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Polarized by Moderates

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Abstract:	<p>Polls reveal an increasing ideological polarization in recent decades, and this trend is attributed mainly to the polarizing die-hard partisans. However, the mainstream measures on ideological polarization, including the mean difference and overlap measure, ignore how moderates may indirectly contribute to the polarization by leaving or (re)joining the parties. This article disentangles existing measures and mathematically distinguishes how partisans and nonpartisans contribute to polarization, respectively. The revised measures are applied to four panel surveys: ANES1992-1996 (n=588), ANES1994-1996 (n=1302), ANES2000-2002 (n=412), and ANES2016-2020 (n=1977). The result shows that loyal partisans only account for 5% to 50% of the overall changes in polarization we observed previously, and the remains are explained by detaching nonpartisans and newcoming partisans, who are usually ideologically moderates. The results and new measures offer insights into examining the heterogeneity of polarizations over time and help form new strategies for dealing with polarization.</p>
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<p>Please enter the manuscript word count (maximum 12,000 words for Articles, 4,000 words for Letters)</p>	<p>3985</p>
<p>Author Comments:</p>	<p>Dear Editors of the American Political Science Review,</p> <p>We are submitting our draft, titled "Polarized by Moderates", as a letter in APSR. In this letter, we revised two mainstream measures on ideological polarization – the mean difference measure and the overlap measure – and mathematically distinguished the contribution made by partisans and nonpartisans, respectively. We applied the revised measures to four ANES panel data (ANES1992-1996, ANES1994-1996, ANES2000-2002, ANES2016-2020), and show that nonpartisans contributed more than partisans in the ideological polarization we observed in the past twenty years.</p> <p>Our new measure and result speak to the recent debates on the role of moderates and nonpartisans published in APSR (e.g.</p>

<https://www.cambridge.org/core/journals/american-political-science-review/article/moderates/71A6A9BD7EC7A5C94F975703417F866F>). In addition, our revised measure can also easily apply to other countries. In the end, our results generate interesting and important policy suggestions: to reduce polarization, we should focus on the nonpartisans.

Finally, we confirm that this manuscript is not under consideration for publication elsewhere. We also consent to share the data and the syntax files at any stage of the review process in order to replicate the analysis.

Thank you for considering our paper, and we look forward to receiving the comments of the referees and, hopefully, to having our paper published in APSR.

Sincerely,

Austin Horng-En Wang

Polarized by Moderates

Abstract

Polls reveal an increasing ideological polarization in recent decades, and this trend is attributed mainly to the polarizing die-hard partisans. However, the mainstream measures on ideological polarization, including the mean difference and overlap measure, ignore how moderates may indirectly contribute to the polarization by leaving or (re)joining the parties. This article disentangles existing measures and mathematically distinguishes how partisans and nonpartisans contribute to polarization, respectively. The revised measures are applied to four panel surveys: ANES1992-1996 (n=588), ANES1994-1996 (n=1302), ANES2000-2002 (n=412), and ANES2016-2020 (n=1977). The result shows that loyal partisans only account for 5% to 50% of the overall changes in polarization we observed previously, and the remains are explained by detaching nonpartisans and newcoming partisans, who are usually ideologically moderates. The results and new measures offer insights into examining the heterogeneity of polarizations over time and help form new strategies for dealing with polarization.

Keywords: Mass Polarization, Ideological Polarization, Moderates, Nonpartisans, ANES

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4 **Introduction**
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6 Literature and polls both reflect an increasing ideological polarization between Democrats
7 and Republicans. The gap in the mean value of ideological stance between Democrats and
8 Republicans becomes wider (Abramowitz 2022), and the ideological overlap between the two
9 parties' supporters also becomes smaller (Levendusky and Pope 2011). To prevent the political
10 polarization from increasing, numerous policies and programs were designed to encourage
11 dialogue and compromise between the die-hard Democrats and Republicans (Fishkin et al. 2021;
12 Wojcieszak and Warner 2020).
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23 In this article, we argue that these “polarizing partisans” only play a relatively minor role
24 in the overall polarization we have observed; some loyal Democrats and Republicans have indeed
25 become more extreme, but it is far from the whole story. Instead, the “detaching nonpartisans” –
26 who left the two major parties and self-identified as nonpartisans later– are the main driving force
27 of observed polarization.
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35 Admittedly, Fiorina and Abrams (2008) discussed the importance of nonpartisans in
36 gauging the distribution of political polarization. However, their reminder did not draw enough
37 attention in the past for three reasons. First, party identification was assumed to be an unmoved
38 mover (Green et al. 2001). Second, the proportion of nonpartisans was not large enough in early
39 surveys. Third, self-reported nonpartisans or moderates may be non-attitude, so their effects on
40 polarization could cancel out to each other.
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50 These reasons no longer hold. In recent years, there has been a considerable increase in
51 nonpartisans (Klar and Krupnikov 2016). In 2023, the number of registered independent voters
52 had surpassed Democrats and Republicans in at least eight states. Hence, nonpartisans and
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4 moderates started to regain attention among political scientists recently (e.g. Fowler et al. 2023;
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6 Broockman and Lauderdale 2023).
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9 Ignoring these surging nonpartisans may mislead the interpretation and explanation of the
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11 observed polarization. The mainstream measures on partisan polarization only rely on comparing
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13 the ideological distributions of two major partisans across years. Based on these mainstream
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15 measures, previous studies attributed the polarization to the partisans and concluded that
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17 “*Democrats and Republicans have become more polarized.*” This attribution is based on a strong
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19 assumption that the composition of partisans and nonpartisans was held constant over time.
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21 However, with more partisans switched to nonpartisans, who usually held a relatively moderate
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23 ideological stance (which will be shown in Table 1), their leaving will also contribute to
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25 polarization indirectly. Specifically, these detaching moderates may indirectly increase the
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27 measured polarization *even though all remaining partisans do not change their ideological stance*
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29 *at all*. In some extreme cases, loyal partisans actually decreased the polarization while the leaving
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31 nonpartisans increased it (see the overlap measure on ANES1994-1996 in Table 2 later).
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38 To better understand and respond to polarization, we need to quantify how much partisans
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40 and nonpartisans contribute to the increasing polarization, respectively. We will first update
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42 existing mean difference and overlap measures and mathematically distinguish the partisan and
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44 nonpartisan components. We then estimate these two components in four panel surveys:
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46 ANES1992-1996, ANES1994-1996, ANES2000-2002, and ANES2016-2020. The result shows
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48 that those “polarizing loyal partisans” only account for 5% to 50% of the overall changes in the
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50 observed polarization in the last two decades, while the remaining parts were explained by the
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52 shifting nonpartisans.
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Measuring Political Polarization

