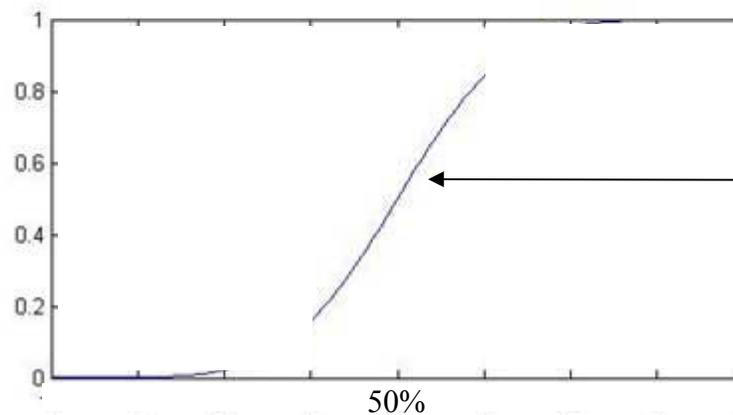
- Measure of responsiveness
- Concept:
 - Swing ratio = $\Delta\text{Seats}_p / \Delta\text{Votes}_p$
- Various ways to measure
 - Empirical: across time
 - Theoretical: “uniform swing analysis”

Why the swing ratio is rarely 1

Distribution of
vote share



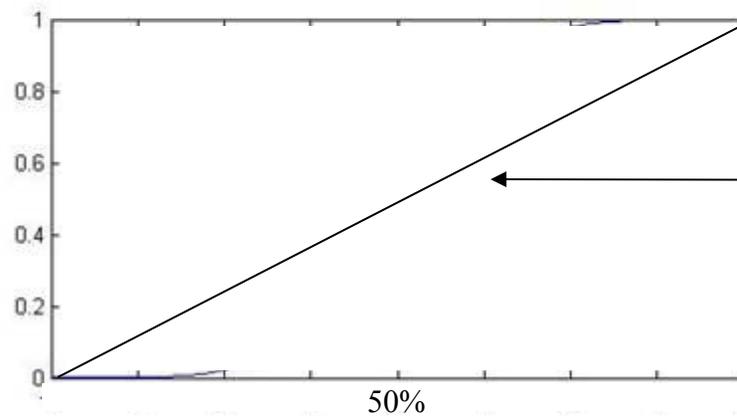
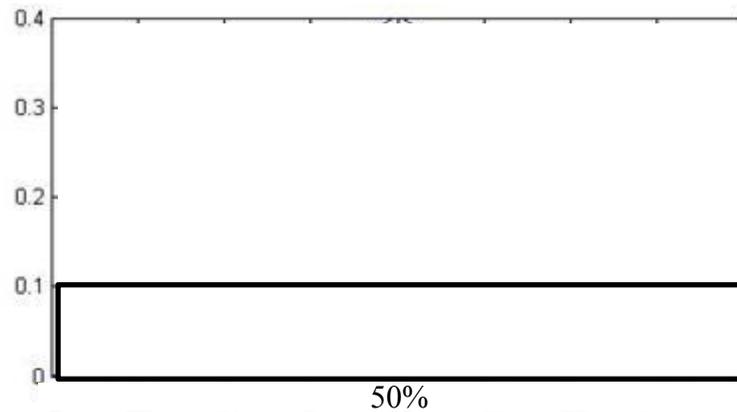
Distribution of
seat share



