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This paper provides novel evidence on trends in geographic partisan segregation. Using two individual-level panel datasets covering the near universe of the U.S. population between 2008 and 2020, we leverage information on individuals' party affiliation to construct two key indicators: i) the fraction of Democrats among voters affiliated with either major party, which reveals that partisan segregation has increased *across* geographical units, at the tract, county, and congressional district levels; ii) The dissimilarity index, which measures differences in the partisan mix across distinct sub-units and highlights that partisan segregation has also increased *within* geographical units. Tracking individuals across election years, we decompose changes in partisan segregation into different sources: voter migration, generational change, older voters entering the electorate, and voters changing their partisanship or their registration status. The rise in partisan segregation is mostly driven by generational change, in Democratic-leaning areas, and by the increasing ideological conformity of stayers, in Republican-leaning areas.

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1 Introduction

In the United States, the geographic separation of Democrats and Republicans is visible at all levels of geographic aggregation, from states to small neighborhoods (Brown and Enos 2021). This separation has its roots at least as far back as the 19th century, when working-class center-left political support began to cluster in urban cores during the Industrial Revolution (Rodden 2019). Since then, partisan segregation has been fueled by the sorting of new sociodemographic groups across parties (Levendusky 2013), and by the legacies of racial and class segregation (Massey and Denton 1993; Trounstine 2018). The resulting segregated distribution of Democratic and Republican voters contributes to representational imbalances in state and federal legislatures (Chen and Rodden 2013). It exacerbates discrepancies between Electoral College and popular vote outcomes in presidential elections (Hopkins 2017), and it impedes support for place-based public policy such as transit and infrastructure (Nall 2018). Partisan segregation may also fuel partisan issue polarization at the elite-level, as parties become representative of distinct geographic areas, and contribute to issue and affective polarization within the mass public, due to diminished exposure to competing ideas from neighbors with a different ideology (Cramer 2016).

Despite the manifold consequences of partisan segregation, efforts to measure the extent and causes of this phenomenon have been impeded by persistent data and measurement problems. Until recently, over-time geographic data on the partisan composition of the electorate were only available at coarse levels of aggregation. As a consequence, first order questions on the trend and causes of partisan segregation in the U.S. remain unanswered. Is partisan segregation increasing, and at what speed? What factors are contributing to its rise or its decline? Specifically, to what extent are changes in the geographic distribution of the American electorate produced by changes in the composition of the electorate, due to U.S. internal migration or generational change, vs. changes in the partisan leaning of voters changing their registered partisan affiliation or their registration status? Studies of partisan segregation have been limited to diagnosing aggregate changes over-time, using county- or precinct-level data (Sussell 2013; Kaplan, Spenkuch, and Sullivan 2021), without being able to speak to the causes of these changes. Recent studies have analyzed single sources of changes in partisan geography, particularly the extent to which voters sorting on partisanship is driven by residential mobility (Mummolo and Nall 2017; Martin and Webster 2018), but no study as of yet has proposed a full decomposition of nationwide changes in partisan segregation.

In this paper, we draw on two individual-level panel datasets covering the near universe of U.S. voters between 2008 and 2020 to measure changes in partisan segregation across the United States. Focusing on the 30 states that record partisanship on their voter rolls, we measure two distinct dimensions of segregation: i) how different geographic areas evolve over time (using the ratio of Democrats to Democrats and Republicans - hereafter D/(D+R)) , and ii) how evenly Democrats and Republicans are distributed within areas and neighborhoods (using the index of dissimilarity). We measure both metrics over time and across multiple geographic levels ranging from counties and congressional districts to small neighborhoods. Thanks to our ability to track individuals across time as they move or change their partisan registration, we further decompose the sources of changes in partisan composition across places, quantifying the respective influence of generational change, U.S. internal migration, change in partisanship, and change in registration status.

The data demonstrate a clear and consistent year-to-year increase in partisan segregation *across* the United States. We observe this increase across a range of geographic units, seeing more areas that are becoming either predominantly Republican or predominantly Democratic, and fewer areas that are mixed. This trend is observed when looking at the relative proportion of Democrats across counties and congressional districts, and even in smaller geographies such as Census tracts, block groups, and blocks. We further find, looking at changes in dissimilarity indices across counties and districts, that even conditional on the overall composition of these larger geographies, the neighborhoods *within* them are growing more distinct in terms of partisanship, as evidenced by increasing levels of dissimilarity. Thus, more places are becoming homogeneous in terms of partisanship, and even conditional on regional patterns in partisanship, neighborhoods are growing more distinct along partisan lines. Partisan segregation still reflects a rural-urban political divide, with rural places becoming predominantly Republican and highly urbanized centers becoming predominantly Democratic. We further notice that the Caucasian voting population as well as younger generations are less mixed over time in terms of partisanship, suggesting that they are more concerned by the rising trend in partisan segregation.

Turning to the decomposition analysis, increasing partisan segregation in areas that are growing more Democratic is primarily driven by generational change – from new voters who are predominantly Democrats entering the electorate in these area. In areas trending Republican, the change is mostly driven by voters changing their partisanship to Republican. We find that residential mobility is also an influential determinant of the rise of partisan segregation in both Democratic and Republican trending areas, albeit to a much lesser extent than the primary drivers.

This paper builds on several strands of the literature. First, we contribute to the public and scholarly debate on whether or not Democrats and Republicans are becoming increasingly divided across space. Among the media, it has been a common view since Bishop (2009) that Republicans and Democrats are increasingly clustered in like-minded neighborhoods. This idea has been harshly discussed in the literature. Fiorina (2005), Glaeser and Ward (2006), and Abrams and Fiorina (2012) observe very low levels of partisan sorting. More recent studies find more evidence of partisan clustering, such as Sussell (2013), Johnston, Manley, and Jones (2016) or Kaplan, Spenkuch, and Sullivan (2021). Due to data limitation, this literature often fails to capture the actual geographic segregation of voters, using mainly aggregates at the county-state levels subject to the modifiable areal unit problem (Openshaw 1983). By contrast, Brown and Enos (2021) use cross-sectional individual data to capture partisan segregation at various geographic units, but their analysis is static. The present paper uses two individual-level panel data covering the vast majority of the U.S. voting-eligible population to study *changes* in partisan segregation since 2008.

Second, we shed light on the causes of partisan sorting. In a seminal paper, Tiebout (1956) argues that individuals sort based on their preferences for public policies: for instance, Democrats may locate in neighborhoods with better public infrastructures if they are willing to accept higher tax rates. Recently, several papers have studied the origins of partisan segregation. Among them, a great number focuses on residential sorting, such as McDonald (2011), Tam Cho, Gimpel, and Hui (2013), Gimpel and Hui (2015), Strickler (2016) or Mummolo and Nall (2017). Duffy and Yoo (2022) prove theoretically that sorting can arise via one group's perception of the other group, independently from any preferences for homophily. But U.S. internal migration flows appear too small to fully explain the extent of partisan segregation (Martin and Webster 2018; Lang and Pearson-Merkowitz 2015). Other papers provide alternative explanations for the rise in partisan segregation. Partisan sorting could be the consequence of sorting on other dimensions – such as income segregation (Gelman 2010; Hersh 2015) or racial segregation. In that case, the underlying causes for the rise of partisan segregation could be similar to the concentration of poverty and to the cultural barriers, observed by Massey and Denton (1993) or by Rugh and Trounstine (2011). Individuals could also change their partisan preferences to align with the people they are living with. Several studies support this hypothesis: Huckfeldt and Sprague (1987) and Johnston and Pattie (2011) show that preferences are more likely to align when people have been living a long-time side by side. Gay (2004, 2012), Enos (2014, 2017) and Sands (2017) find similar results on political preferences. Our paper complements this literature by providing a full statistical decomposition of changes in the partisan composition of the electorate into changes in the population of registered voters and changes in their party registration, using administrative individual-level data.

Finally, our paper builds on the vast literature on political polarization. While polarization on policy issues appears limited (DiMaggio, Evans, and Bryson 1996; Evans 2003; Fiorina and Abrams 2008; Levendusky and Pope 2011), the U.S. are experiencing a growing trend in social polarization, leading to a rise in partisan ideological sorting (Fiorina 2005; Jacobson 2004; Bafumi and Shapiro 2009; Abramowitz and Saunders 2008; Mason 2015). Several recent papers show that increases in affective polarization are particularly large in the U.S. – meaning that citizens increasingly dislike members from other political parties than their own (Iyengar et al. 2019). Among nine OECD counties, the U.S. experienced the strongest rise in affective polarization over the past four decades (Boxell, Gentzkow, and Shapiro 2020). Geographic partisan sorting may contribute to affective polarization due to the social distance it generates between groups (Allport 1954; Iyengar, Sood, and Lelkes 2012; Iyengar and Westwood 2014; Enos 2015, 2016, 2017).

The remainder of the paper is organized as follows. Section 2 presents the institutional setting and the data. Section 3 provides robust evidence of an increasing trend in partisan segregation. In Section 4, we explore where partisan segregation has risen the most. Section 5 identifies the main drivers of the increase in partisan segregation. Section 6 concludes.

