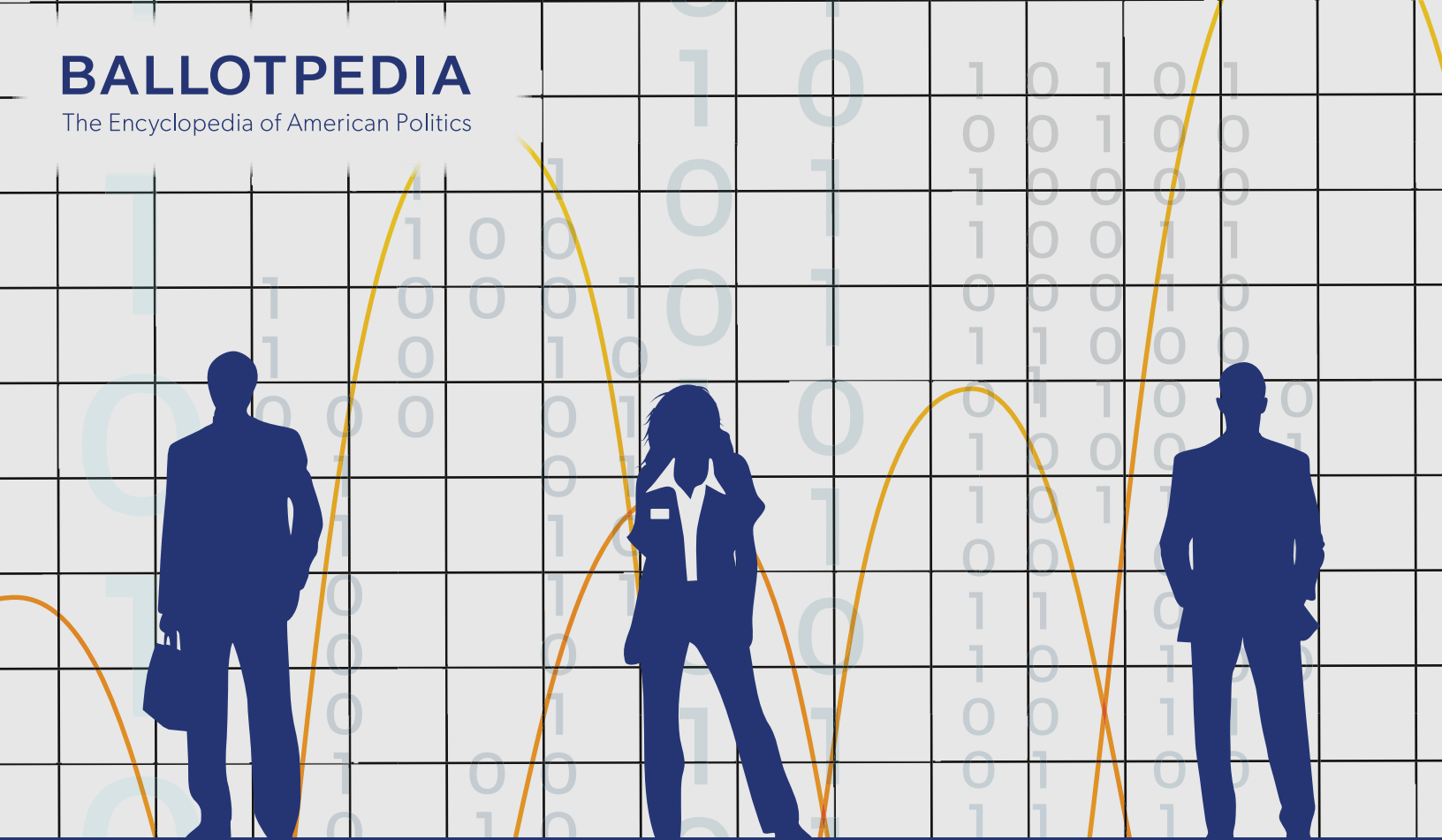


BALLOTPEDIA

The Encyclopedia of American Politics



BALLOTPEDIA'S WAVE ELECTION ANALYSIS

By: Rob Oldham and Jacob Smith

Page Contents

How to read this report	1
Methodology	2
What is a wave?	2
Evaluating 2018	3
U.S. House waves	4
U.S. Senate waves	5
Gubernatorial waves	6
State legislative waves	7
Multiple waves	8
Presidential waves	12
Election types	15
Overall waves vs. modern waves	15
Effectiveness of the out-of-power party	17
U.S. House waves since 1918	19
Limitations	21
Data	23
Further analysis	25
About the authors	25
Footnotes	26

The term [wave election](#) is frequently used to describe an election cycle in which one party makes significant electoral gains. With the 2018 [midterms](#) approaching, [pundits](#) have written about the possibility of a wave election against [Donald Trump's](#) (R) presidency and the Republican Party.

How many seats would Republicans have to lose for the 2018 midterm election to be considered a wave election? That's a hard question to answer because there is no official or consensus definition of the term wave election.

In this paper, we examine the results of the 50 election cycles that occurred between 1918 and 2016—spanning from President [Woodrow Wilson's](#) (D) second midterm in 1918 to Trump's first presidential election in 2016. We define wave elections as the 20 percent of elections in that period resulting in the greatest seat swings against the president's party.^[1]

We apply this definition to four different election groups: U.S. Senate, U.S. House, governorships, and state legislatures.

Applying this definition to the 2018 midterms yields specific numbers of seats that Republicans would need to lose in each group of elections for the term wave election to apply. Republicans would need to lose 48 U.S. House seats, seven U.S. Senate seats, seven gubernatorial seats, and 494 state legislative seats for each group of elections to qualify historically as a wave against the president's party in November 2018. [Read more about the 2018 elections below.](#)

Our objective in this paper is threefold:

- 1) Contribute to a conversation among political scientists and pundits about whether it is possible or desirable to provide an objective definition of the term wave election
- 2) Put forward our own specific methodological proposal for how to define a wave election
- 3) Apply our methodology to historical elections to derive and propose specific numbers of lost seats that should set the benchmark for what is considered a wave election in 2018

How to read this report

First, we review our [methodology](#).

We then introduce a [discussion of the term wave election](#) and use our definition to [evaluate the 2018 elections](#).

After that, we present our analyses of each election group:

- [U.S. House races](#)
- [U.S. Senate races](#)
- [Gubernatorial races](#)
- [State legislative races](#)

Next, we present our analyses of:

- Years where multiple waves occurred
- Years where waves go *toward* the president's party
- How the type of election—first midterm, second midterm, or presidential—affects the prospects of a wave occurring
- A comparison of waves from 1918-2016 and waves from 1946-2016
- The effectiveness of the out-of-power party in gaining seats
- How waves have impacted control of the U.S. House since 1918

Finally, we present limitations of our study, the data we used, and opportunities for further analysis.

Methodology

The [methodology](#) we propose has three guideposts:

- 1) The term *wave election* is a relative term used to compare outcomes in one year to elections in another year. To define the term, then, requires looking at a considerable wealth of historical and contextual detail.
- 2) The term *wave election* as it is used implies *significant* change. It should be a clearly *large* effect.
- 3) The term *wave election* should be separately applied to groups of elections; we want to be able to say of a given election year that whereas there was a wave election in the U.S. House, this did not happen at the level of state governorships. Or, conversely, we would like to be able to say, “In this election year, there was a wave election in the U.S. House that also extended to state governorships and state legislatures.”

We ranked partisan changes in 50 elections and placed them in five quintiles according to the net seat change by the president’s party. We define a *wave* for each election group—U.S. House, U.S. Senate, governorships, and state legislative elections—as one in which the net seat change by the president’s party falls into the top quintile of historical changes.

Our data consists of the gains or losses for the president’s party in U.S. House, U.S. Senate, gubernatorial, and state legislative elections. For more, see [this section](#).

For additional context, we divided the elections into three types: a president’s first midterm, his second midterm, or a presidential election year.^[2]

To learn more about our methodology, including why we used a quintile analysis, visit [this section](#).

What is a wave?

See also: [Media definitions of a wave election](#)

We define wave elections as the 20 percent of elections where the president’s party lost the most seats during the last 100 years (50 election cycles).

While there is not an agreed-upon definition of waves in political science, a number of scholars and journalists have tried to define the concept focusing mostly on the House of Representatives. Most frequently, political scientists will set a specific seat gain as being necessary for an election to qualify as a wave. For example, Stu Rothenberg and Al Turchfarber classify elections as waves if a party gains at least 20 seats.^[3] Rothenberg’s definition also requires that the other party have minimal losses in the election.^[4]

Jacob Smith, an author of this report, previously defined a wave election as “a congressional election that (1) produces the potential for a political party to significantly affect the political status quo as (2) the result of a substantial increase in seats for that party.” Under this definition, elections are compared to recent previous years in terms of both seat swing and seat gain.^[5]

In most cases, these definitions produce similar results to the definition presented here, although the 20-seat-swing standard means that many historical elections will be counted as waves given the high electoral volatility of that time period.

Here are a few more definitions of waves that have been offered by academics, election experts, and journalists:

- Amy Walter of the *Cook Political Report* said that wave elections occur when the out-of-power party wins “significantly more seats than they [need] to win control” and that a Democratic gain of 35 House seats in 2018 would qualify as a wave. She also wrote that races her outlet rates as “Toss-up” disproportionately break toward one party during wave elections. She noted that Democrats won 55 percent of Republican-held “Toss-up” seats in 2006 and that Republicans won 65 percent of Democratic-held “Toss-up” seats in 2010.^[6]
- Catholic University political scientist Matthew Green said that a wave election occurs when “an unusual magnitude of seats or offices switches from one party to another.” However, he said that the exact magnitude is unclear and that he believes a wave election should be calculated by the seats a party wins, not the vote margins in the races.^[7]
- Chris Cillizza of the *Washington Post* said that a wave could be said to occur when a party running on a nationalized message makes gains in House, Senate, and gubernatorial races.^[8]

Evaluating 2018

To determine the seat changes necessary for 2018 to qualify as a wave election, we applied our definition to the current partisan breakdown of the seats up for election in 2018.