Slope ~ 3

% Dem vote

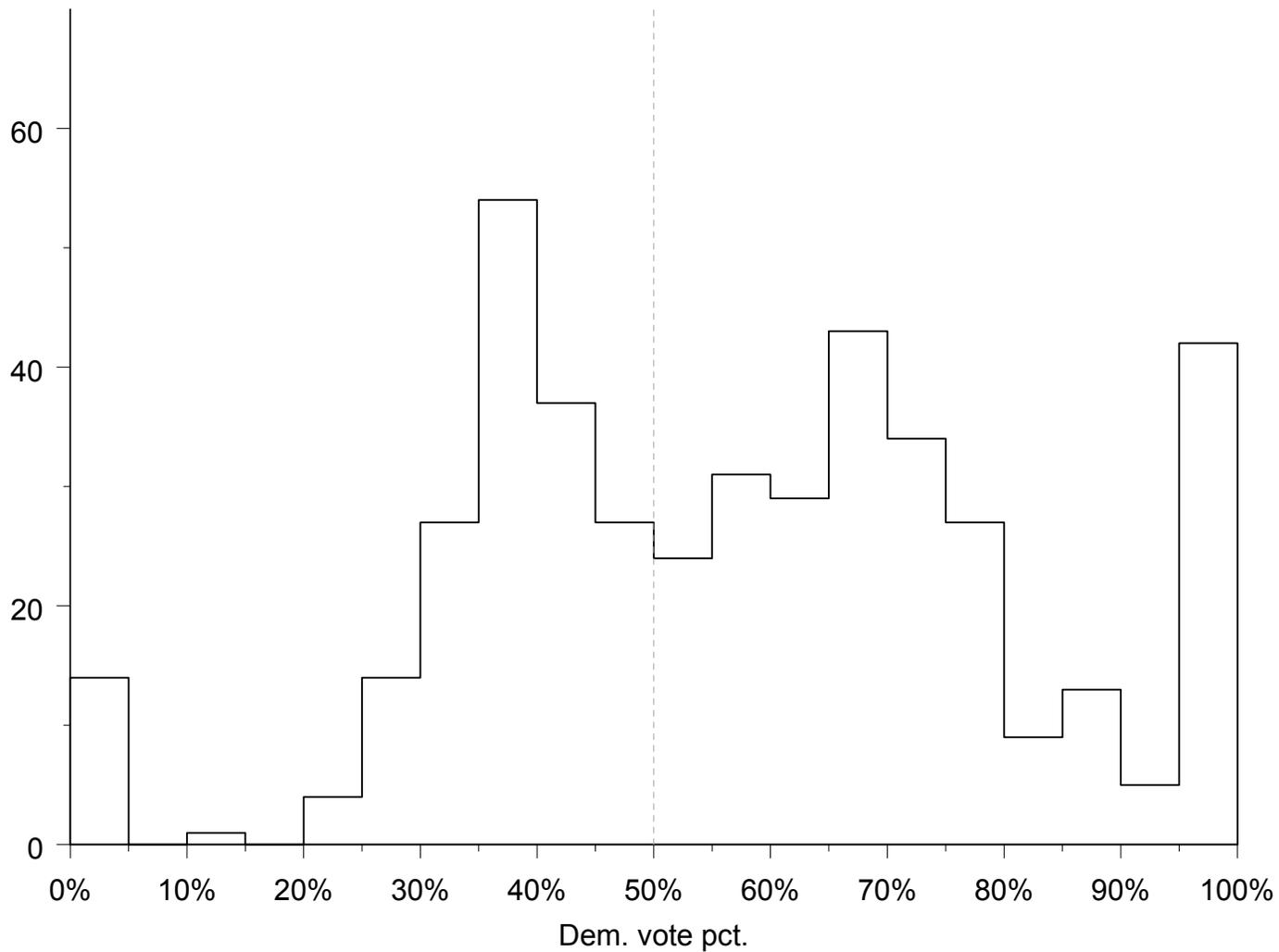
Why the swing ratio is rarely 1



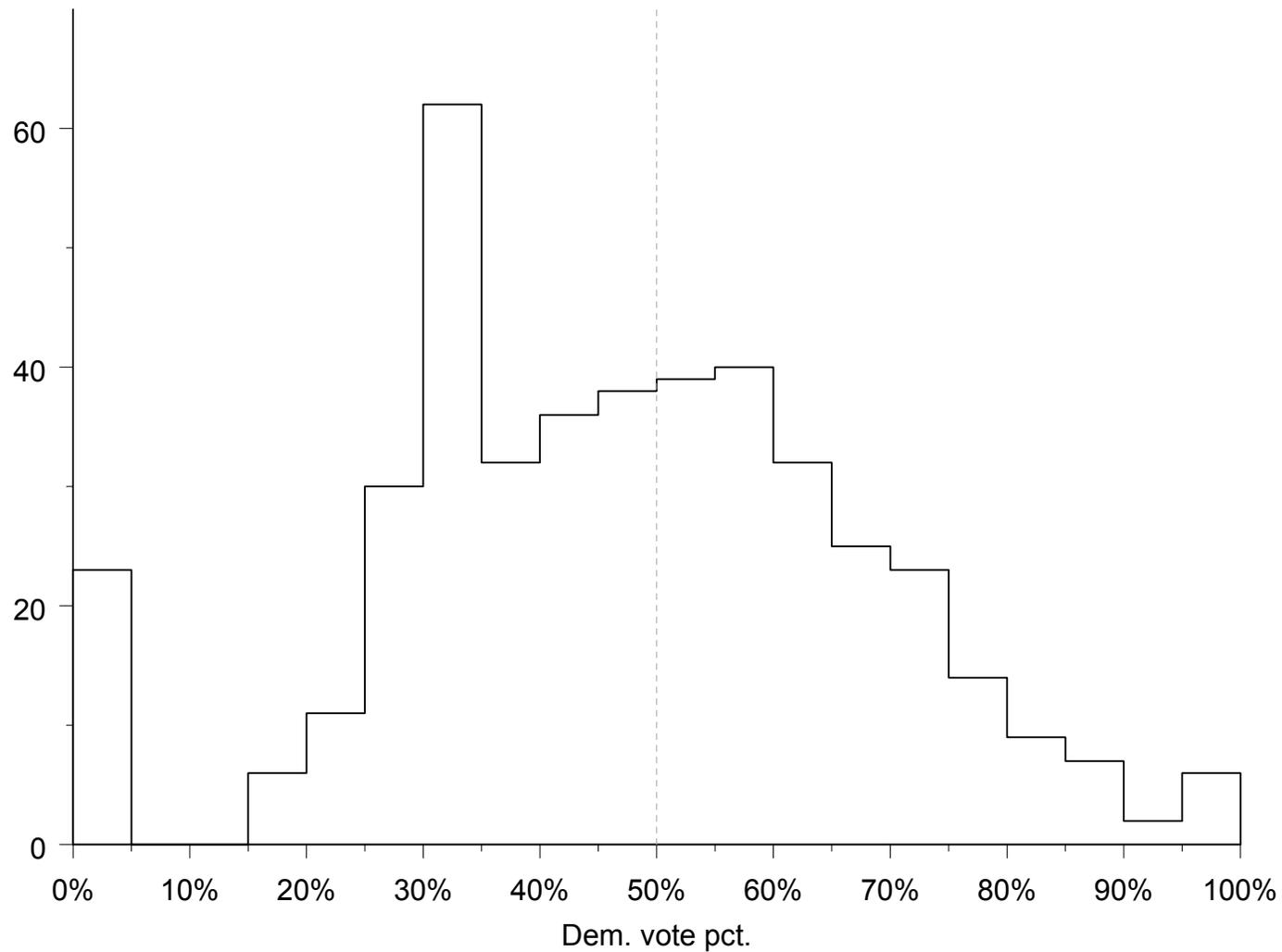
Slope = 1

% Dem vote

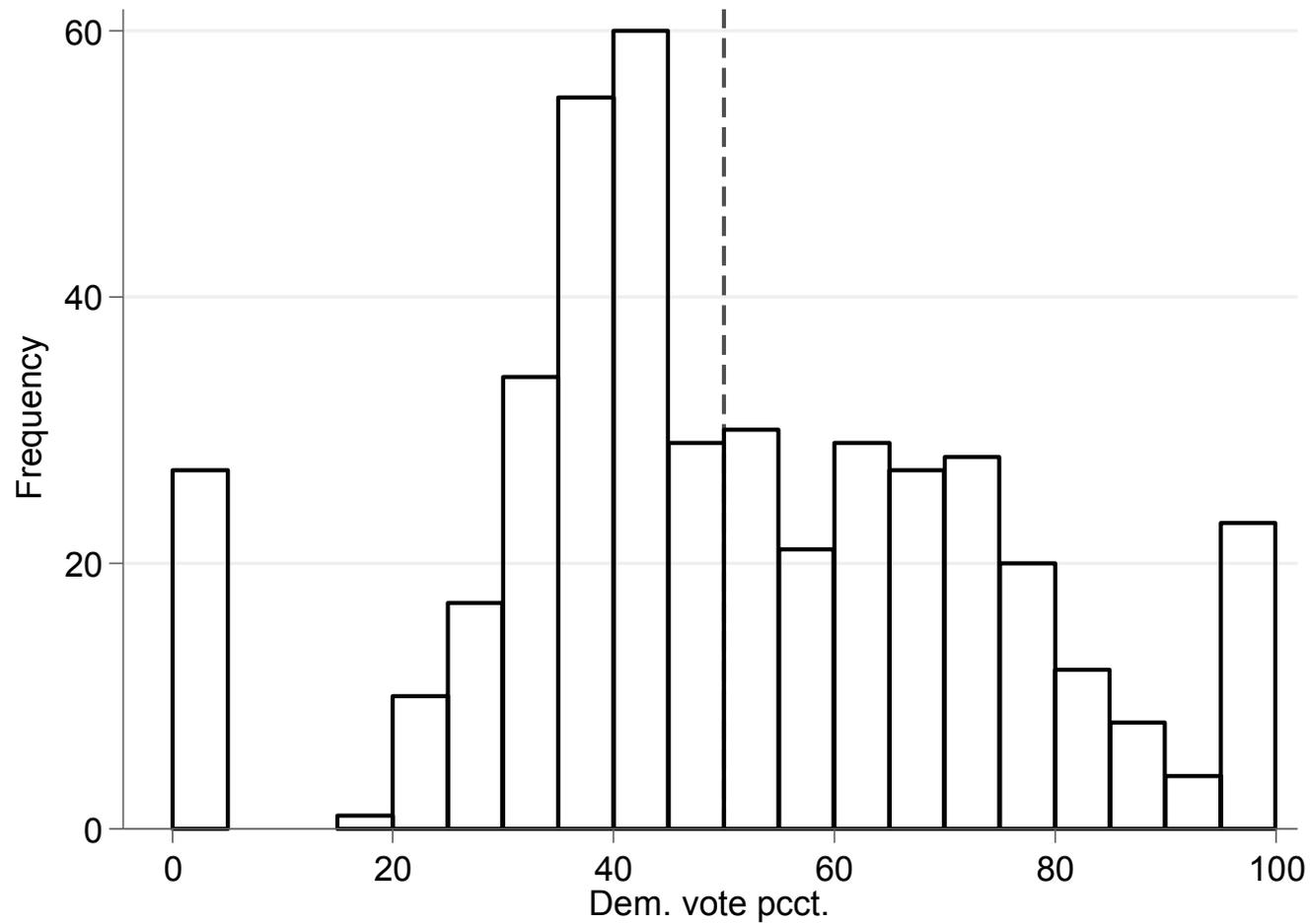