Existing literature on estimating political polarization in the United States focuses primarily on the ideological differences between supporters of the two major parties. The *mean difference* is the most widely used measurement. The measure calculates the mean value of ideological stance among the self-reported Democrats and Republicans, respectively, and then estimates the distance between the two groups. This measure appears in the earliest studies in mass polarization (e.g. Miller et al. 1976) as well as the most recent studies (e.g. Cavari and Freedman 2023). If the distance increases over time, researchers claim it as the evidence of polarization.

This mean difference measure is criticized for ignoring the ideological distributions within and between groups (Fiorina and Abrams 2008). Even though the mean values of ideological stance for Democrats and Republicans are different, some partisans may be closer to the other side; enough overlap between two partisan distributions implies room for compromise. Therefore, Levendusky and Pope (2011) suggest the *overlap* measure for polarization: we draw the ideological distribution of Democrats and Republicans and then estimate the size of the overlapping area (which is called the “triangle” hereafter). If the triangle shrinks over time, the trend will be used as evidence of increasing polarization.

Quantifying the Effect of Nonpartisans

Both mean difference and overlap measures calculate the level of polarization by the mean value or the distribution of ideological stances among self-reported Democrats and Republicans each year, *respectively*. Mathematically speaking, the change in polarization over time we observed may come from three possible mechanisms:

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4 (1) *Loyal Partisans*: loyal partisans become more ideologically extreme (as suggested by
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6 the majority of the literature)
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9 (2) *Detaching Nonpartisans*: partisans leaving their party and becoming non-partisans,
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11 which may indirectly *increase* the observed polarization if they were moderate than remaining
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13 partisans, and
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16 (3) *Newcoming Partisans*: non-partisans join a closer party and become partisans, which
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18 may indirectly *decrease* the observed polarization if they were moderate than existing partisans.
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21 This distinction and estimation are crucial for both theoretical and practical reasons in
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23 understanding political polarization. While polarized partisans can be explained by social identity
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25 theory and elite cues, detaching moderates and newcoming moderates are motivated by other
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27 psychological mechanisms such as motivated independence (Klar and Krupnikov, 2016). Besides,
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29 the relative compositions of these three groups of voters would yield different policy suggestions
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31 for mitigating political polarization in the future.
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34 35 36 *Disentangling the Mean Difference Measure* 37

38 Theoretically, the overall increase in the polarization measured by the mean difference is
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40 the gap between Republicans and Democrats in the second wave minus the gap in the first wave.
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42 This formula can be transformed into measuring the shifting of Democrats between waves plus the
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44 shifting of Republicans between waves.
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48 First, let's consider those who self-reported as Democrats in either the first or the second
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50 wave of the survey. There are five groups of respondents in this category: DD, who always self-
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52 identified as Democrats in both waves; DN, self-identified as Democrats in the first wave but
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54 switched to non-partisans in the second wave; DR, self-identified Democrats in wave 1 but turned
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56 to Republicans in wave2; ND, non-partisans in the first wave but switched to Democrats in the
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second wave; and RD, Republicans in wave 1 but turned to Democrats in wave 2. The mean values of the five groups on the ideological scale are M_{DD} , M_{DN} , M_{ND} , M_{DR} , M_{RD} in the first wave and M_{DDA} , M_{DNA} , M_{NDA} , M_{DRA} , M_{RDA} in the second wave; subscript A means “after” in the second wave.

The difference in the mean value for self-identified Democrats in the first and second waves can be decomposed into the second line of the formula below, which is the mean of the second wave minus the mean of the first wave calculated by the five groups of former and present Democrats.

$$\begin{aligned}
 & \text{Mean}(\text{All Democrats in wave 2}) - \text{Mean}(\text{All Democrats in wave 1}) \\
 &= \frac{DD * M_{DDA} + ND * M_{NDA} + RD * M_{RDA}}{DD + ND + RD} - \frac{DD * M_{DD} + DN * M_{DN} + DR * M_{DR}}{DD + DN + DR} \\
 &= (M_{DDA} - M_{DD}) + \frac{ND(M_{NDA} - M_{DDA}) + RD(M_{RDA} - M_{DDA})}{DD + ND + RD} + \frac{DN(M_{DD} - M_{DN}) + DR(M_{DD} - M_{DR})}{DD + DN + DR} \\
 &= \text{Loyal Partisans} + \text{Newcoming Partisans} + \text{Detaching nonpartisans}
 \end{aligned}$$