2 Institutional setting and data

2.1 Partisan registration in the U.S.

To measure partisan segregation using individual-level data, we need information on the partisan affiliation of voters (i.e., whether they are affiliated with the Democratic or the Republican party). In many U.S. states, partisan registration determines eligibility to vote in political primary elections, with some primaries restricted to only party members (closed primaries) and some restricted to party members and Independents (semi-closed primaries). Thirty states record partisan registration on their voter lists, so each voter who is registered to vote in one of these 30 states may register with a political party (Democratic or Republican party) or may choose to be designated as Independent.

We rely on partisan registration data for several reasons. First, partisan registration is an important political outcome in its own right. It has been shown to have downstream consequences for political attitudes, increasing connections with political parties (Gerber, Huber, and Washington 2010). Which party a voter is registered to also influences how they are viewed on voter lists by political campaigns, and thus determines which organizations are likely to mobilize them into politics (Hersh 2015). Second, partisan registration is a good proxy for the underlying partisan preferences of voters. In the U.S., partisanship is a social identity that is predictive of, and in many instances causal of, many political behaviors and attitudes (Green, Palmquist, and Schickler 2004). Which party a voter is registered to is predominantly a function of her underlying partisan ideology (Campbell 1958) - with partisan registration being highly correlated with both self-reported partisanship and vote choice. There is even evidence that this relationship has increased over time, as the political parties have sorted and differentiated themselves, evidenced by limited cross-partisan or split ticket voting (Davis and Mason 2016). Third, partisan registration data provide the most comprehensive documentation of partisan preference available at the individual level. Survey data on self-reported partisan preference do not exist at the scale offered by registration data, and administrative vote choice data are not available at the individual level. Unlike voting outcomes, partisan registration data captures partisan preferences without relying on the identity of candidates, on their program or on shifting political climates (Abrams and Fiorina 2012).

2.2 Data

We measure partisan segregation using individual-level voter registration records. Our primary data source has been collected by Catalist, a U.S. data vendor. The panel consists of November snapshots for each presidential and midterm elections between 2008 and 2018 (2008, 2010, 2012, 2014, 2016, and 2018). The restriction of the sample to the 30 U.S. states where partisan affiliation data are available results in a total of around 800 million observations.

Catalist covers the near universe of the U.S. voting-eligible population and provides reliable demographic characteristics for nearly all voters (Fraga 2016, 2018), such as age, gender and race. It keeps track of voters who appeared in past voter files but have disappeared from the most recent ones and includes around 55 million unregistered voters thanks to commercial data and customer files. Catalist has long collaborated with the academics (Nickerson and Rogers 2014; Hersh and Nall 2016; Cantoni and Pons 2019). The unregistered population is only partially covered by Catalist data despite their efforts, with around 11 percent of adult citizens who do not appear in commercial voter lists (Jackman and Spahn 2021). This issue is not particularly concerning for our analysis as we focus on change in *registered* population to measure trends in partisan segregation.

While the Catalist files contain geographic identifiers at the county, congressional district, and census tract levels, they do not allow us to study partisan segregation at finer geographic units. To test the robustness of our results at the block group and block levels, we supplement our analysis using voter registration records collected by another non-partisan commercial data vendor, TargetSmart. TargetSmart files provide the exact residential address for each individual, as well as the corresponding latitude and longitude. They also include yearly November snapshots between 2012 and 2020 and are mainly based on official voter registration and turnout records.

To test the robustness of our registration results, we finally use aggregate electoral results as they proxy partisan ideology without any geographic restrictions: in particular, they are not limited to the 30 states where partisan registration is available. The Dave Leip's U.S. Election Atlas provides data on county and district-level vote returns reported by the states. The data contain aggregate summaries of vote returns for all Presidential and Congressional elections in the sample period.

2.3 Units of analysis

Using individual panel data, we measure changes in partisan segregation across different geographic units: congressional districts, counties, census tracks, block groups, and blocks. Exploring this flexibility of our data offers several advantages. First, we are able to test against measurement issues that result from variation in the definition of aggregate units (Openshaw 1983; White 1983). Obtaining similar results at multiple geographic units implies that our results are robust to the level of aggregation we are studying. Second, we would like to see whether partisan segregation is changing across large areas or in smaller neighborhoods. In Section 3, we use counties and congressional districts to measure large-scale changes in partisan segregation, and census geographies (including tracts, block groups, and blocks) to measure neighborhood-level changes in partisan segregation.

To observe partisan segregation over time, we need stable geographic units between 2008 and 2020. County boundaries do not change over time. However, census geographies and congressional districts (CD) do change periodically. Census geographies change every ten years after the new decennial census while CD boundaries are regularly redrawn following redistricting, and potential gerrymandering. For CDs, we construct pseudo-CDs with stable boundaries. A pseudo-CD identifier is equal to a

CD identifier at one point in time. Here we choose the 2008 election without loss of generality. As county boundaries do not change over time, a county which is located within a CD in 2008 obtains as pseudo-CD identifier its 2008 CD identification number. Exact address information in the TargetSmart data is obviously immune to such changes. Furthermore, census definitions did not change during the 2012-2020 period covered by these data.

3 The rise in partisan segregation

We rely on two distinct metrics to measure changes in partisan segregation: i) the ratio of D/(D+R), i.e. the proportion of Democrats among registered Democrats and Republicans, which measures trends in partisan segregation *across* geographical units, and ii) the index of dissimilarity, which measures trends in partisan segregation *within* geographical units.

3.1 Increase in partisan segregation *across* geographical units

The ratio of D/(D+R) captures the relative number of Democrats among the voting population of Democrats and Republicans. Using individual-panel data, we define the ratio of D/(D+R) in geographic unit i in year t as follows:

$$D/(D+R)_{i,t} = \frac{\sum_{v\in i,t} D_{v,t}}{\sum_{v\in i,t}(D_{v,t}+R_{v,t})}, \tag{1}$$

where $D_{v,t}$ and $R_{v,t}$ are equal to 1 if voter v in year t is registered as Democrat and Republican, respectively, and 0 otherwise.

Our analysis focuses on shifts in the distribution of D/(D+R) over time. First, shifts of this distribution to the left or to the right indicate whether the fraction of Democrats has decreased or increased over time, overall. Second, we assess whether the tails of the distribution have increased or decreased over time. A widening of the distribution would indicate that geographic units are growing homogeneous, either towards Democratic or Republican homogeneity, and that partisan segregation is increasing across units. We measure the widening of the distribution of D/(D+R) with two indicators: the standard deviation and the kurtosis of the distribution.

We examine these changing distributions for each geographic unit, weighting by the initial number of registered voters (i.e, in 2008 for the Catalist data or in 2012 for the TargetSmart data). As mentioned in Section 2.3, we calculate the ratio for multiple geographic units: counties, pseudo-CDs, census tracts, census block groups, and census blocks. The ratio of D/(D+R) can be only computed at the block-group and block levels using TargetSmart data.

We first document the trend in partisan segregation across counties and pseudo-CDs using the Catalist data. Figure 1 shows the weighted distribution of the ratio D/(D+R) for years 2008 and 2018. The centers of the distributions shift very slightly to the left (1 percentage point), indicating that overall, counties and congressional districts have grown slightly more Republican over the time period. However, the most prominent change is the widening of the distribution over the decade. The kurtosis of the distribution has decreased between 2008 and 2018, both at the county (2.95 vs 2.78) and at the pseudo-CD (4.14 vs 3.29) levels. Consistently, the standard deviations have increased, from 0.15 in 2008 to 0.17 in 2018 at the county level and from 0.12 to 0.13 at the pseudo-CD level. In other words, partisan segregation has increased over time across counties and pseudo-CDs: voters live in counties and CDs that are becoming increasingly homogeneous towards Democrats or Republicans.