Mayhew Diagram 2008



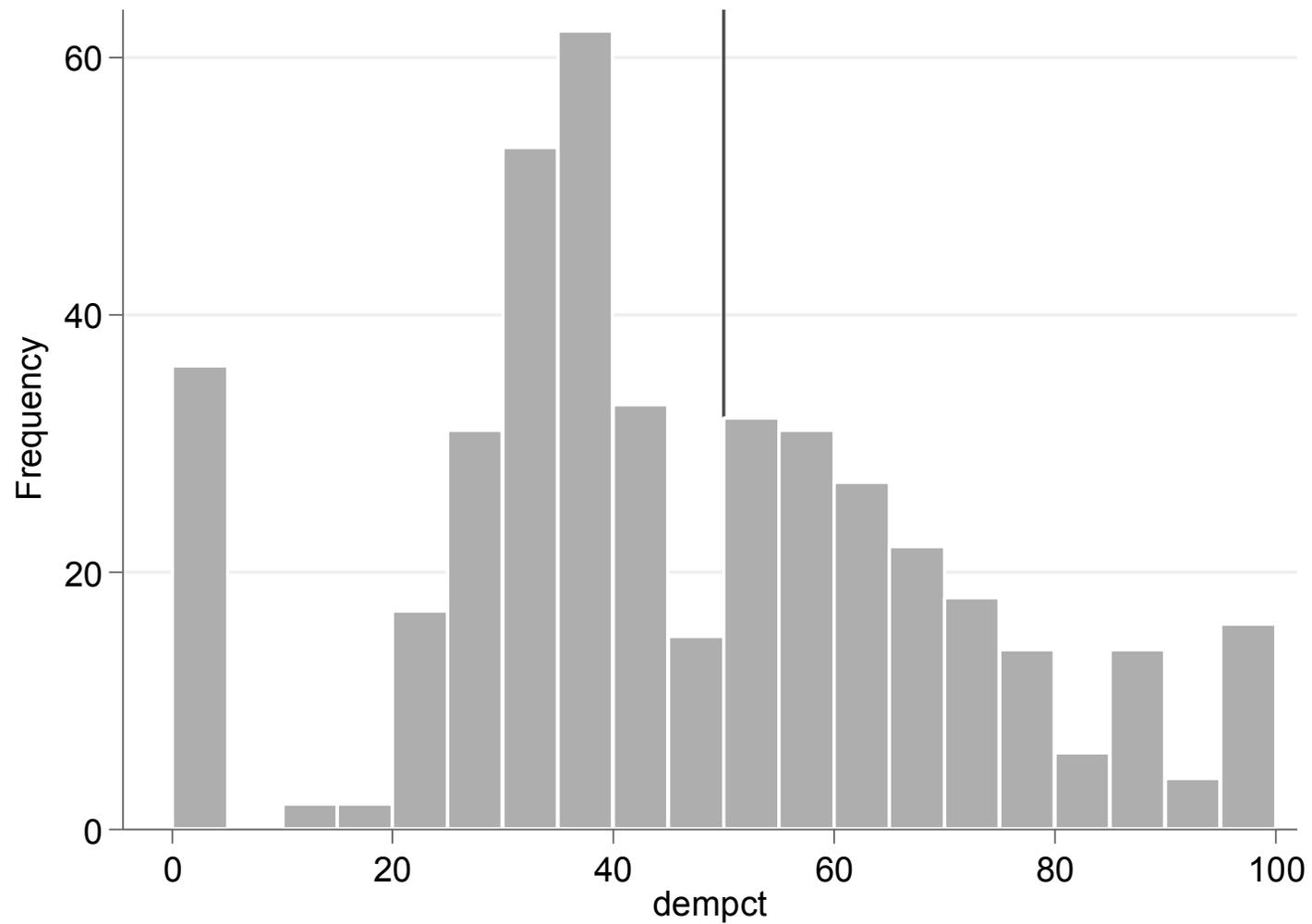
Mayhew Diagram 2010



Mayhew Diagram 2012

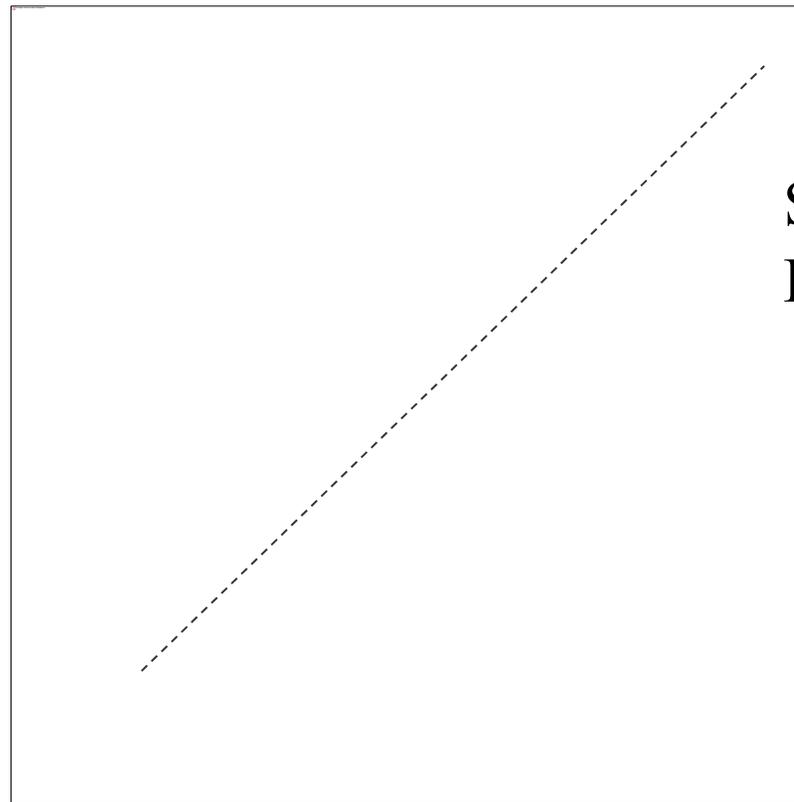


Mayhew Diagram 2014