The chart below shows the partisan breakdown of those seats:

Pre-November 2018					
Election year	Election group	Democratic seats	Republican seats	Democratic seat share	Republican seat share
2016	U.S. House ^[9]	195	240	44.8%	55.2%
2012	U.S. Senate	26 ^[10]	9	74.3%	25.7%
2014	Gubernatorial ^[11]	9	26	25.0%	72.2%
2016	State legislative ^[12]	3130	4178	42.8%	57.2%

Based on our analysis of historical elections, we applied the following definitions:

- U.S. House—Democrats gain 48 seats
- U.S. Senate—Democrats gain seven seats
- Gubernatorial races—Democrats gain seven seats
- State legislative races—Democrats gain 494 seats

This chart shows what each election group must look like after the 2018 elections for Ballotpedia to consider it a wave:

Post-2018 breakdown for a wave					
Election group	Democratic seats	Republican seats	Margin	Democratic seat share	Republican seat share
U.S. House ^[9]	243	192	D+51	55.9%	44.1%
U.S. Senate	33	2	D+31	94.3%	5.7%
Gubernatorial ^[11]	16	19	R+3	44.4%	52.8%
State legislative ^[12]	3624	3684	R+60	49.6%	50.4%

It will not take wave elections for the Democrats to take back the House or the Senate. However, Democrats will need waves and then even further gains to take control of a majority of the country's governorships and state legislative seats.

What Democrats need in 2018		
Election group	Seats needed for chamber/majority control	Seats needed for a wave election
U.S. House	D+23 ^[9]	D+48
U.S. Senate	D+2	D+7
Gubernatorial	D+10	D+7
State legislative	D+525 ^[12]	D+494

U.S. House waves

For 2018 to qualify historically as a wave election, Republicans must lose 48 U.S. House seats.^[13]

The president's party lost 48 or more U.S. House seats in 11 of the 50 elections since 1918, ranging from 97 seats lost under President [Herbert Hoover](#) in 1930 to 48 seats lost under Presidents [Lyndon Johnson](#) (1966) and [Gerald Ford](#) (1974).

Six of the 11 wave elections happened in a president's first midterm election.

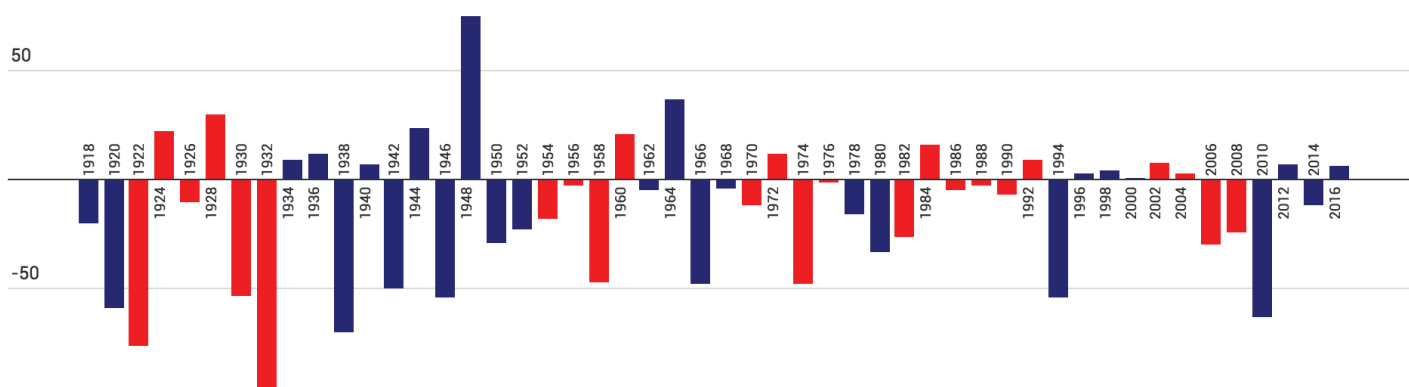
The median number of seats lost by the presidential party is six. The average number of seats lost is about 14.

The chart below shows the number of seats the president's party lost in the 11 wave elections.

To see the full set of elections from 1918 to 2016, [click here](#).

U.S. House wave elections					
Year ↕	President ↕	Party ↕	Election type ↕	House seats change ↕	House majority ^[14] ↕
1932	Hoover	R	Presidential	-97	D
1922	Harding	R	First midterm	-76	R
1938	Roosevelt	D	Second midterm	-70	D
2010	Obama	D	First midterm	-63	R (flipped)
1920	Wilson	D	Presidential	-59	R
1946	Truman	D	First midterm	-54	R (flipped)
1994	Clinton	D	First midterm	-54	R (flipped)
1930	Hoover	R	First midterm	-53	D (flipped)
1942	Roosevelt	D	Third midterm	-50	D
1966	Johnson	D	First midterm ^[15]	-48	D
1974	Ford	R	Second midterm ^[16]	-48	D

Presidential party House seat change (1918-2016)



The bars show the seats gained or lost by the president's party. Blue bars are for Democratic presidents and red bars are for Republican presidents.

Source: Christianson (1996) and U.S. House of Representatives

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U.S. Senate waves

For 2018 to qualify historically as a wave election, Republicans must lose seven U.S. Senate seats.

The president's party lost seven or more U.S. Senate seats in 10 of the 48 Senate elections since 1918, ranging from seven seats lost under Presidents Calvin Coolidge (1926), Herbert Hoover (1930), and Ronald Reagan (1986) to 13 seats lost under President Herbert Hoover in 1932.

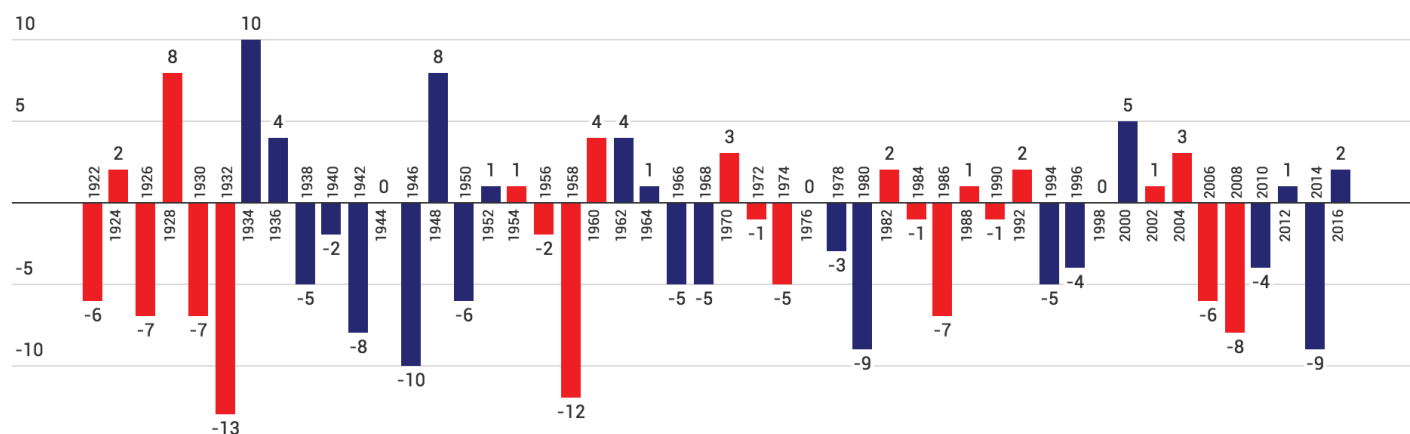
Three of the 10 wave elections happened in a president's first midterm election.

The median number of seats lost by the president's party is one. The average number of seats lost is about two.

The chart below shows the number of seats the president's party lost in the 10 wave elections. To see the full set of elections from 1918 to 2016, [click here](#).

U.S. Senate wave elections					
Year ↕	President ↕	Party ↕	Election type ↕	Senate seats change ↕	Senate majority ¹⁹ ↕
1932	Hoover	R	Presidential	-13	D (flipped)
1958	Eisenhower	R	Second midterm	-12	D
1946	Truman	D	First midterm	-10	R (flipped)
1980	Carter	D	Presidential	-9	R (flipped)
2014	Obama	D	Second midterm	-9	R (flipped)
1942	Roosevelt	D	Third midterm	-8	D
2008	George W. Bush	D	Presidential	-8	D
1926	Coolidge	R	First midterm ^[18]	-7	R
1930	Hoover	R	First midterm	-7	R
1986	Reagan	R	Second midterm	-7	D (flipped)

Presidential party Senate seat change (1918-2016)



The bars show the seats gained or lost by the president's party. Blue bars are for Democratic presidents and red bars are for Republican presidents.

Source: Congressional Quarterly

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Gubernatorial waves

For 2018 to qualify historically as a wave election, Republicans must lose seven gubernatorial seats.

The president's party lost seven or more gubernatorial seats in 11 of the 50 elections since 1918, ranging from seven seats lost under Presidents [Ronald Reagan](#) (1986) and [Barack Obama](#) (2010) to 12 seats lost under President [Richard Nixon](#) in 1970.

Eight of the 11 wave elections happened in a president's first midterm election.

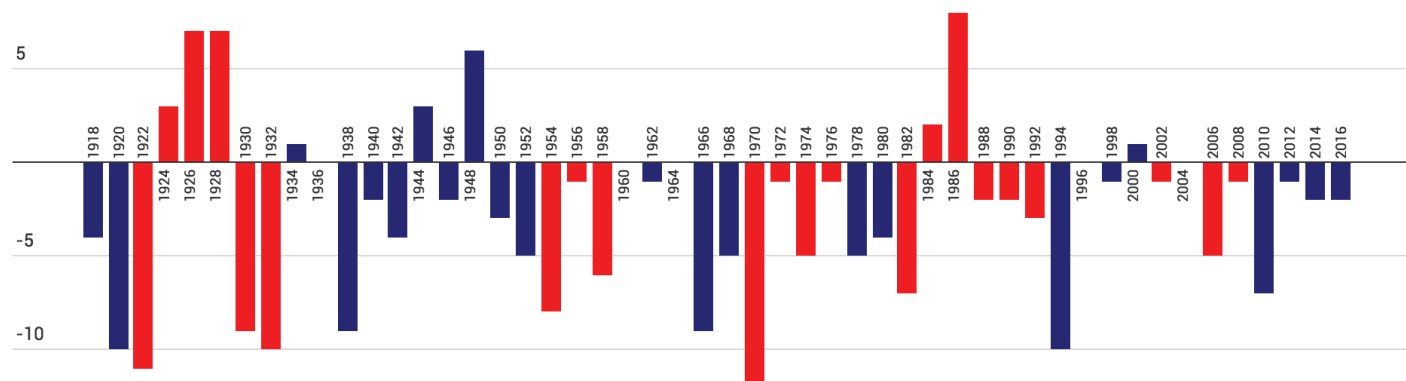
The median number of gubernatorial seats lost by the president's party is two. The average number of seats lost is almost three.