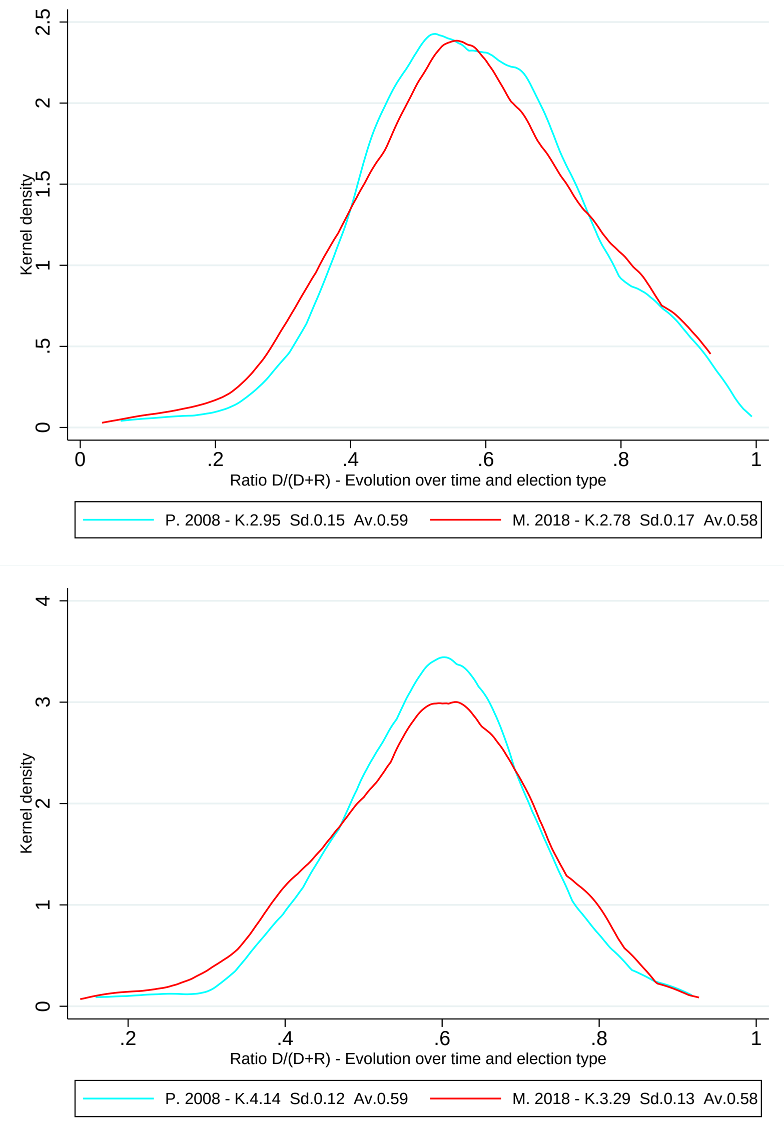
The stylized fact of an increasing trend in partisan segregation is very robust. First, we test whether or not there is a consistent year-to-year increase in partisan segregation. Appendix Figure 11 displays the distributions across electoral years 2008, 2010, 2012, 2014, 2016 and 2018. We observe systematic year-to-year decreases (resp. increases) in the kurtosis (resp. in the standard deviations) of the distribution of D/(D+R). It implies that partisan segregation has been consistently decreasing over the time window. Second, we test whether our results can be extended to the entire country and are robust to the use of another proxy for partisan preferences. Appendix Figure 13 uses Congressional elections rather than party registration data as input. The standard deviations are not increasing but the kurtosis is strongly decreasing, both at the county (3.04 vs 2.65) and at the pseudo-CD (3.56 vs 2.48) levels. It confirms that the rise in partisan segregation is not limited to the 30 states for which individual partisan affiliation is available.

We also observe this increasing trend in partisan segregation across units at smaller geographies. Appendix Figures 7 and 8 show the weighted kernel distributions of the ratio of D/(D+R) at the census tract-level using respectively Catalist data and TargetSmart data.[1] We observe similar shifts in kurtosis and in standard deviations at this much finer geographic level as at the county and pseudo-CD levels. Despite using entirely separate datasets, we also find similar shapes at the census tract level of the

[1] Note that the kurtosis is not normalized in Appendix Figure 8 but it is nevertheless decreasing.

weighted kernel distributions, with an average closed to 0.6 in both datasets. Reassuringly, our results do not depend on the type of dataset we are studying at and they are robust to the use of stable geographic units at the tract level. Using the TargetSmart data, we further examine changes in D/(D+R) at even smaller geographic units, block-group and block levels, from 2012 to 2020. Appendix Figures 9 and 10 display declining kurtoses at each of these units, demonstrating the pervasive rise in partisan segregation during the time period.

Figure 1: Weighted kernel distributions of the ratio D/(D+R) in 2008 and in 2018 - At the county and pseudo-CD levels (resp. above and below) using Catalist data



<u>Note:</u> The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distribution of the ratio D/(D+R) is featured in blue in 2008 (at Presidential election) and in red in 2018 (at Midterm election)

3.2 Increase in partisan segregation *within* geographical units

We now turn to the index of dissimilarity to study trends in partisan segregation *within* geographical units. The index of dissimilarity measures the unevenness of the distribution of two demographic groups across neighborhoods within a large geographic unit. It has been commonly used in social science literature to measure segregation (Massey and Denton 1993; Reardon and O'Sullivan 2004; Klinkner and Hapanowicz 2005; Glaeser and Ward 2006; Brown and Enos 2021). In our analysis, it captures how different neighborhoods look compared to each other in terms of proportion of Democrats and Republicans, with respect to the overall partisan composition of the larger geography. Using our individual-level datasets, we formally define the dissimilarity index as follows:

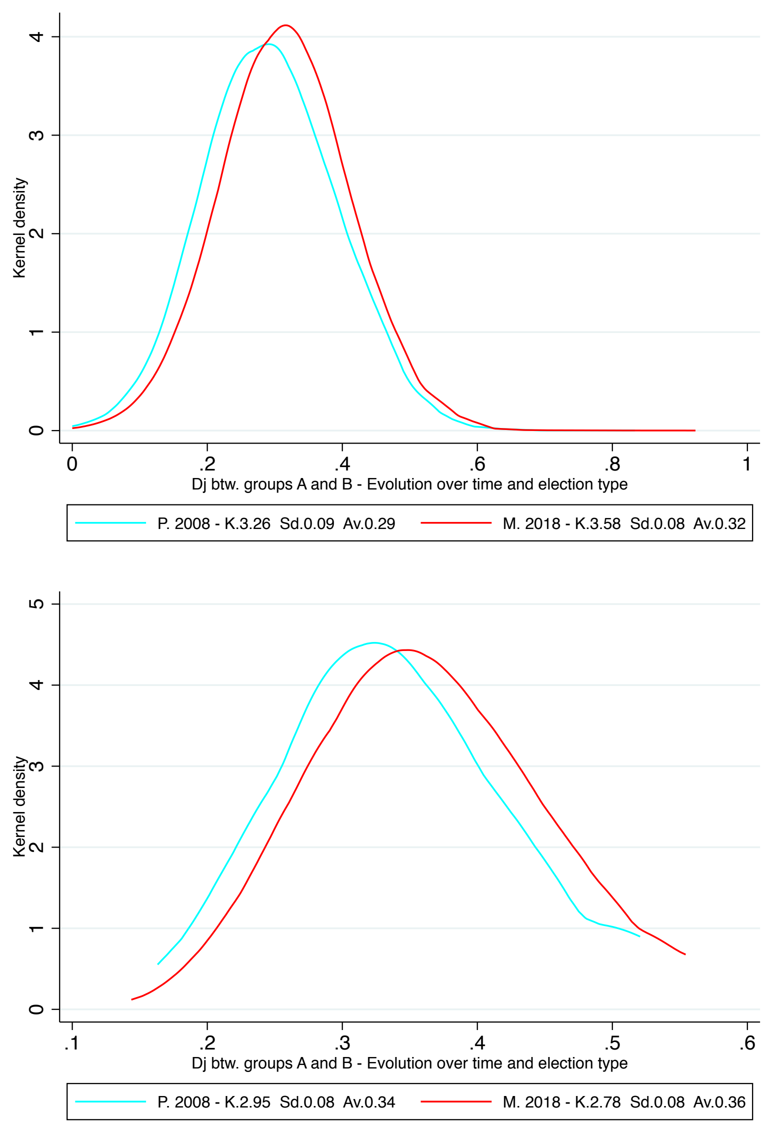
$$DI_{i,t} = \frac{1}{2} \sum_{j \in i} \left| \frac{\sum_{v \in j,t} D_{v,t}}{\sum_{v \in i,t} D_{v,t}} - \frac{\sum_{v \in j,t} R_{v,t}}{\sum_{v \in i,t} R_{v,t}} \right|, \tag{2}$$

with $DI_{i,t}$ the index of dissimilarity in geographic unit i in year t, j the neighborhood sub-unit within i, and $D_{v,t}$ and $R_{v,t}$ defined as before. We calculate the dissimilarity index for counties and for pseudo-CDs, using census tracts as the sub-geography definition of a neighborhood.

Figure 2 shows the weighted kernel distribution of the index of dissimilarity at the county and pseudo-CD levels, in 2008 (blue line) and in 2018 (red line) using the Catalist data. Here, we do not focus on the widening of the distribution, but instead on whether or not the distribution is shifting to the right or to the left. We observe a notable mean increase in the index of dissimilarity from 2008 to 2018, both at the county (3 percentage points) and at the pseudo-CD (2 percentage points) levels. The increase has been continuous over time (Appendix Figure 12).

Using the ratio of D/(D+R), we already notice that partisan homogeneity is increasing in absolute terms within small geographic areas (such as Census tracts, block groups, and blocks). The dissimilarity index adds further information, testing whether these local-level changes are surprising in the context of the larger geographic unit in which the neighborhood is located. Here, the increase in the dissimilarity index confirms that local-level changes are not merely a product of broader regional changes. In other words, a neighborhood is not shifting more Republican because there is a growing number of Republicans in the county where it is located. Partisan segregation is instead increasing *within* counties or pseudo-CDs, with neighborhoods becoming more distinct in terms of partisan composition.

Figure 2: Weighted kernel distributions of the dissimilarity index in 2008 and in 2018 - At the county and pseudo-CD levels (resp. above and below) using Catalist data



Note: The kernel distributions of the dissimilarity index are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distribution of the dissimilarity index is featured in blue in 2008 (at Presidential election) and in red in 2018 (at Midterm election)

4 Characteristics of areas driving the rise in partisan segregation

4.1 Change in partisan segregation in Democrat vs. Republican areas

The widening of the distribution of the ratio D/(D+R) over time does not mean that partisan segregation has increased in *all* geographic units. We classify units along two criteria: whether or not there were initially more Republicans or Democrats and whether or not the voting population has become more homogeneous over time. This classification allows potential trend differences between Democrat and Republican places.