We can then rearrange the elements in the second line into three parts into the third line of the formula above: (1) *Loyal Partisans*: the net ideological change among loyal Democrats ($M_{DDA} - M_{DD}$), which measures how much those Democrats shifted their ideology between the two waves (2) *Newcoming Partisans*: the mean difference between newly-identified and loyal Democrats in the second wave ($M_{NDA} - M_{DDA}$ and $M_{RDA} - M_{DDA}$) proportional to the number of newly-identified Democrats within all Democrats in the second wave. This part captures how much the newly identified Democrats may change the mean value of ideology among all Democrats in the second wave compared to loyal Democrats. (3) *Detaching Nonpartisans*: the mean difference between detaching and loyal Democrats in the first wave ($M_{DD} - M_{DN}$ and $M_{DD} - M_{DR}$) proportional to the amount of detaching Democrats. This part captures how much the leaving Democrats may change

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4 the mean value of ideology among all self-reported Democrats in the first wave compared to loyal
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6 Democrats.
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9 We can then apply the same approach to the Republican side. The proportion of these three
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11 elements on the overall change of polarization indicates the explanatory power of the three
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13 mechanisms.
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15 16 *Disentangling the Overlap Measure* 17

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19 Democrats in either wave 1 or 2 may contribute to the change of the triangle (assuming the left
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21 side of the triangle is liberal with more Democrats while the right side is conservative with more
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23 Republicans) through three mechanisms: (1) *Loyal Partisans*: The net number of DD on the left
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25 side of the triangle shifted their ideology to the right side in the second wave, so the overlap on the
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27 left side decreases. In other words, polarization increases when loyal partisans become more
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29 extreme (The change among those DD who were already on the right side has no impact on the
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31 size of the triangle) (2) *Detaching Nonpartisans*: The net number of DN and DR on the left side
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33 of the triangle who disappeared in the second wave because they turned to non-partisans or
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35 Republicans. In this scenario, polarization increases because those moderate former Democrats
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37 now leave. (DN or DR on the right side have no impact on the overlap). (3) *Newcoming Partisans*:
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39 The net number of ND and RD who appear on the left side of the triangle in the second wave,
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41 thereby increasing the size of the triangle. Since the overlap increases, it means that the
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43 polarization decreases because some moderates now rejoin Democrats.
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51 By employing the same approach on the Republican side, the proportion of these three
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53 groups of voters will indicate the explanatory power of the three mechanisms.
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57 58 **Result – ANES2016-2020 (n=1977)** 59 60 61 62 63 64 65

To illustrate how the two revised measurements work, we apply them to the ANES2016-2020 panel survey. Both measures require respondents to answer their partisanship and ideology in both waves, so we only analyze the respondents with complete answers on these questions. Among the 4270 respondents in ANES2016 post-election survey, 2839 respondents (66.4%) were contacted and interviewed again before the 2020 presidential election. In both surveys, respondents were asked about their partisanship (coded as self-reported Democrat, Republican, Nonpartisans. Leaning partisans also count, and respondents with other answers are dropped) and the seven-point liberal-conservative scale (1-7, 1 is extremely liberal while 7 is extremely conservative; no response in either wave were dropped). Overall, 1977 respondents with complete answers in both waves are analyzed in Table 1.

Table 1. Partisanship and Ideology, ANES2016-2020 Panel (n=1977)				
Partisanship 16-20	N	Ideology 2016	Ideology 2020	Paired T value
Dem - Dem	583 (29.5%)	2.671	2.684	0.324
Rep - Rep	556 (28.1%)	5.661	5.878	5.47****
Non - Non	405 (20.5%)	3.992	4.094	2.00**
Dem - Rep	19 (1.0%)	3.684	4.737	3.39****
Dem - Non	82 (4.1%)	3.207	3.476	2.05**
Rep - Dem	24 (1.2%)	4.542	3.167	-5.13****
Rep - Non	90 (4.5%)	5.067	4.911	-1.48
Non - Dem	102 (5.2%)	3.118	2.578	-4.15****
Non - Rep	116 (5.9%)	4.716	5.276	5.42****

* $p < 0.05$ ** $p < 0.01$ **** $p < 0.001$

There are several important patterns in Table 1. First, the loyal Democrats and Republicans only account for 57.6% of all respondents (and 20.5% for stable nonpartisans); 21.9% of respondents (432 in 1977) shifted their partisanship within four years. Second, between 2016 and