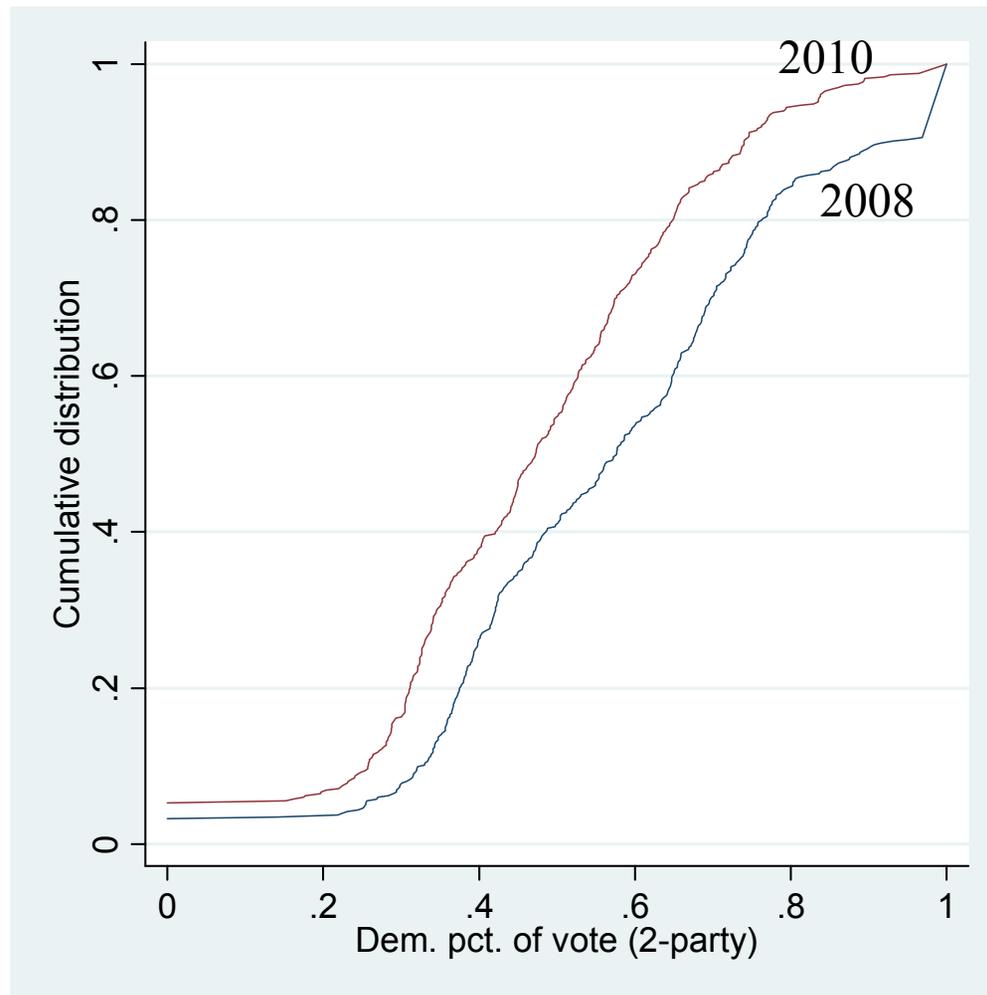
Empirical swing ratio (with data from 1946-2014)

Figure 6.4

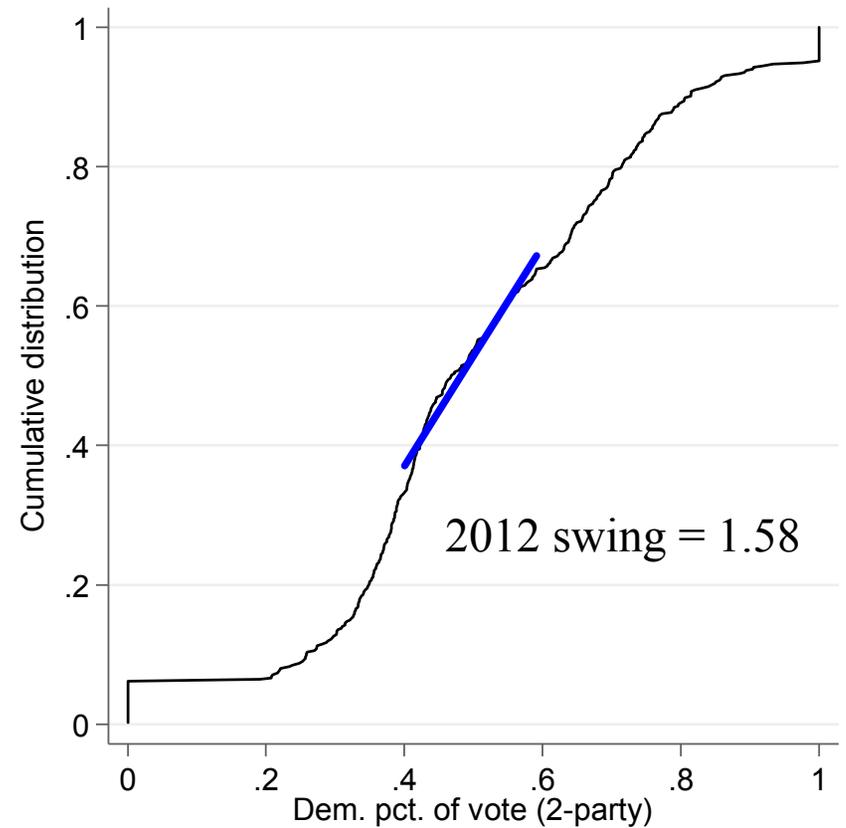
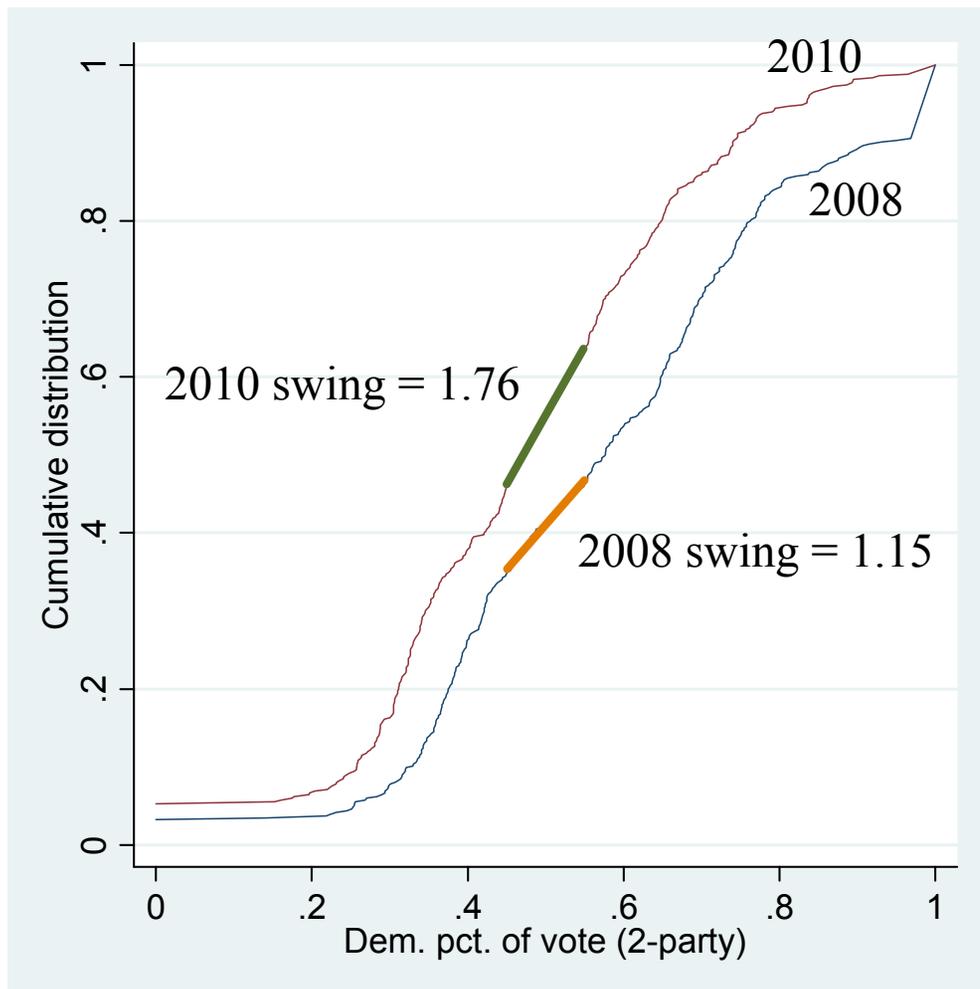