Specifically, we group geographical units into the four following categories: 1. Places becoming more homogeneous in favor of Republicans, 2. Places becoming more homogeneous in favor of Democrats, 3. Places becoming more heterogeneous in favor of Republicans, and 4. Places becoming more heterogeneous in favor of Democrats. Categories 1 and 2 contribute to the overall increase in partisan segregation *across* geographical units while categories 3 and 4 alleviate the rising trend in partisan segregation. We first look at the initial value of the ratio D/(D+R). If the 2008 value of the ratio D/(D+R) is below (resp. above) its median value, it means that relatively, there was a low (resp. high) fraction of Democrats in 2008 in unit i. Unit i is growing more homogeneous with respect to partisan affiliation, if it experiences a larger increase in the fraction of voters affiliated with the dominant partisan group compared to the median change in D/(D+R). Republican (resp. Democratic) places becoming more homogeneous are places where the ratio D/(D+R) is below (resp. above) the median in 2008 and where the change in D/(D+R) is below (resp. above) the median change over time.

Table 1 shows that a majority (61%) of the 1,375 counties have contributed to the overall increase in partisan segregation visible on Figure 1. Counties fueling the rise in partisan segregation are mainly "Republican" counties, with a low initial ratio D/(D+R). On the contrary, partisan segregation has mainly decreased in counties with a high share of Democrats in 2008. These results are consistent with a relative increase in the number of Republicans over the period (see Appendix Figures 14, 15, and 16). Even though the number of pseudo-CDs is considerably smaller (135), Appendix Table 5 features similar results.

Table 1: Share of counties experiencing an increase vs. decrease in partisan homogeneity between 2008 and 2018 - Using Catalist data

Variable	Obs	Mean (%)
Increase in partisan homogeneity	***1,375***	***61***
In favor of Republicans	1,375	56
In favor of Democrats	1,375	5
Decrease in partisan homogeneity	***1,375***	***39***
In favor of Republicans	1,375	31
In favor of Democrats	1,375	8

Note: Counties experiencing an increase (resp. a decrease) in partisan homogeneity contribute to (resp. alleviate) the rising trend in partisan segregation. Counties becoming more homogeneous in favor of Republicans are "Republican" counties with an initial ratio of D/(D+R) below the median and where the change in D/(D+R) is below the median change over time. Counties becoming more heterogeneous in favor of Republicans are "Democratic" counties with an initial ratio of D/(D+R) above the median and where the change in D/(D+R) is below the median change over time.

4.2 Geographical and sociodemographic correlates

County characteristics

Combining census data with the Catalist data, Table 2 shows t-test results comparing counties fueling the rise in partisan segregation with counties alleviating that trend. Counties contributing to the increase in partisan segregation have a higher median household income ($49,749 vs. $46,204), a more educated population (88% vs. 84% graduated from high-school or university), slightly more homeowners (72% vs. 71%), and a higher Gini inequality index.

Population characteristics

The population is older on average in counties contributing to the rise in partisan segregation. The median age is around 42 years old in these counties while it is equal to 40 years old in other counties. Specifically, the share of registered voters older than 58 is significantly higher in the first type of counties (34% vs. 31%), and the share of registered voters under 43 is significantly lower (36% vs. 40%). This does not necessarily mean that older voters are responsible for the rise in partisan segregation. We examine this possibility more directly by measuring the increase in partisan segregation across age groups in Section 4.3.

Table 2 also reveals important differences in the ethnic composition of counties contributing to the increase in partisan segregation versus those going against that trend. The former set of counties have a larger share of White voters among the registered population (92% vs. 84%), a smaller share of Black and Hispanic voters (resp. 3% vs. 9% and 3% vs. 4%), and higher racial homogeneity. This finding is consistent with Brown and Enos (2021), who show that partisan segregation is highly but imperfectly correlated with racial segregation.

Table 2: T-test table - Counties experiencing an increase vs. a decrease in partisan homogeneity between 2008 and 2018

		(1)		(2)	
		↑ in part. homogeneity		↓ in part. homogeneity	
	Diff	Mean	#	Mean	#
Census					
Total population	-24,859	120,660	843	145,519	532
Median age	1.706***	41.708	843	40.002	532
Sh. Female pop.	-0.001	0.498	843	0.499	532
HHI Ethnic heterogeneity	0.092***	0.736	843	0.644	532
Sh. Foreign-born pop.	0.422	5.395	843	4.973	532
Sh. Non-white pop.	-0.101***	0.177	843	0.278	532
People/Sq Mile	178	430	843	252	532
Sh. Urban pop.	-0.027	0.423	843	0.450	532
Median income	3,544***	49,749	843	46,204	532
Gini index	-0.015***	0.436	843	0.451	532
High-school dipl. or above	0.040***	0.881	843	0.841	532
Sh. Homeowners	0.014***	0.723	843	0.708	532
Among the registered population					
Sh. Registered voters	0.020***	0.758	843	0.738	532
Democrats	-0.228***	0.315	843	0.543	532
Independents	0.027***	0.226	843	0.199	532
Republicans	0.201***	0.459	843	0.259	532
Aged btw. 17-27	-0.012***	0.145	843	0.157	532
Aged btw. 28-42	-0.021***	0.219	843	0.240	532
Aged btw. 43-57	0.002	0.296	843	0.293	532
Aged over 58	0.031***	0.340	843	0.309	532
Black	-0.065***	0.026	843	0.091	532
Caucasian	0.089***	0.924	843	0.836	532
Hispanic	-0.010**	0.031	843	0.041	532

Note: The t-test table compares counties which contribute to the rise in partisan segregation (i.e., which experience an increase in partisan homogeneity) vs. counties which alleviate that trend (i.e., which experience a decrease in partisan homogeneity). Counties which contribute to the rise in partisan segregation are counties in which both the initial value and the change in D/(D+R) are below the median, or both are above the median.

Finally, counties contributing to the increase in partisan segregation have a larger share of registered voters (76% vs. 74%) and a larger share of Independents among the registered population (23% vs. 20%). In line with Section 4.1, there are also more Republicans (46% vs. 26%) and fewer Democrats (32% vs. 54%) in these counties.

Rural vs. urban places

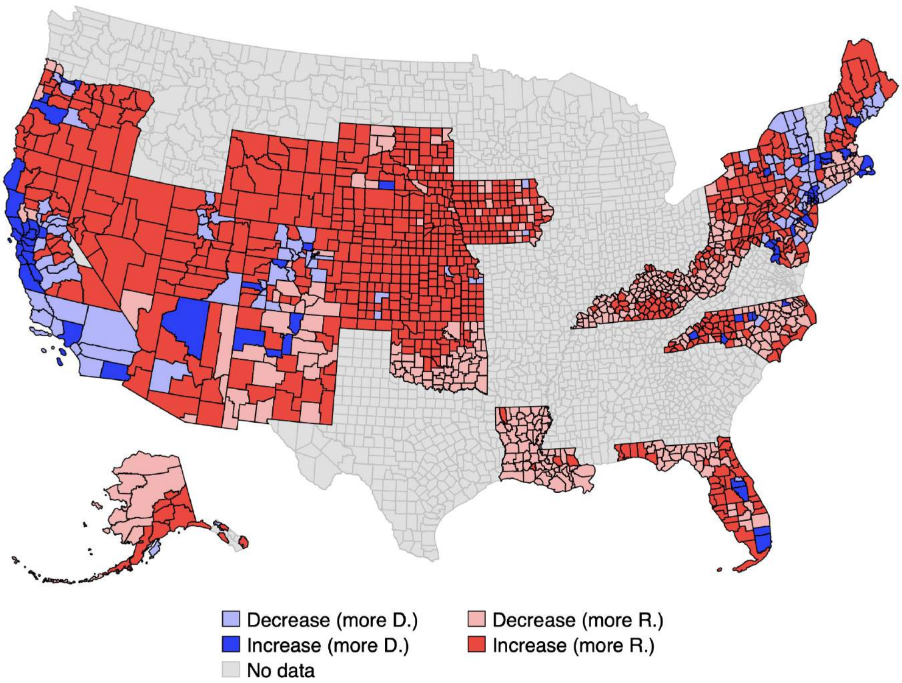
By contrast with all these differences, we do not find any significant difference in population density and the share of urban population between counties contributing to the increase in partisan segregation and others. To complement the statistics provided in Table 2, Figure 3 shows a map distinguishing the four types of U.S. counties defined by the initial fraction of Democrats (D/(D+R)) and its change. Counties are featured in darker or lighter blue (resp. darker or lighter red) if their number of Democrats (resp. Republicans) has relatively increased. Counties fueling the rise in partisan segregation are either displayed in darker blue, when they become more homogeneous in favor of Democrats, or displayed in darker red, when they grow more homogeneous in favor of Republicans. First, we note that counties driving the overall increase in partisan segregation are located both in rural and urban areas, consistent with Table 2. Second, we observe large geographic clusters. For instance, Oregon, Nevada, Utah, Wyoming, South Dakota, Iowa, Nebraska, and Kansas had a large share of Republicans in 2008 and have seen this share increase more than the median. Louisiana, South Oklahoma, Kentucky, West Virginia, and North Alaska have followed a different trend. In 2008, there were more Democrats relatively but between 2008 and 2018, they have experienced an increase in the fraction of Republicans above the median. They do not contribute to the overall increase in partisan segregation. Third, the map does feature a rural-urban divide but the distinction is not between counties contributing to the increase in partisan segregation versus counties which do not. The increase in partisan segregation has benefited the Republicans, in rural areas, and the Democrats, in urban centers. In counties becoming homogeneous in favor of Republicans, population average is equal to 61,955. In counties growing homogeneous in favor of Democrats, the number of inhabitants is larger - with an average equal to 730,715. In other words, geographic partisan segregation has been fueled by Democratic-leaning urban areas and by Republican-leaning rural areas, painting a picture of two divided Americas.