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4 2020, loyal Democrats did not shift their ideology (2.671 in 2016 to 2.684 in 2020, with the paired
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6 T value 0.324), but loyal Republicans became more conservative (5.661 to 5.878, paired T value
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8 5.47, $p < 0.001$). Overall, *loyal partisans* indeed contributed to the *increase* in polarization.
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11 Third, those *detaching nonpartisans* are more moderate than the *loyal partisans* in wave 1.
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13 Moderate is defined as the ideological stance closer to 4. On the Democrat side, the leaving
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15 Democrats (DR and DN) have a relatively moderate stance (3.684 and 3.207) compared to the
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17 loyal ones (DD, 2.671); and those leaving Democrats became more conservative in 2020.
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19 Similarly, those leaving Republicans (RD and RN) are more liberal (4.542 and 5.067) than the
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21 loyal ones (RR, 5.661); the leaving Republicans became more liberal afterward. While this pattern
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23 may not be surprising and their motivations can be explained by the spatial models, their detaching
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25 may also contribute to the *increasing* gap between Democrats and Republicans in 2020 because
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27 their moderate positions were counted in 2016.
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33 Fourth, the *newcoming partisans* are also more moderate than the *loyal partisans* in wave
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35 2. On the Democrat side, the newcoming Democrats (RD and ND) have a relatively moderate or
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37 the same stance (3.167 and 2.578) as the loyal ones (DD, 2.684) in wave 2. On the Republican
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39 side, the newcoming Republicans (DR and NR) are relatively moderate (4.737 and 5.276) than the
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41 loyal ones (RR, 5.878) in wave 2. Therefore, these newcoming partisans mathematically help
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43 *decrease* the level of polarization by reducing the gaps in wave 2 with their moderate positions.
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48 We then apply the *mean difference measure* on ANES2016-2020. In 2016, the mean value
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50 in ideology for Republicans and Democrats are 5.542 and 2.764, respectively; the mean difference
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52 is 2.779. In 2020, the mean values are 5.745 and 2.685 with the difference 3.060. Therefore, the
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54 overall increase in polarization between 2016 and 2020 is $3.060 - 2.779 = + 0.281$ by the mean
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56 difference measure; the positive value means that partisans are becoming more polarized.
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This increase can be disentangled by the three above-mentioned mechanisms. First, the contribution of *loyal partisans* is $-(M_{DDA}-M_{DD})+(M_{RRA}-M_{RR}) = 0.202$. As is shown in Table 1, this part is mainly driven by the loyal Republicans. Second, the contribution of *detaching nonpartisans* is $-(((M_{DD}-M_{DN}) * DN + (M_{DD}-M_{DR}) * DR)) / (DD+DN+DR)) + ((M_{RR} - M_{RN}) * RN + (M_{RR} - M_{RD}) * RD)) / (RR+RN+RD)$. After we put the numbers from Table 1 into the formula, the result is $0.092 + 0.120 = 0.212$. Third, the contribution of the *newcoming partisans* is $((M_{NDA} - M_{DDA}) * ND + (M_{RDA} - M_{DDA}) * RD) / (ND+DD+RD) - ((M_{NRA} - M_{RRA}) * NR + (M_{DRA} - M_{RRA}) * DR) / (NR+RR+DR)$. After we put the numbers from Table 1, the result is $-0.132 - 0.001 = -0.133$.

The results are summarized in Figure 1. Detaching nonpartisans cause a larger effect than newcoming partisans. The shift of loyal partisans only explains $(0.202)/(0.202+0.212+0.133) = 36.9\%$ of the total variance in the change of polarization, while the detaching nonpartisans and newcoming partisans explain 38.8% and 24.3%, respectively. Previous studies try to attribute the increase in overall polarization to the polarizing partisans, but these loyal partisans only explain about one-third of the whole story between 2016 and 2020.

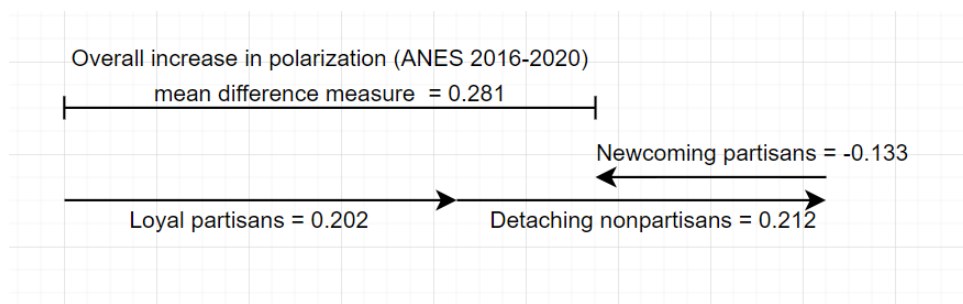


Figure 1. Polarization in mean difference measure by the three mechanisms (ANES2016-2020, n = 1977)

We then apply the *overlap* measure to this panel. Figure 2 shows the ideological distribution between Democrats and Republicans across two waves. In both waves, 1 on the x-axis refers to extremely conservative while 7 is extremely liberal, and the y-axis is the number of respondents. In 2016, the area of triangle was 160 respondents (13.2%), and the area in 2020 was 126 respondents (9.8%). Therefore, the overall change in polarization is 34 respondents (3.5%).

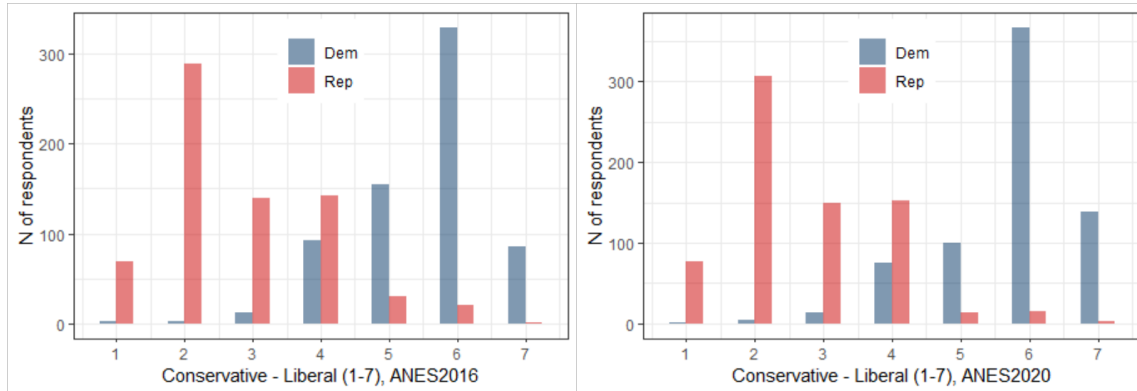


Figure 2. Distribution of Ideology by Democrats and Republicans (ANES2016-2020, n = 1977)