The varying number of gubernatorial elections held each year from 1918 to 2016 complicated this analysis. To read more about this limitation, [click here](#).

The chart below shows the number of seats the president's party lost in the 11 wave elections. To see the full set of elections from 1918 to 2016, [click here](#).

Gubernatorial wave elections					
Year ↕	President ↕	Party ↕	Election type ↕	Gubernatorial seats change ↕	Elections analyzed ⁽¹⁾ ↕
1970	Nixon	R	First midterm	-12	35
1922	Harding	R	First midterm	-11	33
1932	Hoover	R	Presidential	-10	35
1920	Wilson	D	Presidential	-10	36
1994	Clinton	D	First midterm	-10	36
1930	Hoover	R	First midterm	-9	33
1938	Roosevelt	D	Second midterm	-9	33
1966	Johnson	D	First midterm ⁽¹⁵⁾	-9	35
1954	Eisenhower	R	First midterm	-8	33
1982	Reagan	R	First midterm	-7	36
2010	Obama	D	First midterm	-7	33

Presidential party gubernatorial seat change (1918-2016)



The bars show the seats gained or lost by the president's party. Blue bars are for Democratic presidents and red bars are for Republican presidents.

Source: Congressional Quarterly

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State legislative waves

For 2018 to qualify historically as a wave election, Republicans must lose 494 state legislative seats.

State legislative races occur every two or four years, depending on the state and the chamber. The number of state legislative seats we analyzed varied due to the changing size of state legislative chambers, states being added to the union, states changing their election years, and more. See our [data explanation section](#) to see how we accounted for different term lengths and odd-year elections.

The president's party lost 494 or more state legislative seats in 10 of the 50 elections since 1918, ranging from 494 seats lost under President [Dwight Eisenhower](#) in 1954 to 1,022 seats lost under President [Herbert Hoover](#) in 1932.

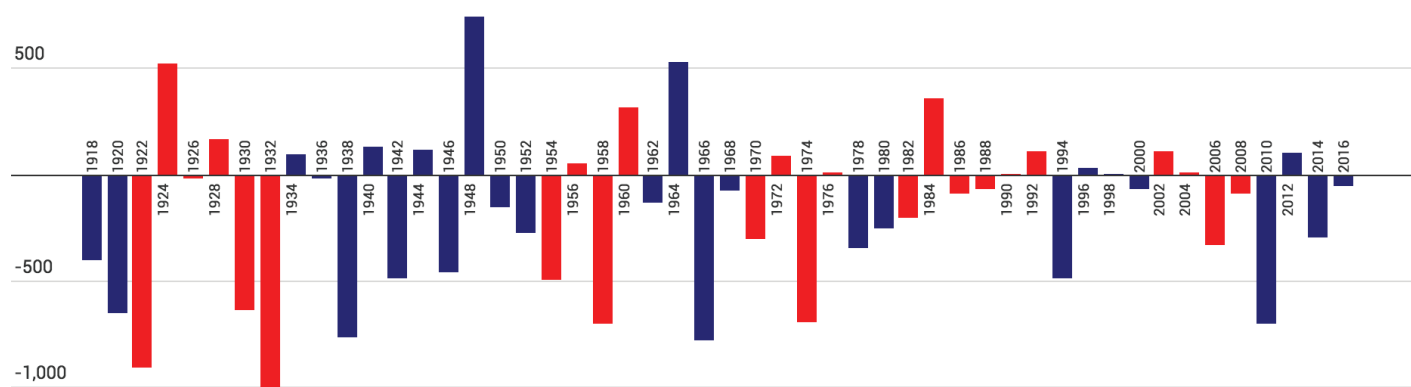
Four of the 10 wave elections happened in a president's first midterm election.

The median number of seats lost by the president's party is 82. The average number of seats lost is about 169.

The chart below shows the number of seats the president's party lost in the 10 wave elections. To see the full set of elections from 1918 to 2016, [click here](#).

State legislative wave elections					
Year ↕	President ↕	Party ↕	Election type ↕	State legislative seats change ↕	Elections analyzed ^[15] ↕
1932	Hoover	R	Presidential	-1022	7365
1922	Harding	R	First midterm	-907	6907
1966	Johnson	D	First midterm ^[15]	-782	7561
1938	Roosevelt	D	Second midterm	-769	7179
1958	Eisenhower	R	Second midterm	-702	7627
2010	Obama	D	First midterm	-702	7306
1974	Ford	R	Second midterm ^[16]	-695	7481
1920	Wilson	D	Presidential	-654	6835
1930	Hoover	R	Presidential	-640	7361
1954	Eisenhower	R	First midterm	-494	7513

Presidential party state legislative seat change (1918-2016)



The bars show the seats gained or lost by the president's party. Blue bars are for Democratic presidents and red bars are for Republican presidents.

Source: Congressional Quarterly

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Multiple waves

The sections below show election years as whole rather than individual election groups like the U.S. House or state legislative seats.

We provide our definition of a tsunami election year and a composite analysis that combines our measures of wave elections into a single figure.

Tsunami election years

A tsunami election year occurs when waves appear in at least three election groups. Specifically, tsunamis occur when waves appear in both U.S. House and state legislative elections and at least one wave appears in either U.S. Senate or gubernatorial elections.

Based on this definition, tsunami elections occurred in 1920, 1922, 1930, 1932, 1938, 1966, and 2010.

Tsunami election years (1922-2016)							
Year ↕	President ↕	Party ↕	Election type ↕	U.S. House wave ↕	U.S. Senate wave ↕	Gubernatorial wave ↕	State legislative wave ↕
1920	Wilson	D	Presidential	✓		✓	✓
1922	Harding	R	First midterm	✓		✓	✓
1930	Hoover	R	First midterm	✓	✓	✓	✓
1932	Hoover	R	Presidential	✓	✓	✓	✓
1938	Roosevelt	D	Second midterm	✓		✓	✓
1966	Johnson	D	First midterm ^[15]	✓		✓	✓
2010	Obama	D	First midterm	✓		✓	✓

Composite analysis

The composite analysis aggregates an overall score for U.S. House, U.S. Senate, gubernatorial, and state legislative races in a given year.

The composite score is an average of the seat share changes for U.S. House, U.S. Senate, gubernatorial, and state legislative races. It is an overall measure of how the presidential party performed in a given year.

To be considered a composite wave election, Ballotpedia determined the presidential party's seat share must decline by an average of **14.2 percent** across the four election groups. The 10 election years where this occurred are wave election years. Like previous analyses, they are in the top quintile of the 50 election cycles since 1918.

Five of the 10 composite wave elections happened in a president's first midterm election.

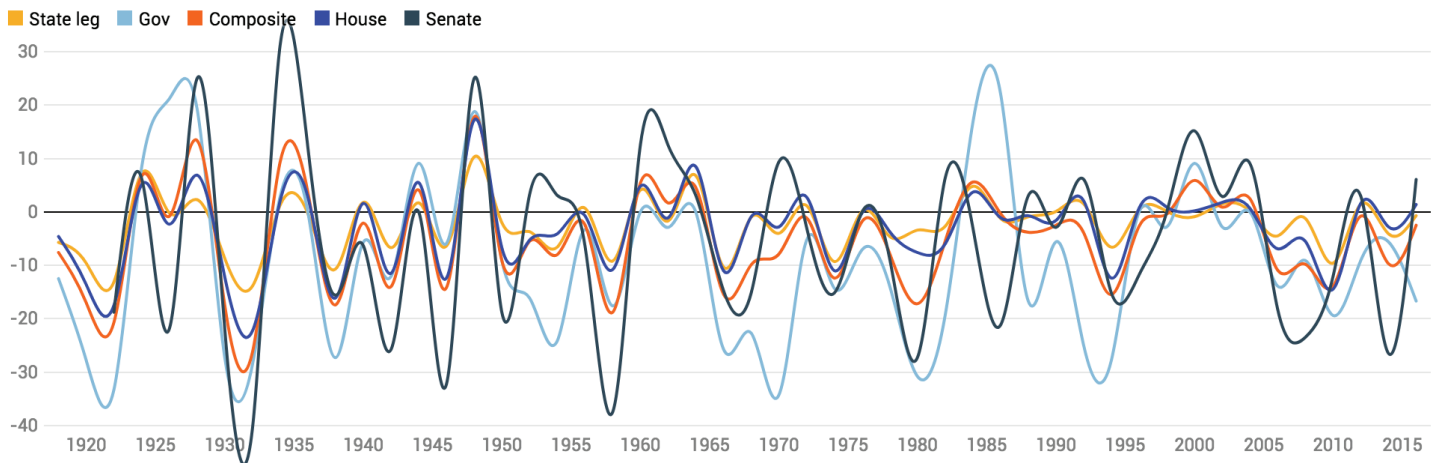
The median composite score is -3.8 percent. The average composite score is -5.1 percent.

The chart below shows the 10 composite wave elections. To see the full set of elections from 1918 to 2016, [click here](#).

Composite wave elections (1918-2016)								
Year ↕	President ↕	Party ↕	Election type ↕	Overall score ↕	U.S. House ↕	U.S. Senate ↕	Governor ↕	State legislatures ↕
1932	Hoover	R	Presidential	-26.3%	-22.3%	-40.6%	-28.6%	-13.9%
1922	Harding	R	First midterm	-20.7%	-17.5%	-18.8%	-33.3%	-13.1%
1958	Eisenhower	R	Second midterm	-18.8%	-10.8%	-37.5%	-17.6%	-9.2%
1930	Hoover	R	First midterm	-17.5%	-12.2%	-21.9%	-27.3%	-8.7%
1938	Roosevelt	D	Second midterm	-17.4%	-16.1%	-15.6%	-27.3%	-10.7%
1980	Carter	D	Presidential	-17.2%	-7.6%	-27.3%	-30.8%	-3.4%
1920	Wilson	D	Presidential	-17.0%	-13.6%	—	-27.8%	-9.6%
1994	Clinton	D	First midterm	-15.5%	-12.4%	-15.2%	-27.8%	-6.6%
1966	Johnson	D	First midterm ^[15]	-15.4%	-11.0%	-14.7%	-25.7%	-10.3%
1946	Truman	D	First midterm	-14.2%	-12.4%	-32.3%	-5.9%	-6.4%

The graphs below show how each election type compares with the U.S. House elections when measured by the percentage change in seats of the president's party.