4.3 Change in partisan segregation across groups of citizens

The Catalist data indicate the age, gender, and race of each registered voter along with their partisan affiliation. Figures 4 and 5 plot the weighted kernel distributions of the ratio D/(D+R) at the county level, by age category and race, both in 2008 and 2018.[2]

[2] Appendix Figure 17 plots the weighted kernel distribution of the ratio D/(D+R) per gender group. Female voters are more likely to register as Democrats than their male counterparts. However, we do not find evidence that male or female voters differ in terms of change in partisan segregation.

Figure 3: Change in partisan homogeneity by U.S. county, using Catalist data

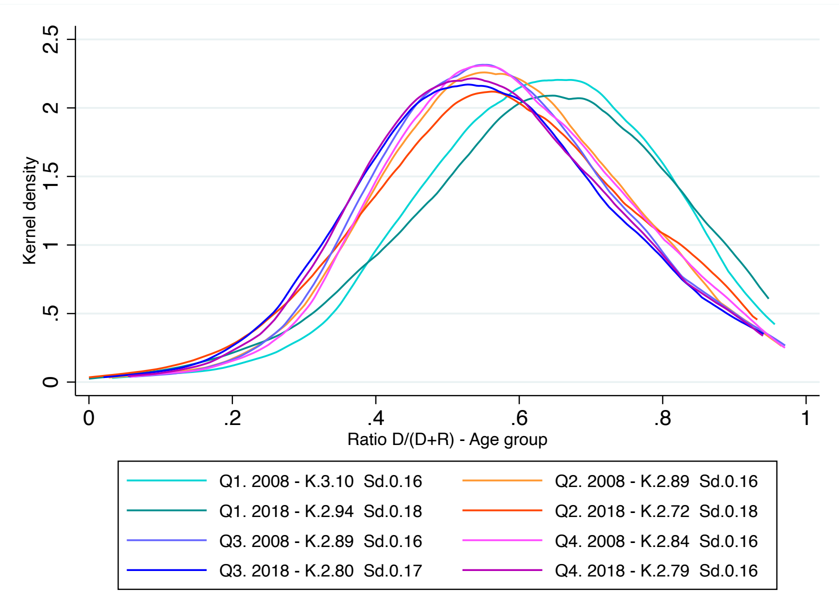


Note: Only thirty U.S. states (plus the District of Columbia) record partisan registration on their voter list. Countries which contribute to the rise in partisan segregation are counties experiencing an increase in partisan homogeneity (i.e., either featured in darker blue, when it is in favor of Democrats, or in darker red, when it is in favor of Republicans). Counties which alleviate the rise in partisan segregation are counties experiencing a decrease in partisan homogeneity (i.e., either featured in lighter blue, when it is in favor of Democrats, or in lighter red, when it is in favor of Republicans).

Age categories correspond to the quartiles of the overall age distribution of the registered population. The first quartile includes registered voters aged 17 to 27, the second one, voters aged 28 to 42, the third one, voters aged 43 to 57, and the fourth one, voters over 58. As shown in Figure 4, the younger voters are, the more they tend to register as Democrats. This is particularly striking for the youngest age category (17-27 years old). Second, the increase in partisan segregation has mainly been driven by voters who are among the two first quartiles of the age distribution and aged under 43. The kurtosis of the distribution of the ratio D/(D+R) has decreased by 0.16 and 0.17 points in the first and second quartiles between 2008 and 2018, as compared to decreases by 0.09 and 0.05 points in the third and fourth quartiles. The standard deviation has also increased more for the first and second quartiles. Even though population is slightly older in counties fueling the rise in partisan segregation, as shown in Table 2, this increase has mostly been driven by younger voters.

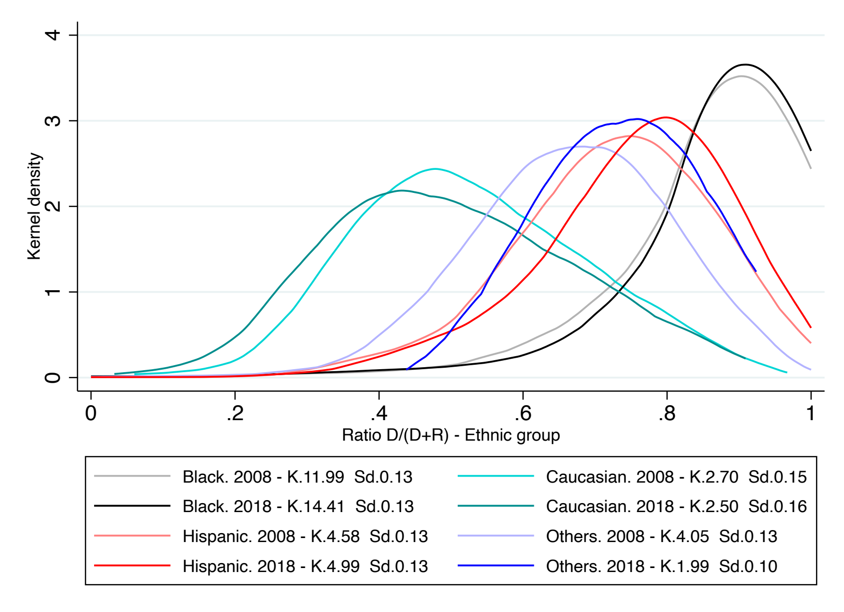
We distinguish four ethnic groups: Blacks, Whites, Hispanics, and others. The last group contains registered voters from other minority groups (such as Asian, Native Americans) as well as voters whose race is unknown. As is commonly known, Figure 5 shows that Black and Hispanic voters are much more likely to register as Democrats than White voters. Even compared to young voters, their weighted median ratio of D/(D+R) is particularly large: 0.732 for Hispanic voters and 0.90 for Black voters. We do not observe any increase in partisan segregation among Hispanic and Black voters. The standard deviation of their distribution remained constant and the kurtoses *increased* between 2008 and 2018. White voters, whose share was higher in counties fueling the rise in partisan segregation, are the only ethnic group for which partisan segregation has increased.

Figure 4: Weighted kernel distributions of the ratio D/(D+R) at the county level - By age group using Catalist data



Note: The first quartile includes registered voters aged 17 to 27, the second one, voters aged 28 to 42, the third one, voters aged 43 to 57, and the fourth one, voters over 58. Kernel distributions are weighted by the number of registered voters in 2008.

Figure 5: Weighted kernel distributions of the ratio D/(D+R) at the county level - By ethnic group using Catalist data



Note: Kernel distributions are weighted by the number of registered voters in 2008.

5 Drivers of the increase in partisan segregation

This last section conducts an accounting exercise to identify which factors have contributed the most to the rise in partisan segregation. Unlike the previous analyses, which could have been conducted using repeated cross-sections of individual-level data, this exercise requires to identify voters registering for the first time, voters who change their party affiliation, and those who move in and out of an area and it is thus only possible because our datasets are in panel format and because they track movers who cross state and county borders.

5.1 Explaining factors

Changes in the ratio D/(D+R) in a particular area can be driven by changes in the composition of the electorate present in that area as well as changes in their partisanship.

Changes in the composition of the electorate can be caused by U.S. internal migration, generational change, and adult "entries" in the dataset. U.S. internal migration simply refers to registered voters moving across areas between 2008 and 2018. Generational change results from young adults registering for the first time between 2008 and 2018 while other voters died in that period. We also observe entries of adult voters in the dataset. Appendix Figure 18 shows the age distribution of individuals entering in the dataset. The median age of new entrants is 24 years old. While most new entrants are relatively young, 30% of entrants are aged over 34. We define adult entries as new entrants aged 25 and over. These represent 1% to 2% of the number of registered voters per electoral year (Appendix Table 6).[3]

Along with composition effects, changes in partisanship of people who were present in the area both in 2008 and in 2018 also contribute to changes in partisan segregation. We distinguish two types of changes in partisanship: change in registration status and change in partisan affiliation of registered voters. Change in registration status relates to voters who were registered and affiliated with a party in 2008 but not in 2018, or vice versa. Change in partisan affiliation refers to voters who were registered both in 2008 and 2018 but switched partisan affiliation in between. We consider switches between Democrats and Republicans, switches between Independents and Democrats, and switches between Independents and Republicans. Independents include all registered voters who are affiliated neither with the Republican party nor with the Democratic party.

