Introduction

Political polarization refers to the growing ideological divide between individuals and groups with differing political beliefs. It is the increasing tendency for people to hold extreme views on opposite ends of the political spectrum, with little room for compromise or cooperation. This can create a sense of "us versus them" mentality, with people viewing those who hold opposing beliefs as enemies rather than fellow citizens with different opinions.

Political polarization can be observed in a variety of contexts, including elections, public policy debates, and media coverage. It can lead to a lack of trust in government institutions and politicians, as well as a breakdown in civil discourse and an increase in social and political unrest.

Types of Political Polarization

Elite polarization: Elite polarization refers to polarization between the party-in-government and the party-in-opposition. Polarized political parties are internally cohesive, unified, programmatic, and ideologically distinct; they are typically found in a parliamentary system of democratic governance. The vast majority of studies on elite polarization focus on legislative and deliberative bodies. For many years, political scientists measured polarization in the US by examining the ratings of party members published by interest groups, but now, most analyze roll-call voting patterns to investigate trends in party-line voting and party unity. Gentzkow, Shapiro, and Taddy used the text of the Congressional Record to document differences in speech patterns between Republicans and Democrats as a measure of polarization, finding a dramatic increase in polarized speech patterns starting in 1994.

Mass polarization, or popular polarization, occurs when an electorate's attitudes towards political issues, policies, celebrated figures, or other citizens are neatly divided along party lines. At the extreme, each camp questions the moral legitimacy of the other, viewing the opposing camp and its policies as an existential threat to their way of life or the nation as a whole.

Ideological polarization: This occurs when people become more divided along ideological lines, such as between conservatism and progressivism, or between left and right-wing views.

Partisan polarization: This happens when people identify more strongly with a particular political party and become more hostile towards those who support the opposing party. Partisan polarization often leads to an "us vs. them" mentality, where each side sees the other as a threat to their values and beliefs.

Geographic polarization: This occurs when different regions or areas within a country become more politically divided, with people living in urban areas holding different views than those living in rural areas, for example.

Racial or ethnic polarization: This happens when people become more divided along racial or ethnic lines, with different groups holding different political views and having different experiences of the political system.

Cultural polarization: This occurs when people become more divided along cultural lines, such as around issues related to religion, gender, sexuality, or identity.

Polarization Metrics

Polarization metrics are tools used to measure the degree of political polarization within a society or a political system. These metrics can be quantitative or qualitative and are used to identify trends and patterns in political attitudes and behavior.

Here are some common polarization metrics:

Party polarization index: This metric measures the ideological distance between political parties in a country. It calculates the difference in the average policy positions of the parties in power and the opposition.

Social sorting index: This metric measures the degree to which voters are sorted into ideologically homogeneous communities. It calculates the proportion of voters

who live in counties or districts where the majority of residents share their political views.

Elite polarization index: This metric measures the degree of polarization among political elites, such as elected officials, media personalities, and interest groups. It calculates the difference in the political attitudes and behavior of elites on opposite sides of the political spectrum.

Issue-based polarization index: This metric measures the degree of polarization on specific policy issues, such as immigration, gun control, or climate change. It calculates the difference in policy preferences and beliefs between people on opposite sides of the political spectrum.

Media polarization index: This metric measures the degree of polarization in media coverage of political events and issues. It calculates the difference in the tone and framing of news stories and commentary on opposite sides of the political spectrum.

Partisan Gini coefficient: This metric measures the degree to which votes are concentrated among the two major parties. It calculates the extent to which counties or states have a high concentration of Democratic or Republican votes. A higher Gini coefficient indicates higher levels of polarization. This metric is useful if you want to examine the degree of partisan concentration across different counties.

Ideological distance: This metric measures the distance between the policy preferences of Democratic and Republican voters. It can be calculated using different methods, such as survey data or the positions of political candidates. This metric is useful if you want to examine the ideological differences between the two parties over time.

Vote margin: This metric measures the difference in vote share between the two major parties. A higher vote margin indicates a more decisive victory for one party. This metric is useful if you want to examine how close or decisive the outcomes of the elections were over time.

Political Polarization in our Data

Partisan Voting Index (PVI): The PVI is a measure of how strongly a county or district leans toward one political party or the other, based on the results of the previous two presidential elections. It is calculated as the difference between the percentage of votes for the Republican and Democratic candidates in the two elections, divided by the total number of votes cast. A positive PVI indicates a Republican lean, and a negative PVI indicates a Democratic lean. This metric captures the degree of partisan homogeneity in a given area, and can be used to assess the overall level of polarization between the two major parties.

The PVI compares the percentage of votes for the Republican and Democratic candidates in the two most recent presidential elections in a given area, and can be used to determine how strongly the area leans toward one party or the other.

To calculate the PVI for each county, you would need to first obtain the results of the two most recent presidential elections (in this case, the 2000 and 2004 elections) for each county in the dataset. Then, you would calculate the percentage of votes cast for the Republican and Democratic candidates in each election, and subtract the Democratic percentage from the Republican percentage. Finally, you would take the average of the two differences to obtain the PVI for that county.

For example, to calculate the PVI for Autauga County, AL:

- In the 2000 election, 11993 votes were cast for George W. Bush (Republican) and 4942 votes were cast for Al Gore (Democrat), out of a total of 17208 votes. This means that Bush received 69.7% of the vote, and Gore received 28.7% of the vote.
- In the 2004 election, 15196 votes were cast for George W. Bush (Republican) and 6093 votes were cast for John Kerry (Democrat), out of a total of 21661 votes. This means that Bush received 70.2% of the vote, and Kerry received 28.1% of the vote.
- To calculate the PVI for Autauga County, we subtract the Democratic percentage from the Republican percentage for each election, and take the average of the two differences:

((69.7 - 28.7) + (70.2 - 28.1)) / 2 = 56.8

This means that Autauga County has a PVI of 56.8, indicating a strong Republican lean.

We can repeat this calculation for each county in the dataset to obtain the PVIs for each county, and use these PVIs to assess the degree of partisan homogeneity within each county.

Simpson's Diversity Index: This metric is commonly used in ecology to measure the diversity of a species population, but can also be applied to political polarization. Simpson's index measures the probability that two individuals selected at random from a given population will belong to different groups. In the context of political polarization, it can be interpreted as the likelihood that two voters selected at random from a given area will belong to different parties. The index ranges from 0 to 1, with higher values indicating greater polarization (i.e., less diversity).

Gini coefficient: The Gini coefficient is a widely used measure of income inequality, but can also be used to assess political polarization. It measures the degree of inequality in the distribution of votes across different parties. A Gini coefficient of 0 indicates perfect equality (i.e., each party receives an equal share of the vote), while a coefficient of 1 indicates perfect inequality (i.e., one party receives all the votes). In the context of political polarization, a higher Gini coefficient indicates greater polarization between the two major parties.

The choice of metric will depend on the specific research question and the nature of the data. For example, if the goal is to assess the degree of partisan homogeneity within each county, the PVI may be the most appropriate metric. If the goal is to assess the overall level of polarization between the two major parties, the Simpson's Diversity Index or Gini coefficient may be more appropriate.

Sources:

https://www.cookpolitical.com/cook-pvi

https://www.wikiwand.com/en/Cook_Partisan_Voting_Index