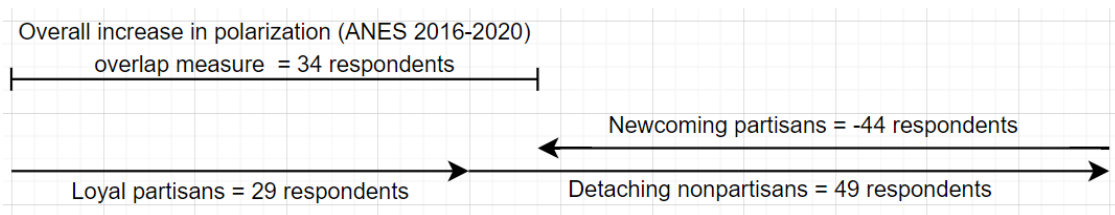
The change in the triangle can be composed of three parts. First, on *loyal partisans*, its effect is measured by the net number of Democrats moving to five or above, plus the net number of Republicans moving to four or below. In the panel data, 49 Democrats moved to five and up but 27 moved to 4 and below; meanwhile, 19 Republicans moved to four and below but 12 moved to five and above. Overall, *loyal partisans* contribute to $49-27+19-12= +29$ respondents.

Meanwhile, the shrinking of the triangle may also be attributed to *detaching nonpartisans*. To sum up, 32 Democrats whose ideological stances were below 4 in 2016 chose to be independent or be Republicans, and 17 Republicans who were 5 or higher chose to become nonpartisans or Democrats. Their choice made the triangle smaller, and they account for 49 respondents.

Besides, the triangle may be enlarged when the nonpartisans returned to be partisans and joined the skewed sides, which we defined as *newcoming partisans*. Across two waves, 40

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4 respondents became new Democrats in 2020 with an ideology smaller than 4, and 4 became new
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7 Republicans with an ideology larger than 5. So the overall contribution of *newcoming partisans*
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9 on the change of polarization under overlap measure is -44.

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11 The summary of the overlap measure is in Figure 3. The shift of loyal partisans only
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13 accounts for $29/(29+49+44) = 23.7\%$ of the total variance in the change of polarization between
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16 2016 and 2020. In comparison, the detaching nonpartisans and newcoming partisans explain 40%
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18 and 36% of the total variance, respectively. The evidence from the overlap measure suggests that
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21 loyal partisans only account for a small proportion of overall change in polarization.
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34 Figure 3. Polarization in overlap measure by the three proposed mechanisms (ANES2016-2020,
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37 n = 1977)
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41 42 **Additional Results**

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44 One may argue that this period (2016-2020) is unique given the Trump phenomenon (e.g.
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46 Barber and Pope 2019). Therefore, this article extends the analysis to other available panel surveys
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48 in ANES, including ANES1992-1996, ANES1994-1996, and ANES2000-2002. The first two
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50 waves were conducted when Democrats ruled, while the later wave was conducted when
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52 Republicans ruled. All three waves experienced both straight and divided government. The result
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54 is shown in Table 2, and the details can be found in the Appendix. In Table 2, both measures show
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that polarization was increasing: the mean differences were increasing in all three waves, while the overlaps were decreasing.

Table 2. Three Mechanisms, Two Measures, and Polarizations			
	ANES1992-1996 (n=588)	ANES1994-1996 (n=1302)	ANES2000-2002 (n=412)
Mean difference measure			
Overall increase in mean diff	+ 0.205	+ 0.068	+0.312
<i>By loyal partisans</i>	+ 0.053 (10.3%)	+ 0.015 (5.1%)	+0.443 (53.4%)
<i>By detaching nonpartisans</i>	+ 0.308 (59.6%)	+ 0.166 (56.2%)	+0.127 (15.3%)
<i>By newcoming partisans</i>	- 0.156 (30.2%)	- 0.114 (38.6%)	-0.259 (31.2%)
Overlap measure			
Overall change in overlap	-7	-4	-1
<i>By loyal partisans</i>	-1 (1.9%)	+8 (8.6%)	-12 (27.9%)
<i>By detaching nonpartisans</i>	-28 (54.7%)	-46 (49.4%)	-11 (25.8%)
<i>By newcoming partisans</i>	+23 (43.4%)	+39 (41.9%)	+22 (46.5%)
Number of Loyal Partisans (% of respondents)	275 (46.8%)	701 (50.4%)	211 (51.2%)

We then disentangle the changes with the three mechanisms, and the results are similar to the ANES2016-2020 panel – the loyal partisans only explain a portion of all changes in polarization. In all three panels, the detaching nonpartisans and newcoming partisans explain a considerable proportion of all changes in polarization. The last row in Table 2 also indicates that the loyal partisans only account for about 50% of all respondents in three panels.