Presidential party seat change trends (1918-2016)

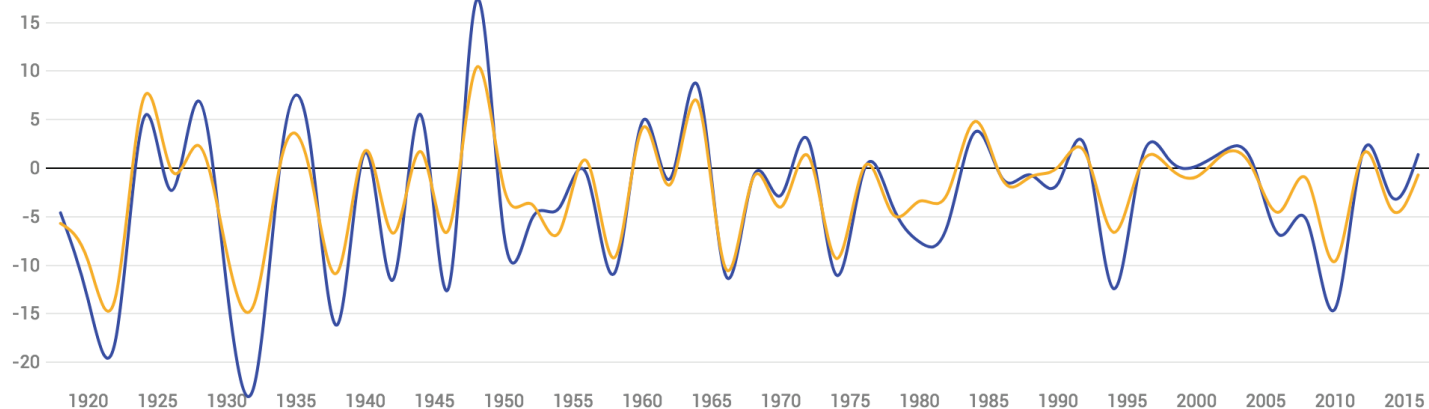


The y axis shows the percentage change in the presidential party's share of U.S. House, U.S. Senate, gubernatorial, and state legislative seats in an election year

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Presidential party seat change trends (U.S. House and state legislatures)

State leg House

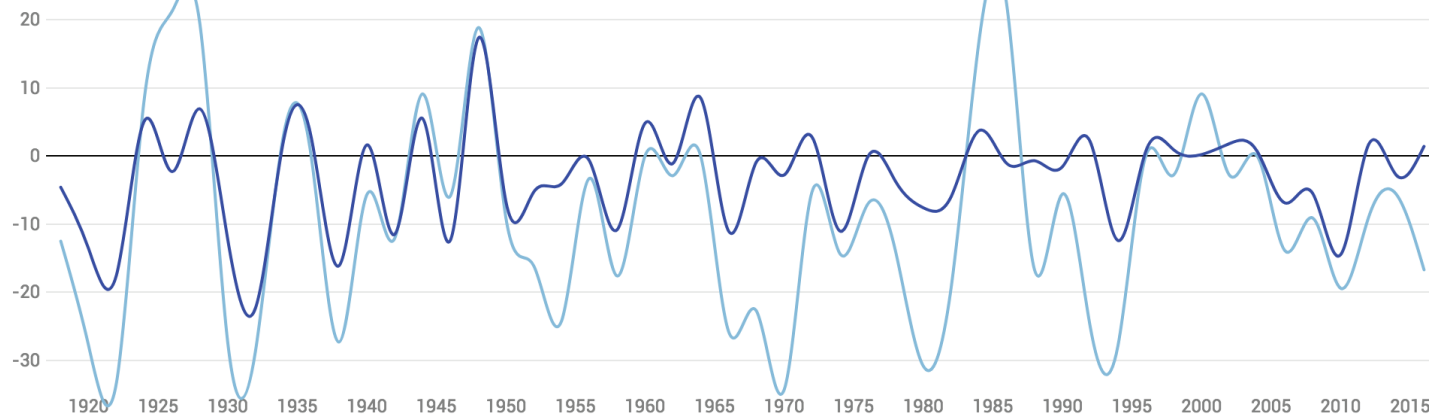


The y axis shows the percentage change in the presidential party's share of U.S. House and state legislative seats in an election year

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Presidential party seat change trends (U.S. House and governorships)

Gov House

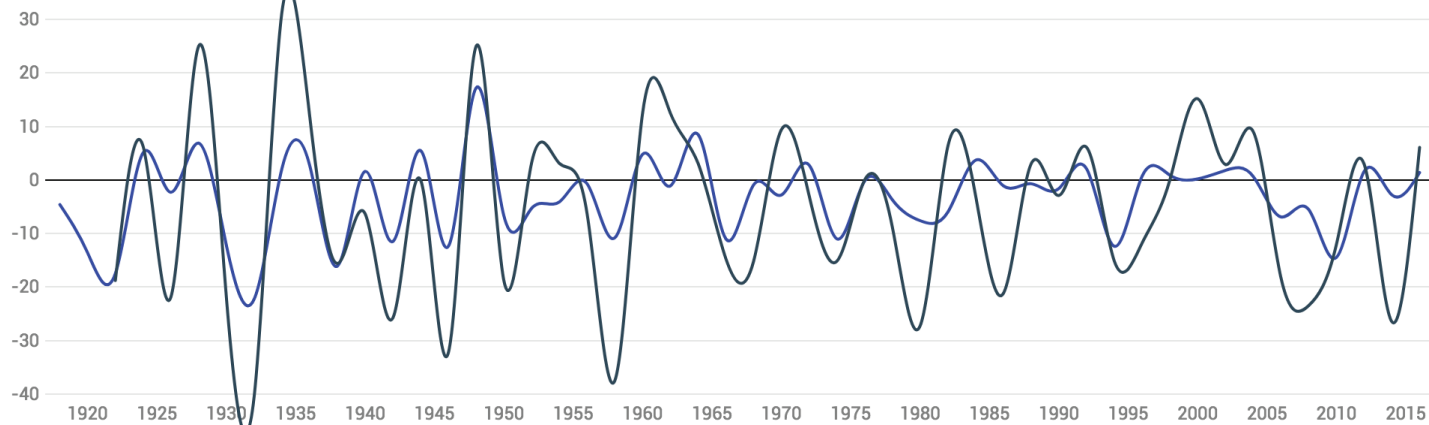


The y axis shows the percentage change in the presidential party's share of U.S. House and gubernatorial seats in an election year

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Presidential party seat change trends (U.S. House and U.S. Senate)

House Senate



The y axis shows the percentage change in the presidential party's share of U.S. House and U.S. Senate seats in an election year

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Presidential waves

The 2018 elections could feature *offsetting wave elections*, which is when a wave *against* the president's party and a wave *toward* the president's party happen in the same year.

A wave toward the president's party, also known as a presidential wave election, is the opposite of a wave against the president's party, which is what this report has primarily discussed. Presidential wave elections are those in the bottom quintile of elections since 1918, usually where the president's party gained seats or suffered minimal losses.

The president's party needs to win nine U.S. House seats, two U.S. Senate seats, and 108 state legislative seats to have presidential wave elections in each group. It needs to at least hold even in gubernatorial races, neither winning nor losing any seats.

The 2018 offsetting waves could occur if Republicans lose 48 or more U.S. House seats and win two U.S. Senate seats, which is plausible because Democrats are defending 10 Senate seats in states Trump won in the 2016 election.

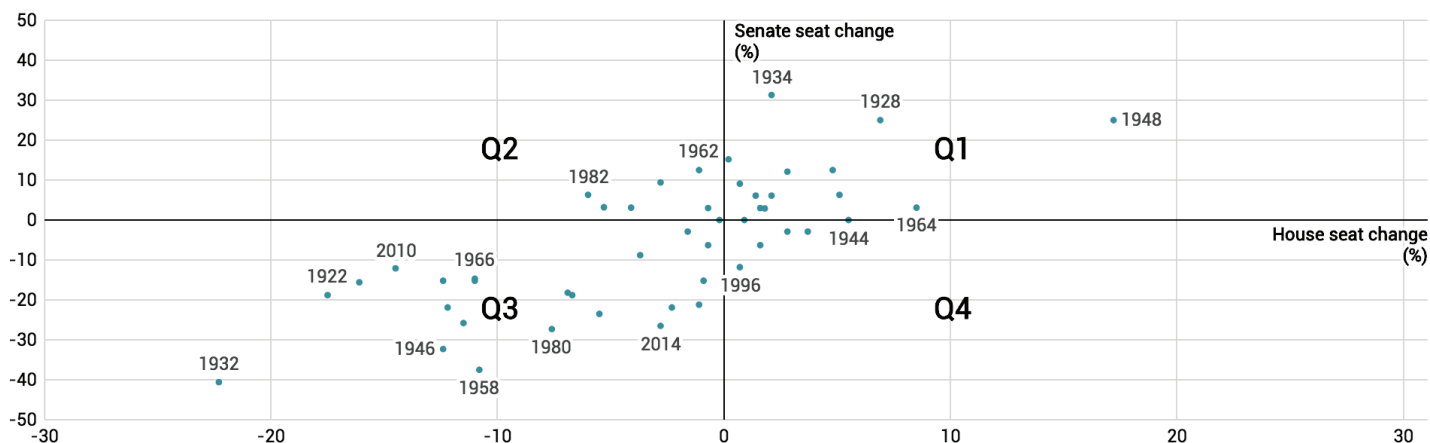
There have been four offsetting wave elections since 1918, and all involved offsetting U.S. Senate and gubernatorial waves. See the chart below for more information. [Click here](#) to see the full dataset.