5.2 Decomposition of the change in D/(D+R) into explaining factors

The change in D/(D+R) between 2008 and 2018 in a particular area can be written as follows, after using partial derivatives:

$$\begin{aligned}
\Delta\frac{D}{(D+R)} &\approx \frac{R}{(D+R)^2}\Delta D - \frac{D}{(D+R)^2}\Delta R \\
&\approx \sum_f \left(\frac{R_{08}}{(D_{08}+R_{08})^2}\Delta D_f - \frac{D_{08}}{(D_{08}+R_{08})^2}\Delta R_f\right) \\
&\approx \sum_f \Delta_f, \qquad (3)
\end{aligned}$$

where Δ's indicate changes between 2008 and 2018, R_{08} and D_{08} are the numbers of Republicans and Democrats in the area in 2008, and explaining factors are indexed by f. ΔD_f and ΔR_f designate the net changes in the number of Democrats and Republicans

[3] Adult entries include migrants who have acquired the U.S. citizenship between 2008 and 2018: Appendix Figure 19 shows that the share of adult entries is strongly correlated with the share of foreign-born population. Other adult entries may also result from the imperfect tracking of individuals over time and across space.

due to factor f, and

$$\Delta_f = \frac{R_{08}}{(D_{08}+R_{08})^2}\Delta D_f - \frac{D_{08}}{(D_{08}+R_{08})^2}\Delta R_f \quad (4)$$

is the contribution of factor f to the change in D/(D+R).

For all factors except voters switching between the Democrats and Republicans, ΔD_f and ΔR_f can be written as:

$$\Delta D_f = N_{I,f} \times s^D_{I,f} - N_{O,f} \times s^D_{O,f}$$

$$\Delta R_f = N_{I,f} \times s^R_{I,f} - N_{O,f} \times s^R_{O,f},$$

where I and O respectively refer to inflows and outflows, $N_{I,f}$ is the number of voters who were registered Democrats or Republicans in the area in 2018 but not in 2008 due to factor f, $N_{O,f}$ is the number of voters who were registered Democrats or Republicans in the area in 2008 but not in 2018 due to factor f, $s^D_{I,f}$ (resp. $s^R_{I,f}$) is the share of voters who were registered as Democrats (resp. Republicans) in the area in 2018 due to factor f and $s^D_{O,f}$ (resp. $s^R_{O,f}$) is the share of voters who were not registered Democrats (resp. registered Republicans) in the area anymore in 2018 due to factor f. For instance, when we consider the contribution of U.S. internal migration to changes in D/(D+R), $N_{I,f}$ is the number of voters registered as Democrats or Republicans in the area in 2018 who used to live in another area before, and $s^D_{I,f}$ is the share of those voters registered as Democrats (instead of Republicans) in 2018.

Replacing ΔD_f and ΔR_f in Equation (4), we obtain the following equation:[4]

$$\begin{aligned}\Delta_f = {} & N_{I,f} \times \left(\frac{R_{08}}{(D_{08}+R_{08})^2}s^D_{I,f} - \frac{D_{08}}{(D_{08}+R_{08})^2}s^R_{I,f}\right) \\ & - N_{O,f} \times \left(\frac{R_{08}}{(D_{08}+R_{08})^2}s^D_{O,f} - \frac{D_{08}}{(D_{08}+R_{08})^2}s^R_{O,f}\right)\end{aligned} \quad (5)$$

A factor f may contribute to the change in D/(D+R) for two reasons: i) if the number of Democrats and Republicans concerned by factor f (i.e., large values for $N_{I,f}$ and $N_{O,f}$) is large, and ii) due to behavioral differences between Democrats and Republicans, reflected in differences between $s^D_{I,f}$ and $s^R_{I,f}$ or between $s^D_{O,f}$ and $s^R_{O,f}$.

For each explaining factor f, we disentangle reason i) from reason ii) by checking the values of $N_{I,f}$ and $N_{O,f}$ and by measuring the strength and the sign of the correla-

[4]Note that for "entries" in the dataset, $N_{O,f} = 0$ by definition.

tion between $\Delta_{\frac{D}{(D+R)}}$ on one hand and $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ or $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ on the other. This correlation is informative because affiliated voters appearing in (resp. disappearing from) the area between 2008 and 2018 due to factor f generate a positive Δ_f and contribute to increasing D/(D+R) if and only if $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ is positive (resp. $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ is negative). Intuitively, D/(D+R) increases if there are relatively more Democrats appearing in the area and relatively fewer Democrats disappearing from the area than at baseline.

For switches between Democrats and Republicans, ΔD_f and ΔR_f are defined as follows:

$$\Delta D_f = -\Delta R_f = \beta R_{08} - \alpha D_{08},$$

with β the share of Republicans who become Democrats, using the initial number of Republicans as denominator, and α the share of Democrats who become Republicans, using the initial number of Democrats as denominator. Replacing ΔD_f and ΔR_f by their respective definitions in Equation (4), we obtain that:

$$\Delta_f = \frac{\beta R_{08} - \alpha D_{08}}{R_{08} + D_{08}}. \tag{6}$$

Δ_f is positive if and only if $\frac{\beta}{\alpha+\beta} - \frac{D_{08}}{D_{08}+R_{08}}$ is positive. Therefore, for this factor, we disentangle reason i) from reason ii) by checking the number of switches between Democrats and Republicans and by measuring the strength and the sign of the correlation between $\Delta_{\frac{D}{(D+R)}}$ and $\frac{\beta}{\alpha+\beta} - \frac{D_{08}}{D_{08}+R_{08}}$.

5.3 Results of the decomposition

Similarly as in Section 4, we group counties into four categories: 1. Places becoming more homogeneous in favor of Republicans, 2. Places becoming more homogeneous in favor of Democrats, 3. Places becoming more heterogeneous in favor of Republicans, and 4. Places becoming more heterogeneous in favor of Democrats. Figure 6 displays the percentage of the total change of D/(D+R) explained by the different factors in these four categories. We notice important differences between Democratic-leaning areas and Republican-leaning areas. In the first set of areas, changes in the composition of the electorate and, in particular, generational change are the main drivers of the increase in the fraction of Democrats. In Republican-leaning areas, changes in partisanship are instead the main drivers. In particular, switches between Democrats and Republicans explain a large share of the change of D/(D+R) in these areas. Appendix Figure 20 shows consistent patterns at the pseudo-CD level. We also find qualitatively similar patterns when restricting the sample to counties in which the change in D/(D+R) was in the top or bottom deciles (Appendix Figures 21 and 22).

As underlined in Section 5.2, a factor may account for a large share of the change of D/(D+R) due to two reasons: 1) if a large number of voters accounted for by this factor, and ii) if changes were tilted towards the Republicans or the Democrats, as expressed by the correlation between $\Delta \frac{D}{(D+R)}$ on the one hand, and $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ or $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{08}}{D_{08}+R_{08}}$ on the other hand. Focusing on counties contributing to the rise in partisan segregation, Tables 3 and 4 provide numbers about the size of each factor and compute the correlations with the change in D/(D+R) to disentangle these two reasons. Appendix Tables 7 and 8 provide the corresponding results for counties which alleviate the overall increase in partisan segregation, because their initial ratio D/(D+R) was above the median and its change below the median change, or the reverse. Again, our results are robust to the type of geographical unit we are studying: for results at the pseudo-CD level, see Appendix Tables 9 and 10.

We first note that the correlation coefficients are generally positive for inflows and negative for outflows, as expected. The more D/(D+R) increases, the larger the fraction of new Democrats appearing as a result of any of the factors compared to the baseline. U.S. internal migration is an important exception as correlation coefficients with outflows tend to be positive: overall, there are relatively more Democrats among voters leaving an area when D/(D+R) is rising. The other factors show sufficiently strong deviations from the baseline to compensate for this factor.

Second, correlation coefficients are stronger for affiliated voters appearing in an area than for those disappearing, indicating that the former contribute more to changes in D/(D+R) than the latter.[5]

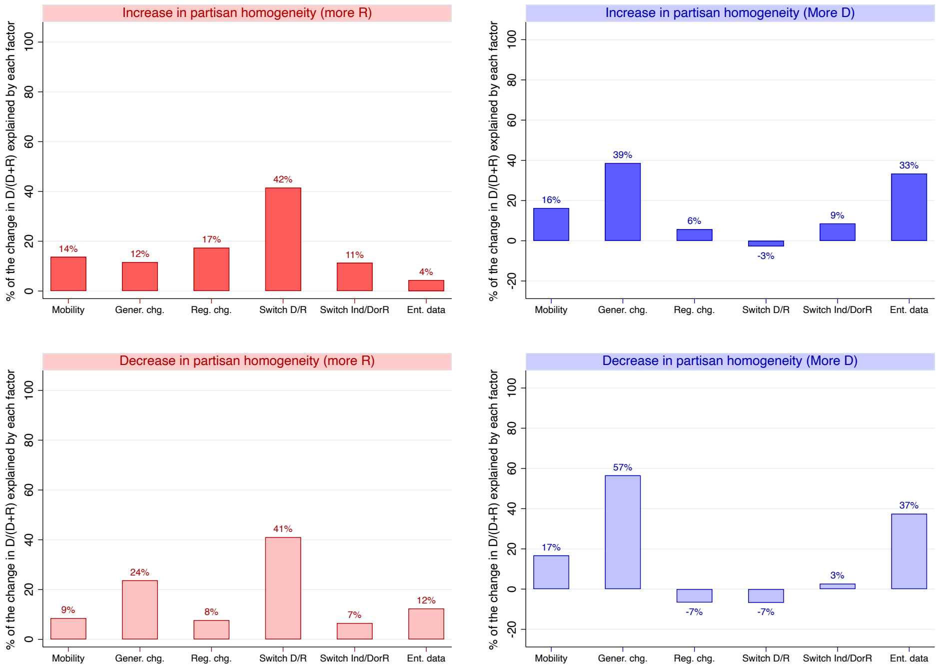
Third, we pay special attention to the factors contributing the most to the change of D/(D+R) in Figure 6. Remember that generational change is one of the main factors in Democratic-leaning counties. The correlation coefficients with the change in D/(D+R) are not larger in places growing more Democratic than in others, but they are larger than correlation coefficients for other factors, both for affiliated voters appearing and disappearing from the data. Turning to $N_{I,f}$ and $N_{O,f}$, we observe that the number of young voters newly registered as Democrats or Republicans in 2018 is on average larger than the number of voters concerned by the other explaining factors in Democratic-leaning counties, and particularly so in counties in which the baseline