Table 2 also shows that the impact of loyal partisans fluctuates a lot. Between 2002 and 2004, 53% of the overall polarization in the mean difference measure was driven by polarizing

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4 partisans. This trend may be explained by President Bush's decision on the Iraq war in early 2003,
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6 which polarized Democrats and Republicans by war attitude (Jacobson 2010).
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9 Meanwhile, loyal partisans did not contribute to the polarization between 1992 and 1996;
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11 in the overlap measure in the 1994-1996 panel, loyal partisans even *decreased* the polarization (by
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13 increasing the overlap by 8 respondents). Instead, the polarization was mostly driven by the
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15 detaching nonpartisans. The moderation among partisans between 1994-1996 could come from
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17 President Clinton's compromise with the Republicans; in the ANES1994-1996 panel, the loyal
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19 Republicans' mean ideology decreased from 5.51 to 5.42 ($p = 0.051$ in the paired T-test). With the
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21 help of the revised mean difference and overlap measures presented in this article, future work
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23 may explore the contextual effect on partisans and nonpartisans.
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31 **Discussion**

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33 All four ANES panels indicate that the political polarization in the United States is beyond
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35 the die-hard Democrats and Republicans; the leaving and returning of nonpartisans and moderates
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37 matter. Mainstream measures on polarization overwhelmingly focus on the polarizing partisans,
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39 but our results show that the nonpartisans and moderates could be the key to deciphering this
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41 phenomenon. Our results also suggest that we may improve the existing measures of polarization
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43 (including other measures not analyzed in this article, such as the bimodality measure (Lelkes
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45 2016)) by incorporating the features of mean difference, overlap, and nonpartisans together.
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50 Re-emphasizing the role of non-partisans and moderates may also offer new insight into
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52 studying other political phenomena, such as the rise of populism, the rise of registered
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54 independents, the rise of nonpartisans (Klar and Krupnikov 2016), and the rise of the third party
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56 (e.g. the Forward Party by Andrew Yang). The combination of our three mechanisms and more
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4 panel surveys would help explore how the context may impact the shift within and between
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7 partisans and nonpartisans.
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9 One possible limitation is the attrition in the panel data; many people did not receive the
10 second interview. However, if loyal partisans are more likely to stay and moderates and
11 nonpartisans are more likely to drop across waves, then our analyses may actually *overestimate*
12 the contribution of loyal partisans. Therefore, the potential bias in attrition would not nullify but
13 strengthen the findings in this article.
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21 Since the detaching nonpartisans contributes considerably to the observed political
22 polarization, one possible mitigation to the polarization would be encouraging the nonpartisans to
23 join their preferred parties or the party reflecting their ideological stances. Since these nonpartisans
24 hold relatively moderate ideological stances than the loyal partisans, these returning nonpartisans
25 can reduce the mean difference and increase the overlap between the two parties. The “Why
26 parties?” question should not be asked by politicians only but also by the public.
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Appendix

1. ANES1992-1996 Panel

In the ANES1992-1996 panel, there were 352 Democrats, 252 Republicans, and 422 nonpartisans in the 1992 wave, and 663 Democrats, 471 Republicans, and 571 nonpartisans in the 1996 wave. The crosstable of partisanship is shown below.

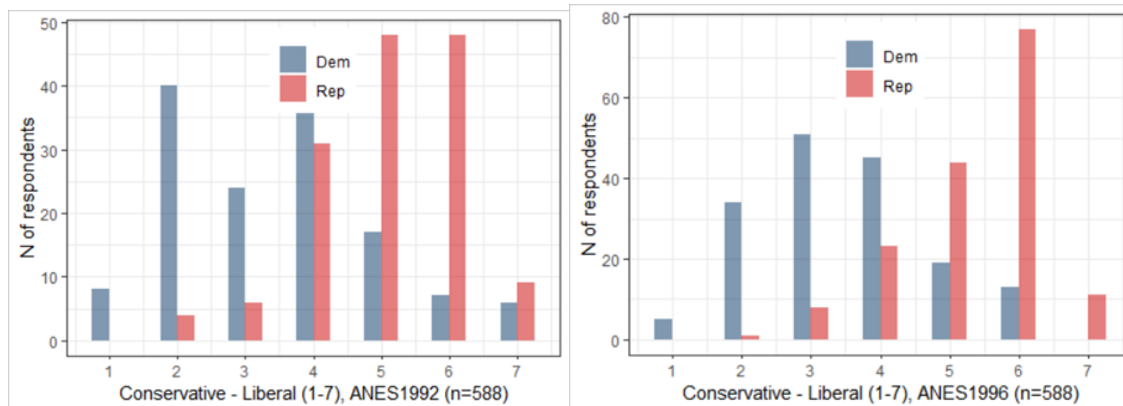
1996\1992	Dem	Non	Rep
Dem	150	32	8
Non	64	134	42
Rep	8	25	125

Overall, 588 respondents answered their partisanship and liberal-conservative ideology (1 to 7) in both waves. The mean values of ideology in both waves for all subgroups are shown below. The rightmost column shows the T-value in the paired T-test (* p <0.1, ** p<0.05, *** p<0.01). The mean difference measure and the contribution of detaching nonpartisans can be further calculated by the numbers in the table below.

Partisanship	N	Ideology 1992	Ideology 1996	Paired T value
Dem - Dem	90 (21.1%)	3.167	3.256	0.689
Rep - Rep	113 (26.6%)	5.265	5.407	1.762*
Non - Non	98 (23.0%)	4.439	4.418	-0.182
Dem - Rep	6 (1.4%)	4.833	5.833	2.738**
Dem - Non	21(4.9%)	3.571	4.238	1.848*
Rep - Dem	4 (0.9%)	4.500	3.500	-1.412
Rep - Non	22 (5.2%)	4.454	4.500	0.218

Non - Dem	40 (9.4%)	3.500	3.575	0.152
Non - Rep	31 (7.3%)	4.645	5.064	2.352**

To calculate the overlap measure, we plot the distribution of ideology between Democrats and Republicans in the two waves. The distribution of the 1992 wave is on the left, while the 1996 wave is on the right. In the 1992 wave, there were 71 respondents in the “triangle,” calculated by the smaller number between Democrats and Republicans in each ideological option. In the 1996 wave, there were 64 respondents. So, the overall change in the overlap measure is -7 respondents.