Offsetting wave elections							
Year ↕	President ↕	Party ↕	Election type ↕	Wave against president ↕	Seat change ↕	Wave toward president ↕	Seat change ↕
1926	Coolidge	R	First midterm ^[18]	U.S. Senate	-7	Gubernatorial	+7
1970	Nixon	R	First midterm	Gubernatorial	-12	U.S. Senate	+3
1982	Reagan	R	First midterm	Gubernatorial	-7	U.S. Senate	+2
1986	Reagan	R	Second midterm	U.S. Senate	-7	Gubernatorial	+8

The graph below maps election years based on percentage changes in U.S. House and U.S. Senate seats. The graph is divided into four quadrants:

- **Q1** contains years where the president's party saw an increase in its share of U.S. Senate seats and an increase in its share of U.S. House seats.
- **Q2** contains years where the president's party saw an increase in its share of U.S. Senate seats and a decrease in its share of U.S. House seats.
- **Q3** contains years where the president's party saw a decrease in its share of U.S. Senate seats and a decrease in its share of U.S. House seats.
- **Q4** contains years where the president's party saw a decrease in its share of U.S. Senate seats and an increase in its share of U.S. House seats.

Changes in House/Senate seats (1922-2016)



Hover over an election year to see the percentage change in the presidential party's share of U.S. House and U.S. Senate seats in that year

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U.S. House presidential wave elections				
Year	President	Party	Election type	House seats change
1948	Truman	D	Presidential	+75
1964	Johnson	D	Presidential	+37
1928	Coolidge	R	Presidential	+30
1944	Roosevelt	D	Presidential	+24
1924	Coolidge	R	Presidential	+22
1960	Eisenhower	R	Presidential	+21
1984	Reagan	R	Presidential	+16
1972	Nixon	R	Presidential	+12
1936	Roosevelt	D	Presidential	+12
1992	George H.W. Bush	R	Presidential	+9
1934	Roosevelt	D	First midterm	+9

U.S. Senate presidential wave elections				
Year	President	Party	Election type	Senate seats change
1934	Roosevelt	D	First midterm	+10
1928	Coolidge	R	Presidential	+8
1948	Truman	D	Presidential	+8
2000	Clinton	D	Presidential	+5
1936	Roosevelt	D	Presidential	+4
1960	Eisenhower	R	Presidential	+4
1962	Kennedy	D	First midterm	+4
1970	Nixon	R	First midterm	+3
2004	George W. Bush	R	Presidential	+3
1924	Coolidge	R	Presidential	+2
1982	Reagan	R	First midterm	+2
1992	George H.W. Bush	R	Presidential	+2
2016	Obama	D	Presidential	+2

The following boxes show the presidential wave elections (the 20 percent of elections where the president's party performed best) since 1918 in U.S. House, U.S. Senate, gubernatorial, and state legislative elections as well as the 20 percent of election years with the highest composite scores.

Gubernatorial presidential wave elections				
Year ↕	President ↕	Party ↕	Election type ↕	Gubernatorial seats change ↕
1986	Reagan	R	Second midterm	+8
1926	Coolidge	R	First midterm ^[18]	+7
1928	Coolidge	R	Presidential	+7
1948	Truman	D	Presidential	+6
1924	Coolidge	R	Presidential	+3
1944	Roosevelt	D	Presidential	+3
1984	Reagan	R	Presidential	+2
1934	Roosevelt	D	First midterm	+1
2000	Clinton	D	Presidential	+1
1936	Roosevelt	D	Presidential	0
1960	Eisenhower	R	Presidential	0
1964	Johnson	D	Presidential	0
1996	Clinton	D	Presidential	0
2004	George W. Bush	R	Presidential	0

State legislative presidential wave elections				
Year ↕	President ↕	Party ↕	Election type ↕	State legislative seats change ↕
1948	Truman	D	Presidential	+745
1964	Johnson	D	Presidential	+530
1924	Coolidge	R	Presidential	+522
1984	Reagan	R	Presidential	+358
1960	Eisenhower	R	Presidential	+315
1928	Coolidge	R	Presidential	+169
1940	Roosevelt	D	Presidential	+129
1944	Roosevelt	D	Presidential	+121
2002	George W. Bush	R	First midterm	+110
1992	George H.W. Bush	R	Presidential	+108

Composite presidential wave elections				
Year ↕	President ↕	Party ↕	Election type ↕	Overall score ↕
1948	Truman	D	Presidential	+17.8%
1928	Coolidge	R	Presidential	+13.4%
1934	Roosevelt	D	First midterm	+9.4%
1924	Coolidge	R	Presidential	+6.7%
2000	Clinton	D	Presidential	+5.9%
1984	Reagan	R	Presidential	+5.6%
1960	Eisenhower	R	Presidential	+5.4%
1964	Johnson	D	Presidential	+4.6%
1944	Roosevelt	D	Presidential	+4.1%
1936	Roosevelt	D	Presidential	+3.7%

Election types

Wave elections occur disproportionately in first and second midterm elections.

First midterm elections account for 30 percent of elections since 1918, but they comprise more than 30 percent of wave elections for the U.S. House (54.6 percent), gubernatorial races (72.7 percent), state legislatures (40.0 percent), and composite scores (50.0 percent).

Second midterm elections account for 18 percent of elections since 1918, but they comprise more than 18 percent of wave elections for the U.S. Senate (30.0 percent), state legislatures (30.0 percent), and composite scores (20.0 percent).

Presidential elections account for 50 percent of elections since 1918, but they comprise less than 50 percent of wave elections for the U.S. House (18.2 percent), U.S. Senate (30.0 percent), gubernatorial races (18.2 percent), state legislatures (30.0 percent), and composite scores (30.0 percent).

The chart below compares each election type's representation among the 10 or 11 wave elections to the election type's representation among all 50 elections (which is listed in the top row). Percentages for *Election type*, *House waves*, and *Senate waves* do not add to 100 percent because Franklin Roosevelt had a third midterm election in 1942 where House and Senate waves occurred.

Election type analysis			
Election type	First midterms (30%)	Second midterms (18%)	Presidential elections (50%)
House waves	54.6%	18.2%	18.2%
Senate waves	30.0%	30.0%	30.0%
Gubernatorial waves	72.7%	9.1%	18.2%
State legislative waves	40.0%	30.0%	30.0%
Composite waves	50.0%	20.0%	30.0%

Overall waves vs. modern waves

At times, political scientists separate the study of American elections into pre-1945 and post-1945 periods to account for the social change and political realignment the nation went through during the Great Depression and World War II.^{[21][22]}

We divided the wave election data along these lines and applied the same definition of a wave election, those in the top quintile, to elections from 1946 to 2016. We found that the size of a wave election was smaller for all four election groups, most notably U.S. House and state legislative races, in the post-1945 period than in the 1918-2016 period.

We chose to use the full 1918-2016 period for our main analysis rather than the post-1945 period because we wanted to look back at the last 100 years of elections, regardless of partisan realignments or other fundamental changes in American politics, to give readers greater context for how electoral competition has changed.

The chart below shows the number of seats the president's party must lose for a wave in each election group for the 1946-2016 period and the 1918-2016 period. To see the full set of elections from 1946 to 2016, [click here](#).

Overall waves vs. modern waves				
Period covered	House wave	Senate wave	Gubernatorial wave	State legislative wave
1946-2016	-30	-6	-5	-344
1918-2016	-48	-7	-7	-494

See the boxes below to see waves for each election group from 1946-2016.

U.S. House wave elections (1946-2016)				
Year ↕	President ↕	Party ↕	Election type ↕	House seats change ↕
2010	Obama	D	First midterm	-63
1946	Truman	D	First midterm	-54
1994	Clinton	D	First midterm	-54
1966	Johnson	D	First midterm ^[15]	-48
1974	Ford	R	Second midterm ^[16]	-48
1958	Eisenhower	R	Second midterm	-47
1980	Carter	D	Presidential	-33
2006	George W. Bush	R	Second midterm	-30

U.S. Senate wave elections (1946-2016)				
Year ↕	President ↕	Party ↕	Election type ↕	Senate seats change ↕
1958	Eisenhower	R	Second midterm	-12
1946	Truman	D	First midterm	-10
1980	Carter	D	Presidential	-9
2014	Obama	D	Second midterm	-9
2008	George W. Bush	R	Presidential	-8
1986	Reagan	R	Second midterm	-7
2006	George W. Bush	R	Second midterm	-6
1950	Truman	D	Second midterm	-6

Gubernatorial wave elections (1946-2016)				
Year ↕	President ↕	Party ↕	Election type ↕	Gubernatorial seats change ↕
1970	Nixon	R	First midterm	-12
1994	Clinton	D	First midterm	-10
1966	Johnson	D	First midterm ^[15]	-9
1954	Eisenhower	R	First midterm	-8
2010	Obama	D	First midterm	-7
1982	Reagan	R	First midterm	-7
1958	Eisenhower	R	Second midterm	-6
2006	George W. Bush	R	Second midterm	-5
1974	Ford	R	Second midterm ^[16]	-5
1968	Johnson	D	Presidential	-5
1978	Carter	D	Second midterm	-5
1952	Truman	D	Presidential	-5

State legislative wave elections (1946-2016)				
Year ↕	President ↕	Party ↕	Election type ↕	State legislative seats change ↕
1966	Johnson	D	First midterm ^[15]	-782
2010	Obama	D	First midterm	-702
1958	Eisenhower	R	Second midterm	-702
1974	Ford	R	Second midterm ^[16]	-695
1954	Eisenhower	R	First midterm	-494
1994	Clinton	D	First midterm	-488
1946	Truman	D	First midterm	-458
1978	Carter	D	First midterm	-344

Effectiveness of the out-of-power party

Elections can also be judged on the out-of-power party's effectiveness in gaining seats held by the president's party. By effectiveness we mean the percentage of seats that were gained out of the total seats possible to gain.

We analyzed the effectiveness of the out-of-power party in U.S. House and U.S. Senate races. We found that the wave elections identified in our quintile analyses closely matched the elections where the out-of-power party was most effective.