Swing ratio = 1.90:1
Bias = 3.6 points

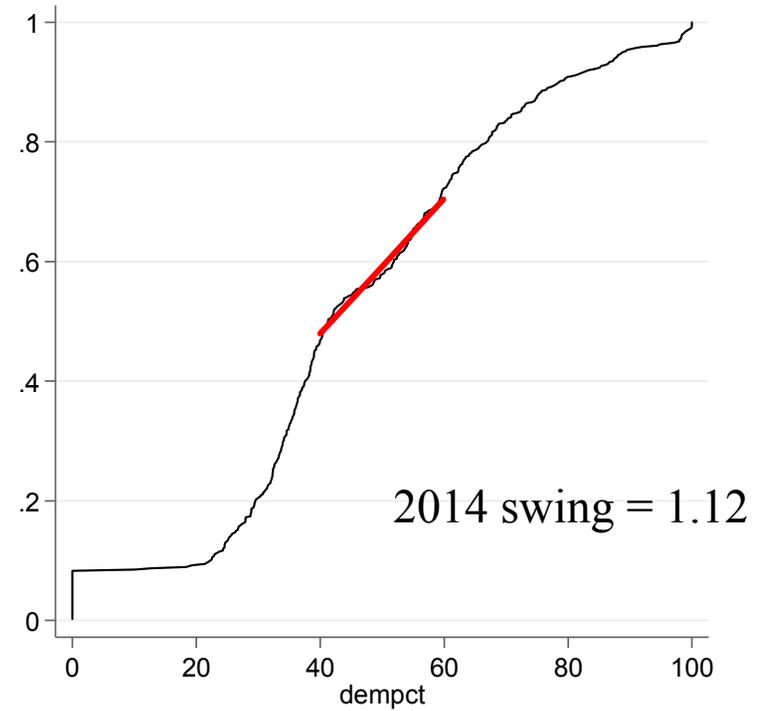
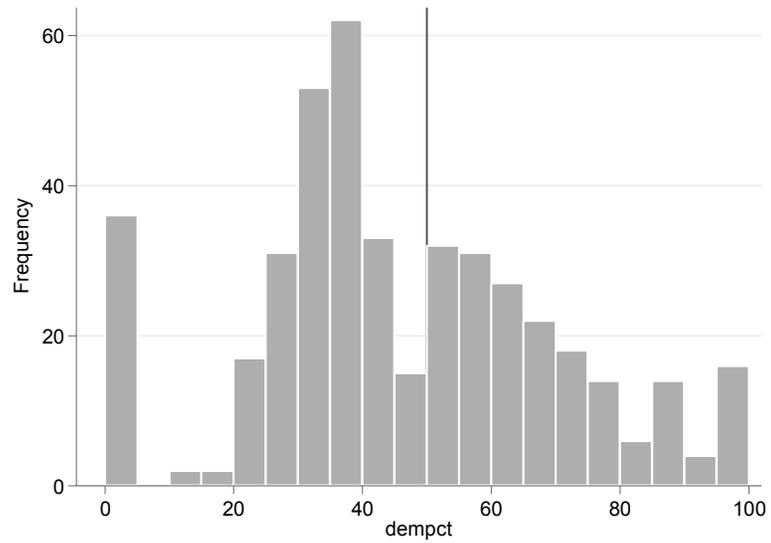
Cumulative distributions, 2008 & 2010