[5] Appendix Figures 23 and 24 display correlation coefficients between the change of D/(D+R) and the deviation from equilibrium for the entire set of counties. Correlations appear particularly strong, with dots well-fitted by a linear line.

ratio was already above the median. In sum, the fact that generational change is the main driver of the rise in partisan segregation in Democratic counties has to do both with the large number of young voters coming of age in these counties and the large share of Democrats among them.[6]

We finally look at switches between Democrats and Republicans, the main factor responsible for the change in D/(D+R) in Republican-leaning areas. Interestingly, the number of voters switching between the Republican and Democratic parties is not particularly large in these counties. However, switches disproportionately take place towards the Republican party, as indicated by very strong correlation coefficients. By contrast, the corresponding correlation coefficients are much lower in areas in which the fraction of Democrats increases.

Figure 6: % of Δ D/(D+R) explained by each factor at the county level - Using Catalist data



Note: The figure features the % of Δ D/(D+R) explained by each factor per change in partisan homogeneity. Δ D/(D+R) is computed grouping all counties experiencing the same trend in partisan homogeneity. Explaining factors are mobility, generational change, change in registration status, switches between Democrats and Republicans, switches between Independents and Republicans, and adult entries in the dataset.

[6]Correlation coefficients due to voters disappearing from the data as a result of generational change are lower than for voters appearing in the data: Republicans and Democrats do not die at large differential rates.

Table 3: Correlation between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$ - At the county level

	All counties		**↑ in Homog.**		**↑ in Homog. (R)**		**↑ in Homog. (D)**	
	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.
Generational change	.932***	-.693***	.904***	-.759***	.879***	-.564***	.829***	-.367***
U.S. Internal migration	.881***	.474***	.868***	.176***	.759***	.311***	.705***	-.105***
Change in partisan affil. btw. Ind & D/R	.905***	-.350***	.893***	-.668***	.838***	-.385***	.706***	.082***
Change in partisan reg. status	.902***	-.067***	.881***	-.511***	.789***	.084***	.778***	-.083***
Voters "entering" the dataset as reg.	.925***	-	.901***	-	.883***	-	.814***	-
Change in partisan affil. btw. D & R	.907***		.887***		.793***		.492***	
	N = 1,375		**N = 843**		**N = 769**		**N = 74**	

Note: The table features the correlation between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$. Counties are classified according to their trend in partisan homogeneity.

Table 4: Number of voters registered as Democrats or Republicans per factor - At the county level

	All counties		**↑ in Homog.**		**↑ in Homog. (R)**		**↑ in Homog. (D)**	
	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.
Generational change	6913.852	5495.164	6353.331	5022.841	3101.09	2891.367	40150.27	27172.892
	(21780.415)	(13707.715)	(23308.341)	(13851.941)	(6708.205)	(5250.178)	(67257.599)	(37120.769)
U.S. Internal migration	6265.049	6437.052	6179.066	6297.694	4054.832	3472.925	28253.878	35652.392
	(14031.951)	(15780.258)	(13849.056)	(16748.832)	(8959.067)	(7062.842)	(28745.238)	(41871.982)
Change in partisan affil. btw. Ind & D/R	2317.258	2053.103	2077.028	1793.488	1117.74	881.113	12045.851	11274.784
	(6863.225)	(7545.515)	(6595.273)	(7814.226)	(2748.072)	(1848.421)	(17658.695)	(23842.507)
Change in partisan reg. status	1678.284	9365.578	1557.046	8698.976	831.45	4855.226	9097.365	48642.811
	(5353.06)	(29084.272)	(5712.64)	(28653.125)	(1712.274)	(10320.549)	(16804.317)	(81092.838)
Voters "entering" the dataset as reg.	6825.012	-	6697.114	-	3211.65	-	42917.676	-
	(23786.616)	-	(25442.388)	-	(7131.47)	-	(73982.187)	-
Change in partisan affil. btw. D & R	4025.551		3567.377		2148.982		18307.189	
	(10752.88)		(10444.618)		(4457.792)		(28421.409)	
	N = 1375		**N = 843**		**N = 769**		**N = 74**	

Note: The table features the number of voters registered as Democrats or Republicans per factor. Counties are classified according to their trend in partisan homogeneity.

6 Conclusion

Using individual-level panel data, this study provides new evidence showing that geographic partisan segregation has increased in the U.S. since 2008. Exploring changes in the ratio of Democrats to Democrats and Republicans, we observe that counties, congressional districts, census tracts, block groups, and blocks all tend to display more extreme (either very high or very low) fractions of Democrats over time. The increase in partisan segregation *across* geographical units goes hand in hand with an increase in partisan segregation *within* counties and congressional districts. These results indicate that places are growing more homogeneous in terms of partisanship, on average, and even conditional on regional patterns, neighborhoods are growing more distinct along partisan lines. The rise in partisan segregation takes place in both rural and urban areas – with places growing more Republican located in rural parts of the U.S. and places with an increasing fraction of Democrats in densely urbanized areas. The increase in partisan segregation is most prominent among White voters and among younger generations. This last result suggests that the effects of the increase in partisan segregation on attitudes may be long-lasting.

To the best of our knowledge, this paper is also the first study to decompose the causes of partisan segregation, adjudicating between competing explanations, and showing important regional variation in these causes. In particular, we find that the increase in the fraction of Democrats, in Democratic-leaning places, is primarily driven by the entry of young voters. In Republican-leaning places, the increase in geographic segregation is instead mostly driven by Democrats changing their party affiliation to register as Republicans. In the next iteration of the paper, we will investigate whether the increase in partisan segregation correlates with political polarization and other attitudes.

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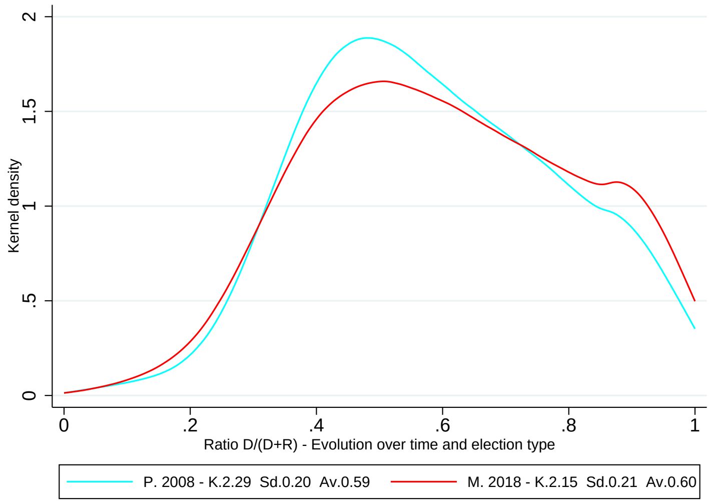
A Appendix - The Rise in Partisan Segregation

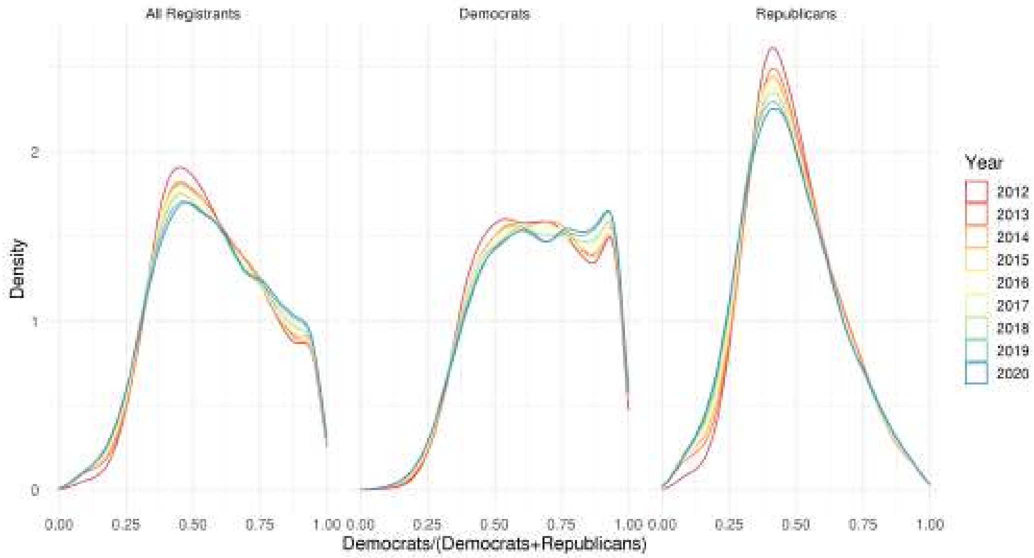
Figure 7: Weighted kernel distributions of the ratio D/(D+R) in 2008 and in 2018 - At the census tract level using Catalist data