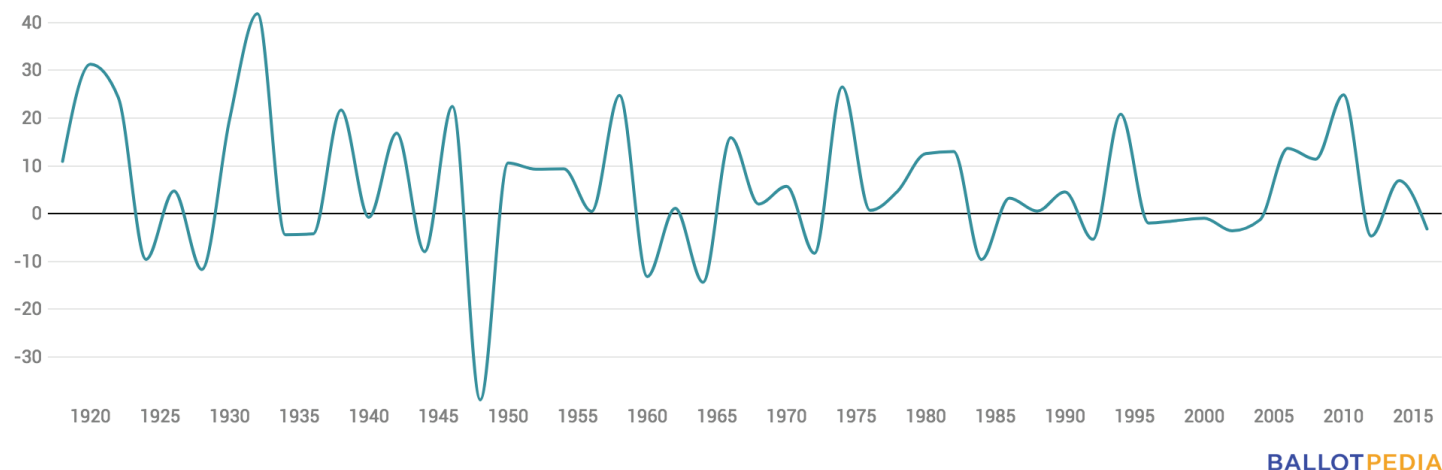
The chart below shows the top quintile of U.S. House elections measured by the out-of-power party's effectiveness in gaining available seats. Nine of the 10 most effective elections for the out-of-power party were also wave elections.

U.S. House elections effectiveness							
Year ↕	President ↕	Out-of-power party ↕	Election type ↕	Seats gained ↕	Seats possible to gain ↕	Effectiveness (%) ↕	Also a wave election? ↕
1932	Hoover	D	Presidential	90	215	41.9%	Yes
1920	Wilson	R	Presidential	61	195	31.3%	Yes
1974	Ford	D	Second midterm ^[16]	52	196	26.5%	Yes
2010	Obama	R	First midterm	64	257	24.9%	Yes
1958	Eisenhower	D	Second midterm	50	202	24.8%	No
1922	Harding	D	First midterm	74	304	24.3%	Yes
1946	Truman	R	First midterm	55	245	22.5%	Yes
1938	Roosevelt	R	Second midterm	75	356	21.7%	Yes
1994	Clinton	R	First midterm	54	259	20.9%	Yes
1930	Hoover	D	First midterm	53	268	19.8%	Yes

The graph below shows the effectiveness of the out-of-power party in U.S. House elections from 1918 to 2016.

Effectiveness of the out-of-power party in U.S. House elections (1918-2016)

The y axis shows the percentage of seats the out of power party gained out of the seats it could have gained



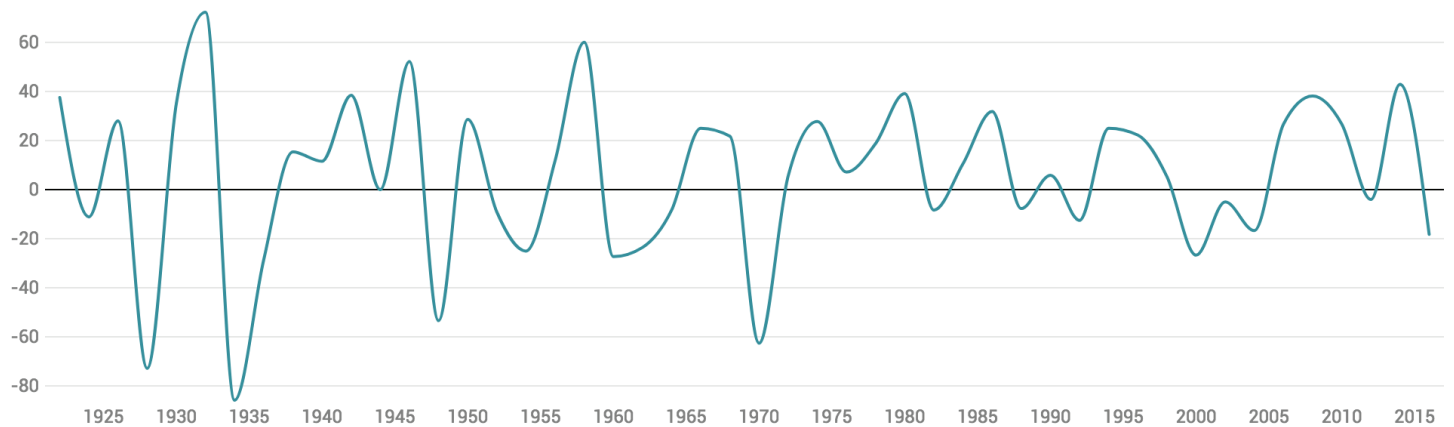
The chart below shows the top quintile of U.S. Senate elections measured by the out-of-power party's effectiveness in gaining available seats. Nine of the 10 most effective elections for the out-of-power party were also wave elections.

U.S. House elections effectiveness							
Year ↕	President ↕	Out-of-power party ↕	Election type ↕	Seats gained ↕	Seats possible to gain ↕	Effectiveness (%) ↕	Also a wave election? ↕
1932	Hoover	D	Presidential	90	215	41.9%	Yes
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1930	Hoover	D	First midterm	53	268	19.8%	Yes

Effectiveness of the out-of-power party in U.S. Senate elections (1922-2016)

The y axis shows the percentage of seats the out of power party gained out of the seats it could have gained

The graph below shows the effectiveness of the out-of-power party in U.S. Senate elections from 1922 to 2016.



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U.S. House waves since 1918

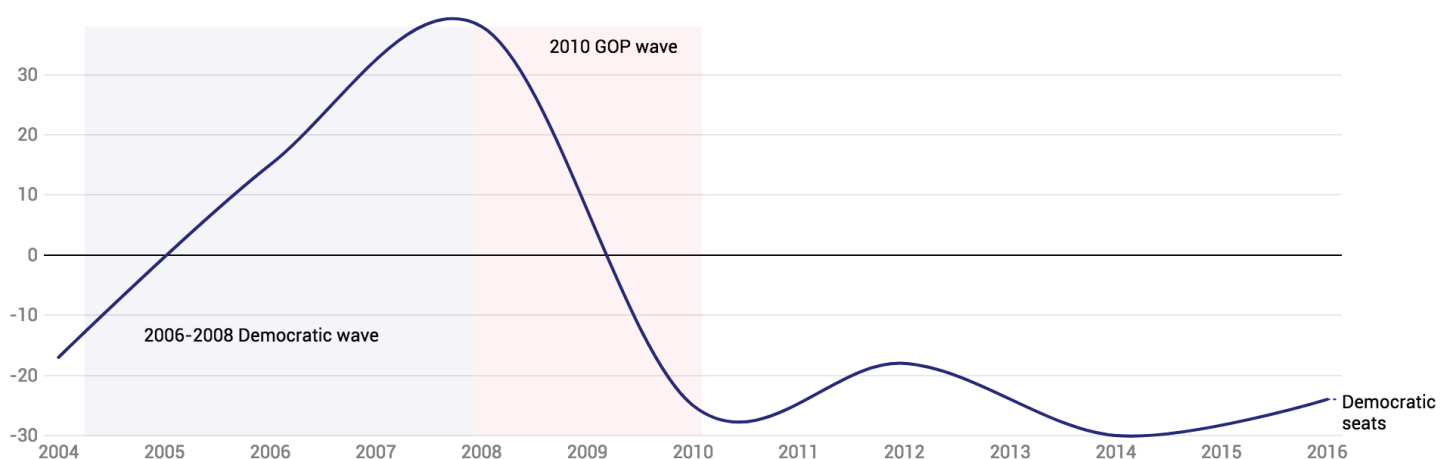
The metaphor of a wave implies that once a party wins a large number of seats, those gains will eventually recede, much like a tide being pulled back into the ocean.

An instructive example of this is the Democrats' performance in U.S. House elections from 2006 to 2016. Following the 2004 elections, Democrats had 201 seats, which was 17 below the 218 seats required for a majority. However, over the next two elections Democrats brought themselves to 233 seats and then to 256 seats. Neither election constituted a wave on its own, but, together, the gains were large enough to qualify 2006-2008 as a *combined wave*.

As the metaphor implies, though, Democratic gains soon began to recede. In 2010, Republicans erased the 2006-2008 *combined wave* with a wave of their own. From 2012 to 2016, Democrats remained in the minority as they won some seats back in 2012, lost them again in the 2014 Republican resurgence, and then began to gain ground again in 2016. Democrats are now hoping that 2018 is a wave that they can ride to shore and eliminate Republican advances since 2010.

The graph below gives a visual representation of Democratic performance since 2004.