Cumulative distributions, 2008, 2010, & 2012

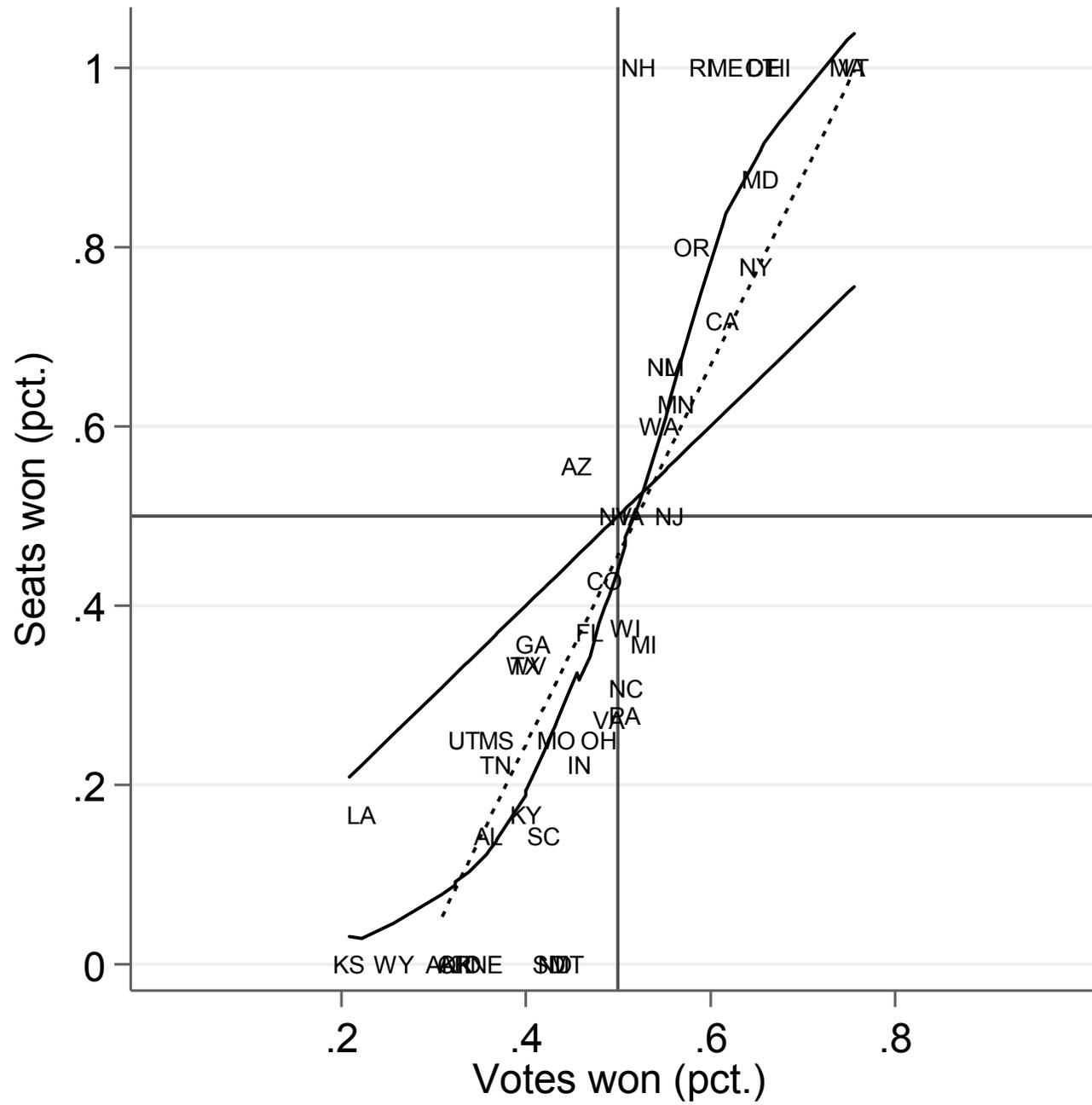


CDF 2014



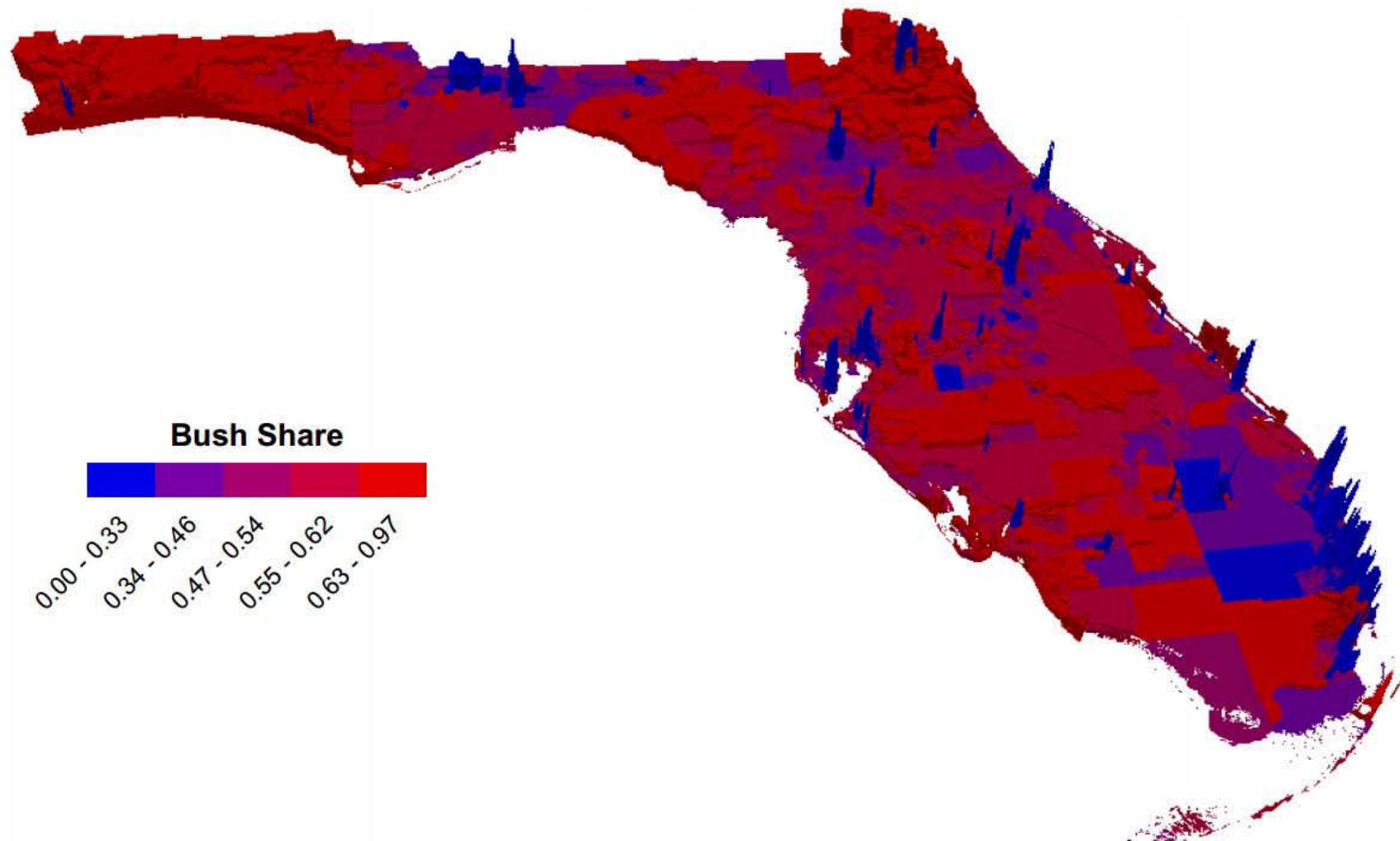
Redistricting and the “Republican Advantage” in the House

- Democrats beat Republicans nationwide in popular vote in 2012, but Republicans won the House handily
 - Likely to repeat in 2016
- Explanation: Republican gerrymanders in 2011
 - Ohio (48% Dem vote → 4D, 12R)
 - Florida (47% Dem vote → 10D, 17R)
 - North Carolina (51% Dem vote → 4D, 9R)
 - Pennsylvania (51% Dem vote → 5D, 13R)
 - Michigan (53% Dem vote → 5D, 9R)
 - Wisconsin (51% Dem vote → 3D, 5R)



Reasons for skepticism about the “Republican gerrymander” problem

- Incumbency accounts for ~ 7 points advantage, and there are more Republican incumbents
- Democrats are more concentrated geographically than Republicans
 - Confirmed by Chen and Rodden)
- Florida court case will yield at most a 3-seat shift to the D’s



Courtesy of Jowei Chen and Johnathan Rodden. Used with permission.

Source: Jowei Chen and Jonathan Rodden, “[Unintentional Gerrymandering: Political Geography and Electoral Bias in Legislatures](#),” *Quarterly Journal of Political Science* 8(2013): 239-269.