Between the two waves, there are 18 loyal partisans moved to be more extreme (Democrats to the left (≤ 4) and Republicans to the right (≥ 5)), which decreased the size of the triangle. At the same time, there are also 17 loyal partisans moved to the moderate side of the triangle (Democrats to the right (≥ 5) and Republicans to the left (≤ 4)), which increases the size of the triangle. Overall, the total contribution driven by the loyal partisans is $17 - 18 = -1$, which makes the triangle smaller by one respondent.

When it comes to detaching nonpartisans, there are 13 Democrats who turned to nonpartisans in the second wave and whose ideology is ≥ 5 in the first wave, so leaving Democrats directly downsizes the triangle. Similarly, 16 leaving Republicans whose ideology is ≤ 4 downsizes the triangle. The overall contribution made by the detaching nonpartisans is $13 + 16 = 29$.

Similarly, there are 12 moderates in the first wave whose ideology is ≥ 5 in the second wave and decide to join Democrats, which increases the triangle. So, 11 moderates whose ideology is ≤ 4 in the second wave join Republicans, increasing the triangle. These newcomers partisans increase the size of the triangle by $11 + 12 = 23$.

2. ANES1994-1996 Panel

In the ANES1994-1996 panel, there were 612 Democrats, 544 Republicans, and 626 nonpartisans in the 1994 wave, and 663 Democrats, 471 Republicans, and 571 nonpartisans in the 1996 wave. The crosstable of partisanship is shown below.

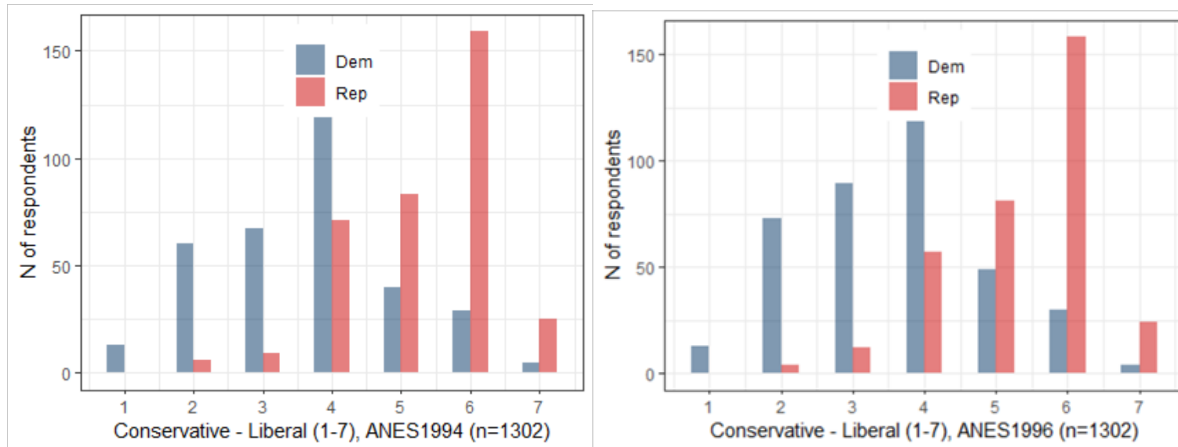
1996\1994	Dem	Non	Rep
Dem	390	55	8
Non	95	300	54
Rep	25	64	311

Overall, 1302 respondents answered their partisanship and liberal-conservative ideology (1 to 7) in both waves. The mean values of ideology in both waves for all subgroups are shown below. The rightmost column shows the T-value in the paired T-test (* p <0.1, ** p<0.05, *** p<0.01). The mean difference measure and the contribution of detaching nonpartisans can be further calculated by the numbers in the table below.

Partisanship	N	Ideology 1994	Ideology 1996	Paired T value
Dem - Dem	258 (28.0%)	3.539	3.430	-1.650
Rep - Rep	268 (29.1%)	5.515	5.421	-1.956
Non - Non	201 (21.8%)	4.488	4.289	-2.957***
Dem - Rep	2 (0.2%)	4.833	5.500	NA
Dem - Non	36 (3.9%)	3.750	3.778	0.154
Rep - Dem	15 (1.6%)	4.500	3.667	-4.035***
Rep - Non	43 (4.7%)	4.628	4.651	0.125
Non - Dem	55 (6.0%)	4.072	3.709	-2.015*

Non - Rep	42 (4.6%)	4.667	5.000	2.101*
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To calculate the overlap measure, we plot the distribution of ideology between Democrats and Republicans in the two waves. The distribution of the 1994 wave is on the left, while the 1996 wave is on the right. In the 1992 wave, there were 160 respondents in the “triangle,” calculated by the smaller number between Democrats and Republicans in each ideological option. In the 1996 wave, there were 156 respondents. So, the overall change in the overlap measure is -4 respondents.



Between the two waves, there were 37 loyal partisans moved to be more extreme (Democrats to the left (≤ 4) and Republicans to the right (≥ 5)), which decreased the size of the triangle. At the same time, there are also 45 loyal partisans moved to the moderate side of the triangle (Democrats to the right (≥ 5) and Republicans to the left (≤ 4)), which increases the size of the triangle. Overall, the total contribution driven by the loyal partisans is $45 - 37 = +8$, which makes the triangle **larger** by eight respondents. In other words, the loyal partisans are less polarized within two years in the overlap measure.