Democratic tides in U.S. House elections (2004-2016)



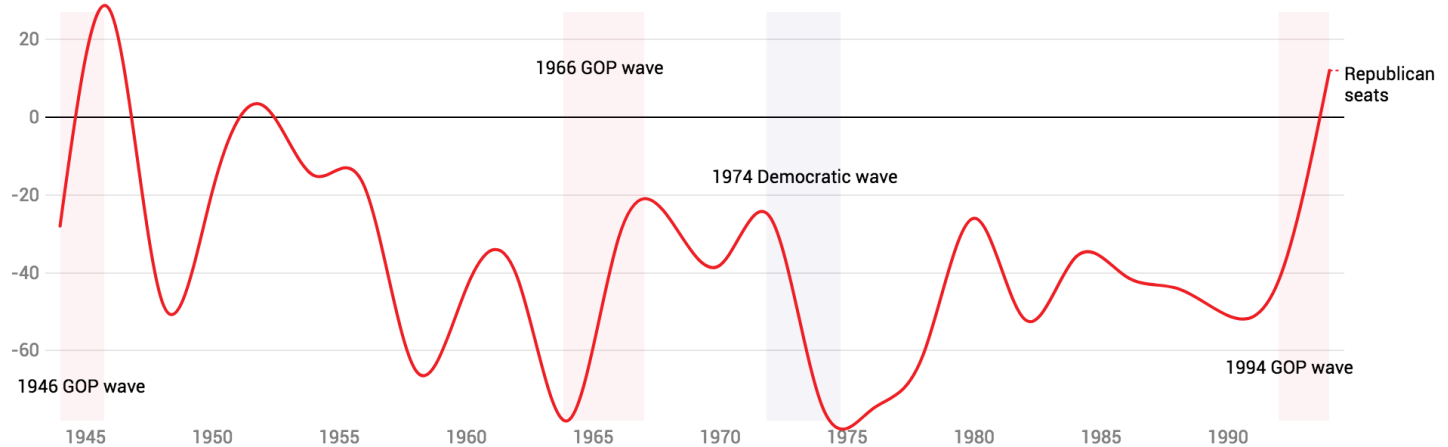
The y axis shows how many seats Democrats were from having a bare majority (218 seats) in the U.S. House

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A similar story of waves and receding tides can be told for Republicans from 1944 to 1994. Republicans captured the House in the 1946 wave, the first time they controlled the chamber since the 1930 Democratic wave. However, they only briefly held power as Democrats took the chamber back in 1948. After that, Republicans more or less entered a receding tide period for the next 46 years although they briefly took the House back in 1952 (before losing it again in 1954) and had a wave in their favor in 1966 (which did not lead to them recapturing the chamber). It was not until 1994 that Republicans caught a wave that was finally large enough to dislodge the Democratic majority.

Republican tides in U.S. House elections (1944-1994)

This graph gives a visual representation of Republican performance from 1944 to 1994.



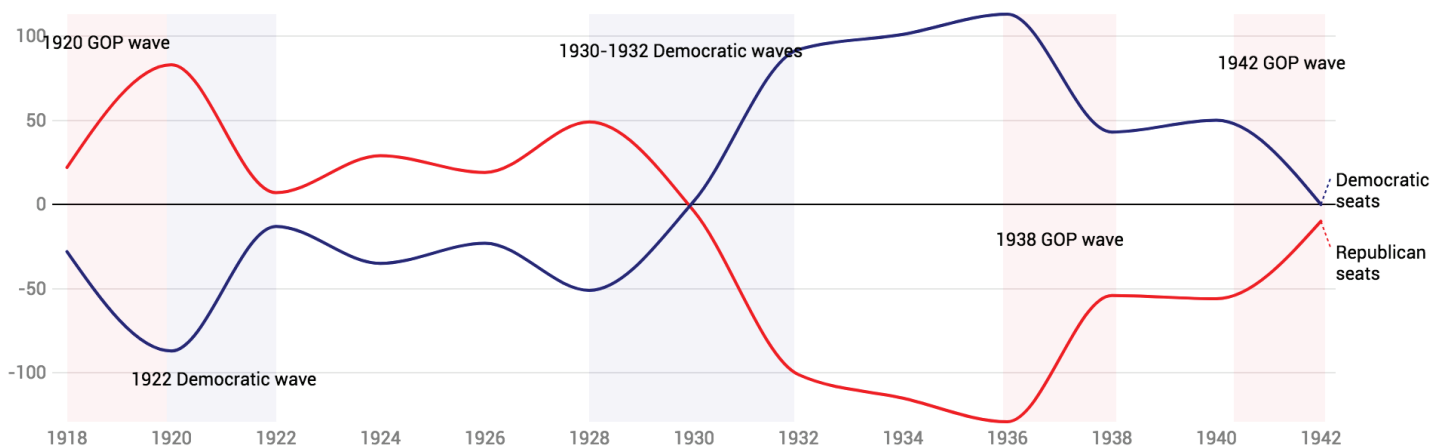
The y axis shows how many seats Republicans were from having a bare majority (218 seats) in the U.S. House

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Before 1944, waves happened at a more rapid pace than we saw during the mid- to late-century Democratic dominance of the House. In fact, six of the 11 wave elections happened from 1920 to 1942, with three going against each party. Often precipitated by national emergencies, these elections led to massive swings in seats.

The first wave occurred in 1920 when House Republicans bolstered the majority they first won in 1916. The GOP gains were so great that their House majority narrowly survived a Democratic wave in 1922. It was another eight years before the onset of the Great Depression led to two back-to-back waves against Republicans in 1930 and 1932 and a Democratic takeover of the House. In the years following 1932, Democrats built their majority up enough that they survived Republican waves in 1938 and 1942.

Tides in U.S. House elections (1918-1942)

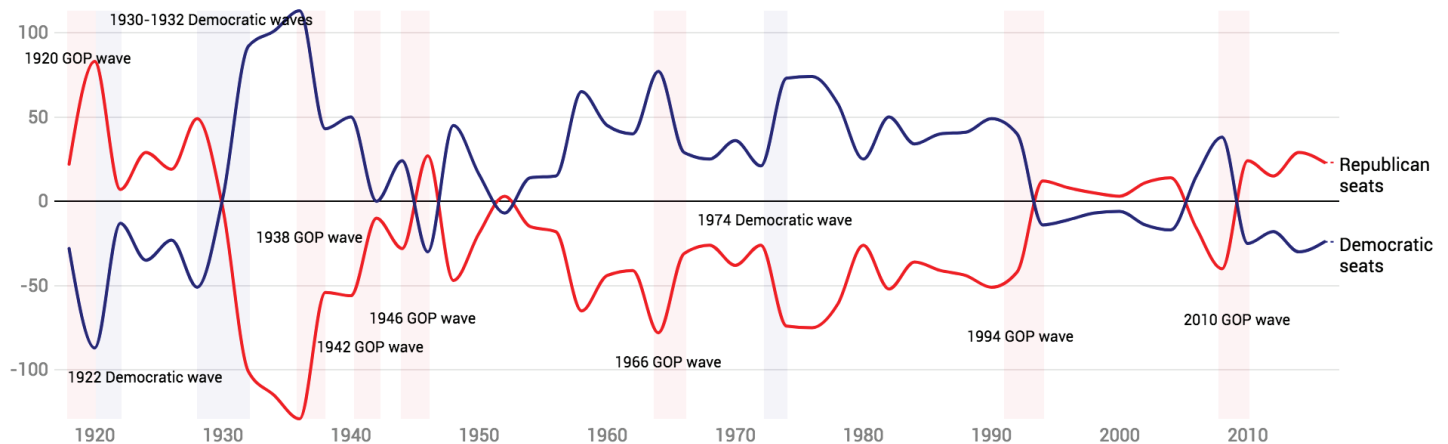


The y axis shows how many seats each party was from having a bare majority (218 seats) in the U.S. House

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The full record of waves and tides from 1918 to 2016 can be seen in the graph below.

Tides in U.S. House elections (1918-2016)



The y axis shows how many seats each party was from having a bare majority (218 seats) in the U.S. House

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Limitations

U.S. House limitations

Our analysis does not account for [redistricting](#). Political parties and incumbent lawmakers can use the redistricting process to redraw congressional boundaries into districts that favor their party under normal electoral conditions.

Because of this, it might be difficult to compare the results of elections that did not occur under the same district lines. For example, Republicans controlled the redistricting process in states holding 40 percent of U.S. House seats following the 2010 elections. Democrats controlled the redistricting process in states holding 10 percent of U.S. House seats.^{[23][24]} If Republicans redrew the lines to benefit their candidates, then it might lower the threshold for a Democratic wave because seats will be more difficult to win than under Democratic-controlled redistricting.

According to elections analyst David Wasserman, the 2018 House map's bias toward Republicans is at its highest level since at least 1920. In addition to redistricting, he cites the differing geographical distributions of Democratic and Republican voters (i.e., Democrats concentrating in dense urban districts) as a reason for this bias.^[25]

Because of the difficulties that redistricting presents, a better way of calculating a wave might be looking at total shifts in the vote margins rather than the seats a party wins or loses. Visit [our section](#) on the debate surrounding wave elections to learn more about how other experts have thought about House waves.

U.S. Senate limitations

Only one-third of the U.S. Senate (33 or 34 seats in the present day) is up for election every two years. A party's fortunes are often dependent on whether the seats up for election that year are pick-up opportunities or not. In contrast, the same 435 seats are up in the U.S. House every two years, meaning they are not affected by a changing electoral map and staggered terms.

For example, the political environment surrounding the 2018 elections will likely favor Democrats and give their candidates a boost in many elections. But they are defending 25 of the 33 Senate seats up for election, and 10 of those seats are in states Donald Trump won in 2016. This could limit their ability to make significant gains.[26]

A favorable electoral map for the U.S. Senate (such as the 2018 map for Republicans) can often lead to the presidential party making gains even if it loses seats in the U.S. House and state capitols. Wasserman says that the 2018 Senate map, like the House map, is more biased toward one party than at any point since at least 1920. He cites recent Republican gains in smaller states—which have the same two-seat representation in the body as large Democratic-leaning states like California and New York—as the reason.[25]

Because of the staggered election schedule and the fact that surges in partisan energy might not align with a favorable map, determining what constitutes a wave for Senate elections was the most difficult of the election groups.

Gubernatorial limitations

The number of gubernatorial seats up each year has changed over time as more states have shifted from two-year terms to four-year terms and scheduled elections during midterms rather than presidential elections. The changing number of governorships makes it difficult to identify wave elections because years with more elections have a greater potential for seat losses than years with fewer elections. For example, from 1922 to 1946 there were 33 to 36 governorships up every two years, making comparisons relatively simple. However, from 1980 to 2016 36 governorships were up in midterm elections and 11 to 13 were up in presidential elections. Like U.S. Senate elections, the presidential party's performance is dependent on whether the seats up for election in a given year are pick-up opportunities or not.

The changing lengths of gubernatorial terms over time impede our ability to compare electoral turnover directly. It could be true that re-election rates for four-year term governors and two-year term governors differ. For example, the incumbents running in the 2010 midterms, most of whom had four-year terms, could possibly have had an advantage over the two-year term incumbents running in the 1930 midterms due to longer tenures in office. Accordingly, it might not be fair to compare the 1930 and 2010 midterms if the incumbents had different prospects for re-election. Currently, only New Hampshire and Vermont use two-year terms for governors.