Court cases concerning partisan fairness

- Davis v. Bandemer (1986)
 - Democrats challenge Indiana plan
 - Court has jurisdiction over partisan gerrymandering
 - This was not a partisan gerrymander
- Vieth v. Jebelirer (2004)
 - Democrats challenge Pennsylvania plan
 - Partisan gerrymandering may be nonjusticiable
 - No majority to overturn Davis v. Bandemer

Principle 5: (Racial) fairness

- From 15th amendment
 - “The right of citizens of the United States to vote shall not be denied or abridged by the United States or by any State on account of race, color, or previous condition of servitude.”
- Voting Rights Act of 1965
 - Prevented dilution
 - Section 2: General prohibition against discrimination
 - Section 5: Pre-clearance for “covered” jurisdictions
 - covered jurisdictions must demonstrate that a proposed voting change does not have the **purpose** and **will not have the effect** of discriminating based on race or color.
 - 1980: *Mobile v. Bolden*
 - S.C. says you have to show intent
 - 1982: VRA extension allows *effect*
 - 1990: Justice dept. moved to requiring *maximizing* minority representation through pre-clearance
 - 2013: *Shelby County v. Holder*
 - Section 4b [coverage formula] unconstitutional, thus Section 5 unenforceable
 - Section 2 still in force (probably)
 - Effect greatest in non-districting cases
 - Possible effects on redistricting going forward

Some Court Cases Pertaining to Districting

- Equal population
 - Colgrave v. Green (1946): “political question”
 - Baker v. Carr (1962): Tennessee state districts
 - Gray v. Sanders (1963): Ga. unit rule
 - Wesberry v. Sanders (1964): “one person, one vote” doctrine
 - Davis v. Bandemer (1986): political gerrymanders subject to review, even if one person, one vote met
 - Veith v. Pennsylvania (2002): no deviation allowed (but political gerrymanders may be OK)

VRA Cases

- 1965: Dilution outlawed
- 1982: Extension + Republican DOJ = Racial gerrymanders
- 1993: Shaw v. Reno
 - Race must be narrowly tailored to serve a compelling gov't interest, or....
 - Sandra is the law
 - Non-retrogression doctrine
 - Districting overturned in GA, NC, VA, FL, TX, LA, NY (but not IL)
- Page v. Bartels (2001): incumbency protection OK, even if it's only minority incumbents
- Alabama Legislative Black Caucus v. Alabama (2015) (It's a mis-reading of Section 5 to keep the % of African Americans in a district the same)
- Shelby County (2013): struck down pre-clearance formula

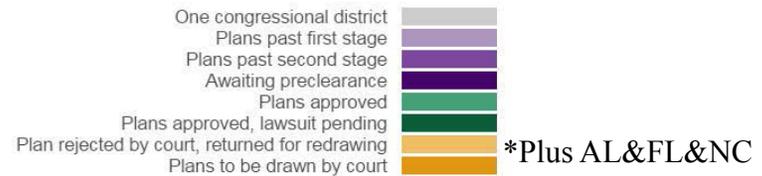
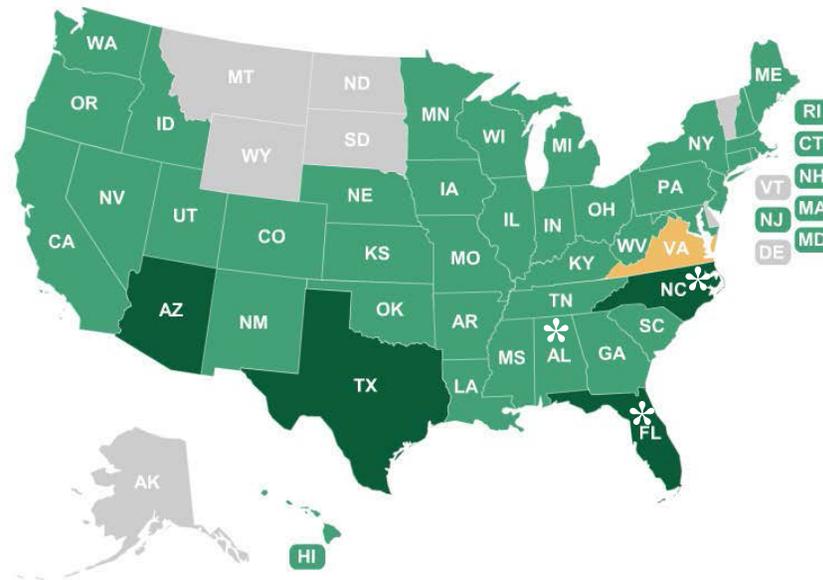
Current Redistricting

CURRENT STATUS

Congress

State legislature

43 final plans (for 2016)



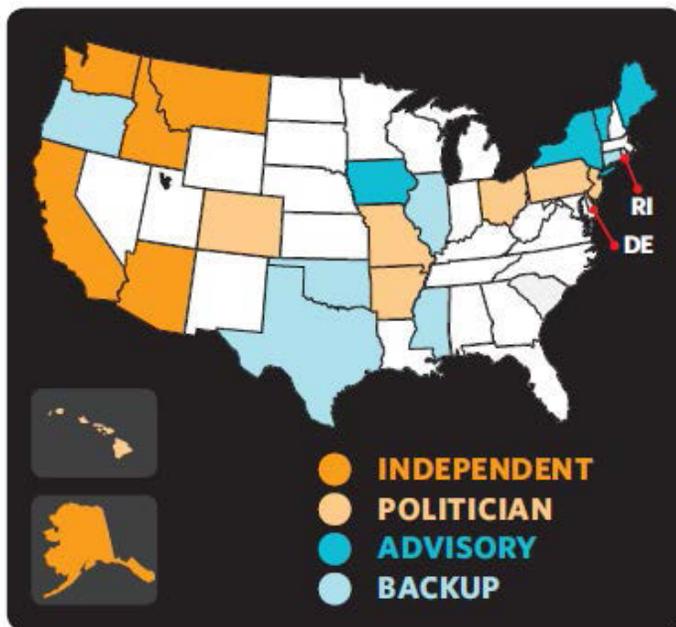
Courtesy of Justin Levitt. Used with permission.