When it comes to detaching nonpartisans, there are 14 Democrats who turned to nonpartisans in the second wave and whose ideology is ≥ 5 in the first wave, so leaving Democrats directly downsizes the triangle. Similarly, 32 leaving Republicans whose ideology is ≤ 4 downsizes the triangle. The overall contribution made by the detaching nonpartisans is $14 + 32 = 46$.

Similarly, there are 20 moderates in the first wave whose ideology is ≥ 5 in the second wave and decide to join Democrats, which increases the triangle. So, 19 moderates whose ideology is ≤ 4 in the second wave join Republicans, increasing the triangle. These newcomers increase the size of the triangle by $20 + 19 = 39$.

3. ANES2000-2002 Panel

In the ANES2000-2002 panel, there were 620 Democrats, 451 Republicans, and 700 nonpartisans in the 2000 wave, and 390 Democrats, 374 Republicans, and 389 nonpartisans in the 1996 wave. The crosstable of partisanship is shown below.

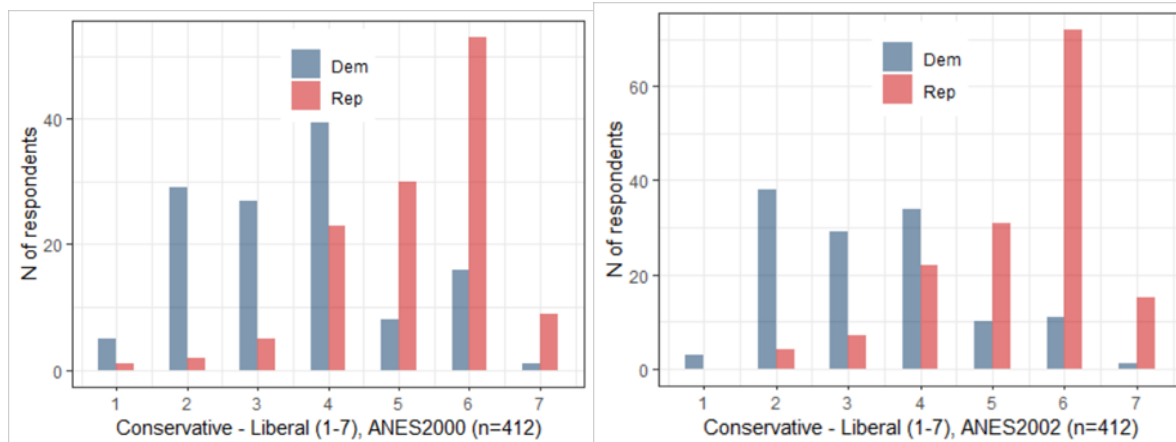
2002\2000	Dem	Non	Rep
Dem	324	61	13
Non	56	288	75
Rep	6	29	282

Overall, 412 respondents answered their partisanship and liberal-conservative ideology (1 to 7) in both waves (1134 respondents answered in both waves, but others answered the ideology questions in other formats, so we only analyze those who answered in the consistent 1-7 scale). The mean values of ideology in both waves for all subgroups are shown below. The rightmost column shows the T-value in the paired T-test (* p <0.1, ** p<0.05, *** p<0.01). The mean difference measure and the contribution of detaching nonpartisans can be further calculated by the numbers in the table below.

Table. Partisanship and Ideology, ANES2000-2002 Panel (n=412)				
Partisanship	N	Ideology 2000	Ideology 2002	Paired T value
Dem - Dem	104 (25.2%)	3.461	3.298	-1.31
Rep - Rep	107(26.0%)	5.261	5.542	2.58*
Non - Non	102 (24.8%)	4.167	4.196	0.26
Dem - Rep	6 (1.5%)	4.333	4.500	0.27
Dem - Non	18 (4.4%)	3.833	3.778	-0.19
Rep - Dem	1 (0.2%)	3.000	3.000	NA

Rep - Non	15(3.6%)	5.133	5.000	-0.43
Non - Dem	21(5.1%)	4.286	3.762	-2.22*
Non - Rep	38 (9.2%)	4.868	4.973	0.62

To calculate the overlap measure, we plot the distribution of ideology between Democrats and Republicans in the two waves. The distribution of the 2000 wave is on the left, while the 2002 wave is on the right. In the 2000 wave, there were 56 respondents in the “triangle,” calculated by the smaller number between Democrats and Republicans in each ideological option. In the 2002 wave, there were 55 respondents. So, the overall change in the overlap measure is -1 respondents.



Between the two waves, there are 23 loyal partisans moved to be more extreme (Democrats to the left (≤ 4) and Republicans to the right (≥ 5)), which decreased the size of the triangle. At the same time, there are also 11 loyal partisans moving to the moderate side of the triangle (Democrats to the right (≥ 5) and Republicans to the left (≤ 4)), which increases the size of the triangle. Overall, the total contribution driven by the loyal partisans is $11 - 23 = -12$, which makes the triangle smaller by 12 respondents.

When it comes to detaching nonpartisans, there are 6 Democrats who turned to nonpartisans in the second wave and whose ideology is ≥ 5 in the first wave, so leaving Democrats directly downsizes the triangle. Similarly, 5 leaving Republicans whose ideology is ≤ 4 downsizes the triangle. The overall contribution made by the detaching nonpartisans is $6 + 5 = 11$.

Similarly, there are five moderates in the first wave whose ideology is ≥ 5 in the second wave and decide to join Democrats, which increases the triangle. So, 17 moderates whose ideology is ≤ 4 in the second wave joined Republicans, increasing the triangle. These newcomers increase the size of the triangle by $5 + 17 = 22$.