The rise of [gubernatorial term limits](#) in the mid- to late 20th century also complicates a direct comparison of gubernatorial elections. From 1950 to 2005, the number of states with unlimited gubernatorial terms decreased from 29 to 12. According to Dr. Gerald Benjamin of SUNY New Paltz in 2005, governors without term limits were more likely to be re-elected because they “dominate news coverage,” “become established in the public mind,” “use their political advantage in filling jobs and spending money,” and “have access to talented people and big political contributors.” Without these incumbency advantages, it is possible that turnover among governors, and, thus, their political party, would increase regardless of the backlash against the president's party.[27]

State legislative limitations

See our [data explanation section](#) to see which states we used in this analysis and how we handled different term lengths and odd-year elections.

Like the U.S. House, state legislative lines are usually changed once every 10 years during [redistricting](#). That makes it difficult to compare elections that occurred under new district boundaries.

Similar to gubernatorial races, 15 state legislatures have [term limits](#). Most states with term limits adopted them in the 1990s and put them into effect in the early 2000s. They could complicate a comparison between elections in the 2000s and earlier elections where term limits were not in place and, thus, incumbent turnover could have been lower.

Data

In this report, we compared voter behavior in 50 elections against voter behavior in the most immediate preceding election for the same seats. This means different things for different election groups, which are outlined in the following sections. This analysis does not take into account special elections, appointments, or vacancies that may have occurred between elections.

To see the full range of data used in this report, see this [spreadsheet](#).

U.S. House

The change in the number of U.S. House seats for the president's party is the key variable. It was calculated by taking the difference between the number of seats the president's party won in a given election and the number of seats his party won in the election two years prior. The data comes from Stephen G. Christianson's *Facts about the Congress* (1996) and the [Office of the Clerk](#) for the United States House of Representatives.

U.S. Senate

The change in the number of U.S. Senate seats for the president's party is the key variable. It was calculated by taking the difference between the number of seats the president's party won in a given election and the number of seats his party won in the election six years prior (the last time the same 33 or 34 Senate seats were up). Because U.S. senators were not directly elected on a regular schedule until 1916, making 1922 the first comparable election, this dataset excludes the 1918 and 1920 elections. The data comes from *Congressional Quarterly*.[\[28\]](#)

Gubernatorial elections

The change in the number of gubernatorial seats for the president's party is the key variable. It was calculated by taking the difference between the number of seats the president's party won in a given election and the number of seats his party won four years or, for states with two-year gubernatorial terms, two years prior. The data comes from *Congressional Quarterly*.[\[28\]](#)

State legislative elections

The change in the number of state legislative seats for the president's party is the key variable. It was calculated by taking the difference between the number of seats the president's party [controlled](#) following a given election and the number of seats it controlled two years prior. All third party and independent officeholders were excluded from this analysis, as were vacant seats, because third party and independent state legislators are rare and unlikely to have a significant influence on the overall data trends. Because of this, the seat share data used in the composite analysis measures the presidential party's share of Democratic and Republican seats, not all seats. All data from 2006 or earlier comes from Michael Dubin's *Party Affiliations in the State Legislatures* (McFarland Press, 2007). Data after 2006 was compiled by Ballotpedia staff.

Why a quintile analysis?

We identified wave elections by dividing results into quintiles—20 percent groups—and denoting all the elections in the top quintile as waves. A different grouping would have yielded a different definition of a wave election. For example, a quartile analysis would have found that Republicans need to lose 33 U.S. House seats, six U.S. Senate seats, five gubernatorial seats, and 458 state legislative seats for there to be waves in 2018. Looking at the top 10 percent of elections, we would have found that Republicans need to lose 59 U.S. House seats, nine U.S. Senate seats, 10 gubernatorial seats, and 702 state legislative seats.

However, most definitions require some degree of arbitrary choice. The stock market is considered to be a bear market if prices drop 20 percent or more from their 52-week high. It's considered a bull market if the prices are up by 20 percent or more.^[29] Not all market observers agree with these definitions, but they are commonly used and give investors a framework to operate within.^[30]

We believe that our definition provides a similar framework. We feel justified in our 20 percent definition for wave elections for the following reasons:

- 1) There is no commonly accepted figure used for wave elections. However, if the word wave is to be used, it must be definable for there to be a reasonable discussion about whether one has occurred.
- 2) Historically speaking, wave elections are rare events. By pegging our definition to the top 20 percent of election years, we ensure that wave elections remain distinct from most other election years, even if the president's party loses a substantial number of seats in those too.
- 3) Our study considered 50 election cycles (100 years). Separating the data into 20 percent groups guaranteed that wave elections would be relatively rare but also give us enough information to provide meaningful statistical and historical analysis.

Further analysis

Although we reviewed 100 years of election data and provided a definition for the elusive concept of a wave election, this report just scratches the surface of the existing body of work on wave elections. We showed in [What is a wave?](#) that the debate over waves is not new and has already been the basis of numerous academic articles, news reports, and data-driven examinations of American elections. As noted in our [limitations section](#), we intend this report to contribute to that discussion, not settle it.

In the spirit of furthering the discussion, here are a few possible lines of inquiry that academics, journalists, or election experts could pursue using our dataset:

- Further segment the dataset to determine what constitutes a wave in the different election types (first midterm, second midterm, presidential)
- Bring in data on the two factors generally thought to predict election results: economic performance and presidential popularity
- Dig deeper into the concept of a combined wave (briefly addressed in [this section](#)) to learn more about waves that build over multiple cycles

We look forward to participating in future discussions on waves, particularly after the 2018 elections. If you would like to discuss waves with the authors or have questions about the report, email us at editor@ballotpedia.org.

About the authors

Rob Oldham is a staff writer on Ballotpedia's Marquee Team.

Jacob Smith will be a Lecturing Fellow in the Thompson Writing Program at Duke University.

Ballotpedia staff writers [Emily Aubert](#), [Paul Rader](#), and [Sara Reynolds](#) assisted with data collection and research. [Heidi Jung](#) developed the graphics.

Ballotpedia CEO [Leslie Graves](#), Editor-in-Chief [Geoff Pallay](#), and Editor-at-Large [Scott Rasmussen](#) reviewed the report and provided feedback as did editors [Cory Eucalitto](#), [Christopher Nelson](#), [Sarah Rosier](#), and [Kristen Smith](#). Outside reviewers included Norm Leahy and Steve "Nemo" Nemerovski.

Wave elections (1918-2016)



Main page

Wave analyses

[What is a wave?](#) • [Evaluating 2018](#) •
[House waves](#) • [Senate waves](#) •
[Gubernatorial waves](#) •
[State legislative waves](#)

Additional analyses

[Multiple waves](#) • [Presidential waves](#) •
[Election types](#) • [Overall waves vs. modern waves](#) • [Effectiveness of the out-of-power party](#) • [U.S. House waves since 1918](#)

See also

[Limitations](#) • [Data](#) • [Further analysis](#)

Full report

Waves in the media

[Media coverage](#) • [Media definitions](#)

2018 elections

[U.S. Senate](#) • [U.S. House](#) • [Governorships](#) •
[State legislatures](#)

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Footnotes

1. Although they are not the focus of this report, we also discuss wave elections that swing toward the president's party, which we call *presidential wave elections*. [Click here for more.](#)
2. [Franklin Roosevelt](#) (D) had a third midterm election in 1942. He is the only president to have more than two midterms.
3. [Larry Sabato's Crystal Ball](#), "What Is a Wave in the Senate?" September 11, 2014
4. [Roll Call](#), "Are We Headed for Four Wave Elections in a Row?" January 31, 2011
5. [Larry Sabato's Crystal Ball](#), "How to Tell if 2016 Is a Wave Election," August 25, 2016
6. [Cook Political Report](#), "How to Define a Wave," June 7, 2018
7. [Matthew N. Green](#), "Was 2014 a 'Wave' Election?" November 17, 2014
8. [Washington Post](#), "Is this a wave election? And what would that look like if it is?" October 30, 2014
9. This number was calculated in April 2018 and assumed that Republicans would have a 240-195 majority at the time of the 2018 elections.
10. Independents [Bernie Sanders](#) (Vermont) and [Angus King](#) (Maine) are counted as Democrats.
11. Gov. [Bill Walker](#) (I-Alaska) is not included.
12. Totals were calculated following the 2016 elections and do not account for elections in 2017 or early 2018.
13. Republicans lost 47 seats in 1958, Eisenhower's second midterm. This fell just outside of our definition for a wave election and is not included.
14. Denotes the party that had more seats in the U.S. House following the election.
15. Lyndon Johnson's (D) first term began in November 1963 after the death of President John F. Kennedy (D), who was first elected in 1960. Before Johnson had his first midterm in 1966, he was re-elected president in 1964.
16. Gerald Ford's (R) first term began in August 1974 following the resignation of President Richard Nixon (R), who was first elected in 1968 and was re-elected in 1972. Because Ford only served for two full months before facing the electorate, this election is classified as Nixon's second midterm.
17. Denotes the party that had more seats in the U.S. House following the election.
18. Calvin Coolidge's (R) first term began in August 1923 after the death of President Warren Harding (R), who was first elected in 1920. Before he had his first midterm in 1926, Coolidge was re-elected as president in 1924.
19. The number of gubernatorial seats up for election varies, with as many as 36 seats and as few as 12 seats being up in a single year.
20. The number of state legislative seats available for analysis varied, with as many as 7,795 and as few as 6,835.
21. Carson, Jamie, and Gary Jacobson. (2016). "The Politics of Congressional Elections." Lanham, MD: Rowman & Littlefield. (pages 182-185)
22. Jacobson, Gary. (1990). "The Electoral Origins of Divided Government: Competition in U.S. House elections, 1946-1988." Boulder, CO: Westview Press. (pages 77-80).
23. The other 50 percent of U.S. House seats were in states under divided government or where courts were responsible for drawing boundaries.
24. [New York Times](#), "How Maps Helped Republicans Keep an Edge in the House," December 14, 2012
25. [FiveThirtyEight](#), "The Congressional Map Has A Record-Setting Bias Against Democrats," August 7, 2018
26. [Vox](#), "Democrats' prospects in the 2018 midterm elections, explained," November 8, 2017
27. [New York Times](#), "Eight Is Enough," December 5, 2005
28. [Congressional Quarterly](#), "Voting and Elections Collection," accessed March 15, 2018
29. [The Balance](#), "How to Recognize a Bear Market," March 12, 2018
30. [Seeking Alpha](#), "The Absurdity of 20% Bull/Bear Market Definition," May 15, 2011



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