Mid-Decade Redistricting Cases after 2000

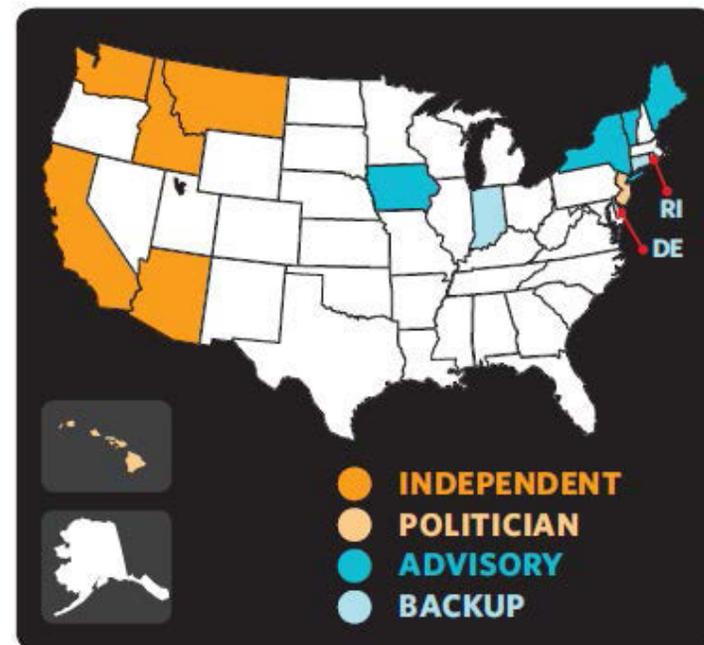
- Colorado
 - State Supreme Court rules unconstitutional by *state* constitution, SCOTUS refuses to hear
- Pennsylvania
 - *Bandemer* upheld; redistricting not overturned
- Texas
 - *League of United Latin American Citizens et al v Perry*.
 - Mid-decade redistricting OK
 - VRA problem with one state legislative district
- Virginia
 - Gov. McAuliffe vetoed a mid-decade state plan in 2015

Who Does the Redistricting?

COMMISSIONS FOR STATE
LEGISLATIVE DISTRICTS



COMMISSIONS FOR
CONGRESSIONAL DISTRICTS



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Arizona Legislature vs. Ariz. Redistricting Commission

Attorneys for Plaintiff Arizona State Legislature

**UNITED STATES DISTRICT COURT
DISTRICT OF ARIZONA**

Arizona State Legislature,
Plaintiff,

v.

Arizona Independent Redistricting
Commission, and Colleen Mathis, Linda
C. McNulty, José M. Herrera, Scott D.
Freeman, and Richard Stertz, members
thereof, in their official capacities; Ken
Bennett, Arizona Secretary of State, in
his official capacity,

Defendants.

No. CV-12-01211-PHX-PGR

FIRST AMENDED COMPLAINT

**Apportionment Matter:
Three-Judge Panel Requested
Pursuant to 28 U.S.C. § 2248**

Arizona Legislature vs. Ariz. Redistricting Commission

- Arguments heard Mar. 2, 2015
- Question: Can redistricting be lodged in a state body that acts independently of the state legislature?
 - the Times, Places and Manner of holding elections for . . . Representatives [in the House] shall be prescribed in each State by the Legislature thereof, but the Congress may at any time by law make or alter such regulations.” (Article I, sec. 4)
- Answer: Yes

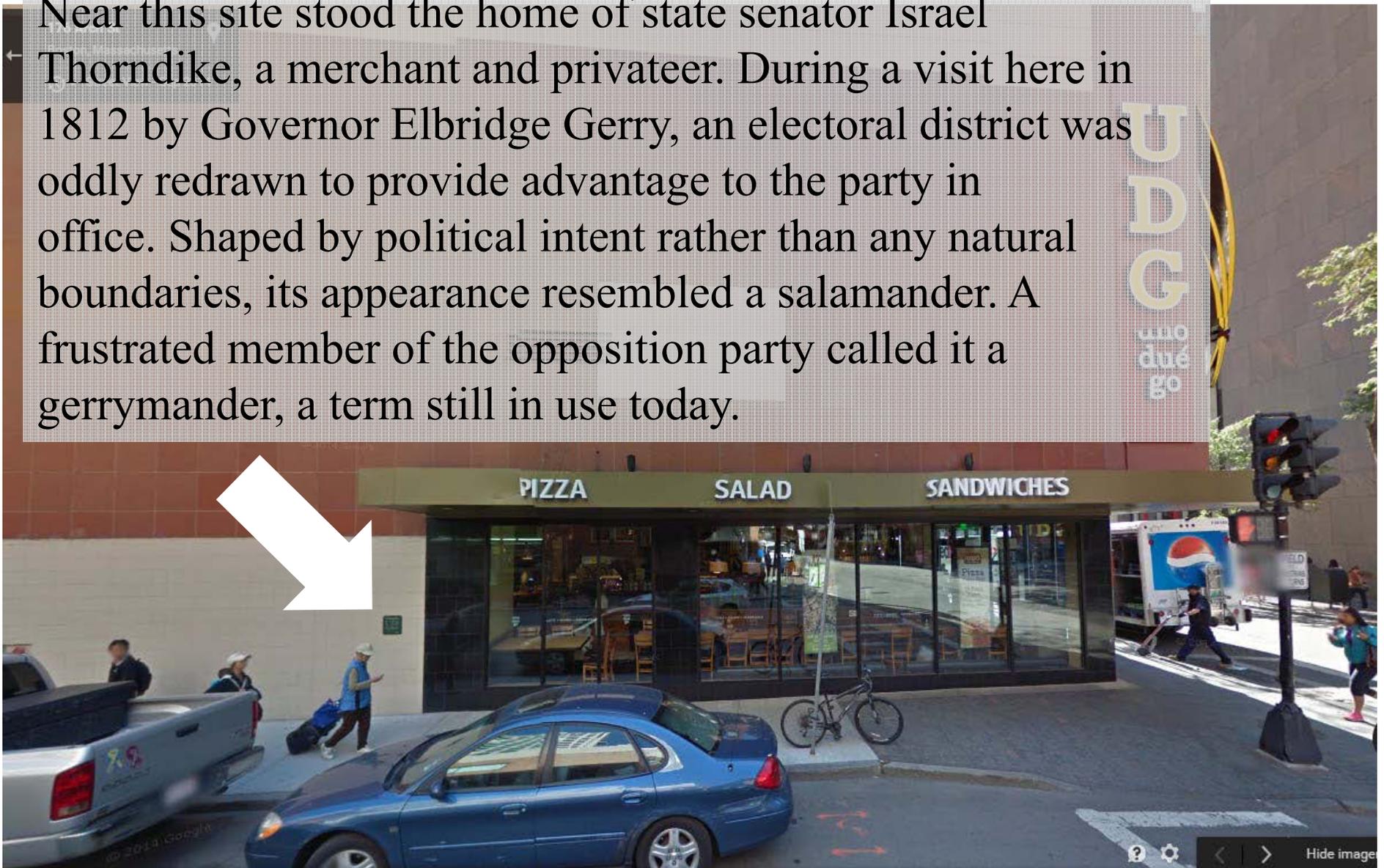
Arch & Summer Street in Boston



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Arch & Summer Street in Boston

Near this site stood the home of state senator Israel Thorndike, a merchant and privateer. During a visit here in 1812 by Governor Elbridge Gerry, an electoral district was oddly redrawn to provide advantage to the party in office. Shaped by political intent rather than any natural boundaries, its appearance resembled a salamander. A frustrated member of the opposition party called it a gerrymander, a term still in use today.



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An aside about the states: Run-off vs. plurality rule

- The South
- California's "top-two primary"
 - (really like Louisiana's "Jungle Primary")
- Interest in "instant runoff"

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17.251 Congress and the American Political System I
Fall 2016

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