Note: The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distribution of the ratio D/(D+R) is featured in blue in 2008 (at Presidential election) and in red in 2018 (at Midterm election)

Figure 8: Weighted kernel distributions of the ratio D/(D+R) between 2012 and 2020 - At the census tract level using TargetSmart data

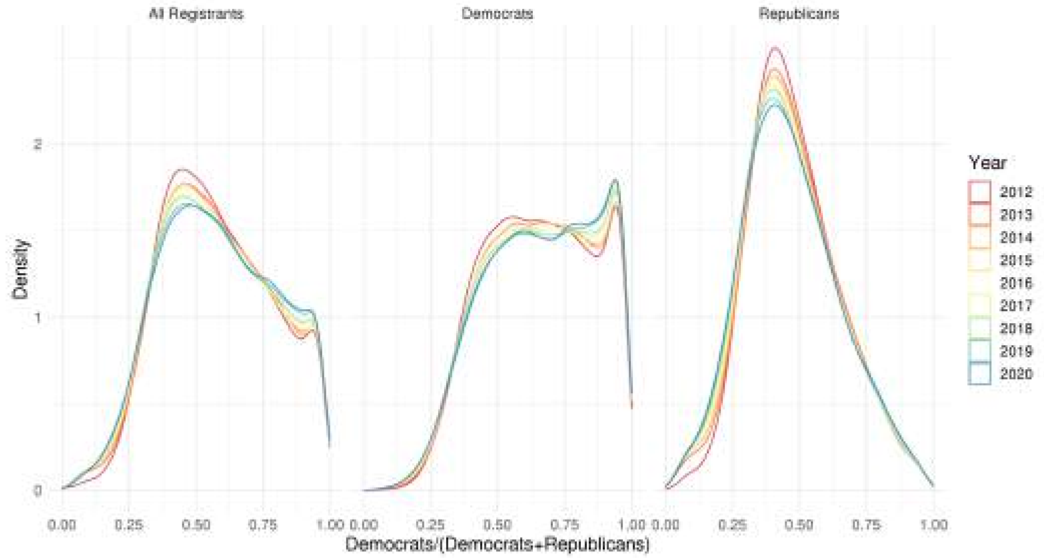
Year	Mean	Kurtosis	Dem. Mean	Rep. Mean	Dem. Skew	Rep. Skew
2012	0.579	-0.775	0.650	0.487	-0.074	0.439
2013	0.582	-0.730	0.657	0.484	-0.137	0.301
2014	0.578	-0.718	0.653	0.479	-0.137	0.285
2015	0.577	-0.738	0.655	0.476	-0.142	0.302
2016	0.578	-0.755	0.654	0.475	-0.156	0.300
2017	0.578	-0.786	0.657	0.473	-0.175	0.318
2018	0.578	-0.786	0.656	0.472	-0.181	0.307
2019	0.582	-0.821	0.660	0.473	-0.211	0.320
2020	0.584	-0.824	0.661	0.474	-0.225	0.304



Note: The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2012 in geographic unit i. Dem. Mean (resp. Rep. Mean) displays the average of the fraction of Democrats (resp. Republicans) among the registered population. Dem. Skew (resp. Rep. Skew) indicates the skewness of the kernel distribution of the fraction of Democrats (resp. Republicans) among the registered population.

Figure 9: Weighted kernel distributions of the ratio D/(D+R) between 2012 and 2020 - At the census block group level using TargetSmart data

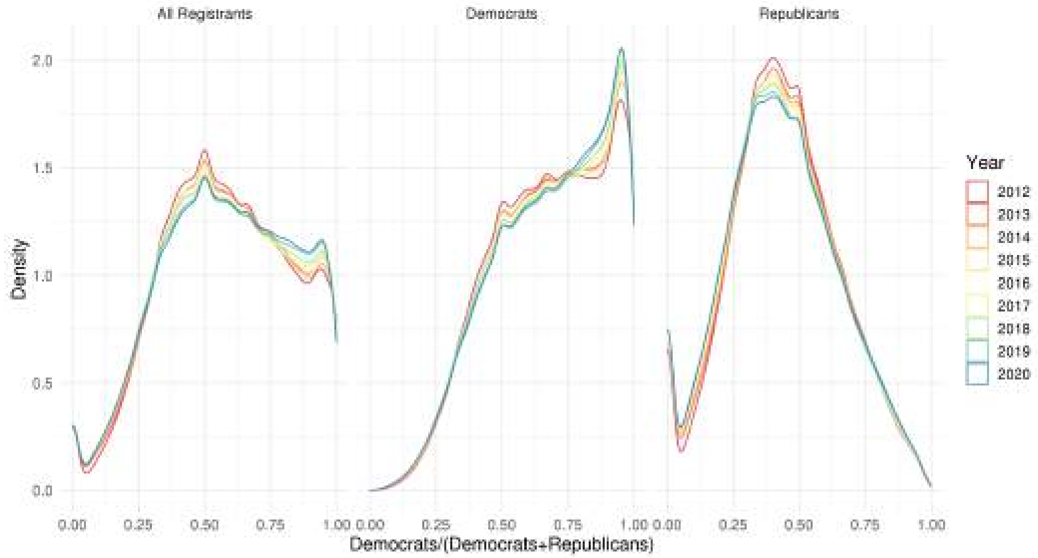
Year	Mean	Kurtosis	Dem. Mean	Rep. Mean	Dem. Skew	Rep. Skew
2012	0.579	-0.771	0.653	0.483	-0.103	0.423
2013	0.582	-0.760	0.660	0.479	-0.166	0.304
2014	0.578	-0.749	0.657	0.474	-0.165	0.291
2015	0.578	-0.770	0.658	0.472	-0.170	0.308
2016	0.578	-0.787	0.657	0.470	-0.184	0.308
2017	0.578	-0.817	0.660	0.468	-0.204	0.326
2018	0.579	-0.817	0.659	0.467	-0.210	0.315
2019	0.582	-0.849	0.664	0.468	-0.240	0.327
2020	0.584	-0.851	0.665	0.469	-0.254	0.312



Note: The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2012 in geographic unit i. Dem. Mean (resp. Rep. Mean) displays the average of the fraction of Democrats (resp. Republicans) among the registered population. Dem. Skew (resp. Rep. Skew) indicates the skewness of the kernel distribution of the fraction of Democrats (resp. Republicans) among the registered population.

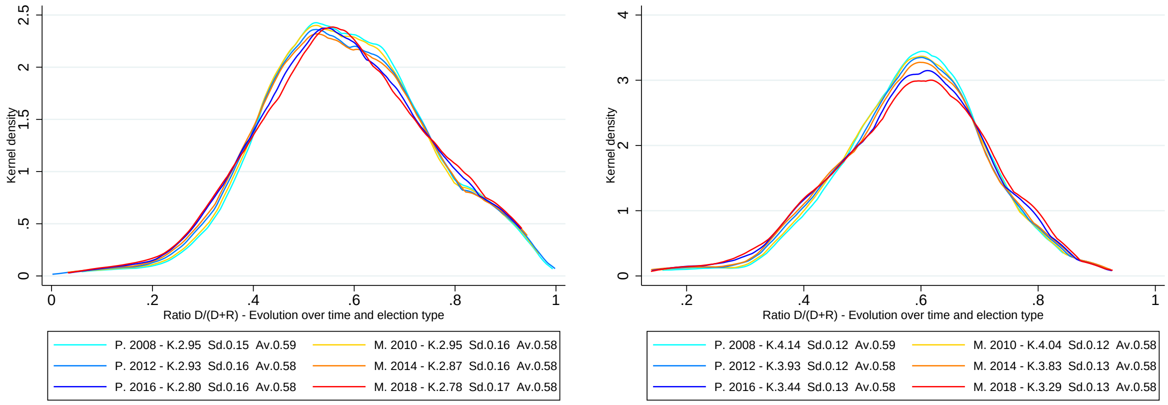
Figure 10: Weighted kernel distributions of the ratio D/(D+R) between 2012 and 2020 - At the census block level using TargetSmart data

Year	Mean	Kurtosis	Dem. Mean	Rep. Mean	Dem. Skew	Rep. Skew
2012	0.581	-0.674	0.681	0.444	-0.293	0.065
2013	0.583	-0.700	0.686	0.443	-0.341	0.066
2014	0.579	-0.706	0.683	0.438	-0.334	0.076
2015	0.578	-0.726	0.684	0.436	-0.342	0.091
2016	0.579	-0.732	0.683	0.435	-0.352	0.096
2017	0.579	-0.754	0.686	0.433	-0.371	0.111
2018	0.580	-0.746	0.685	0.432	-0.374	0.106
2019	0.583	-0.756	0.689	0.433	-0.402	0.109
2020	0.585	-0.745	0.689	0.435	-0.411	0.097



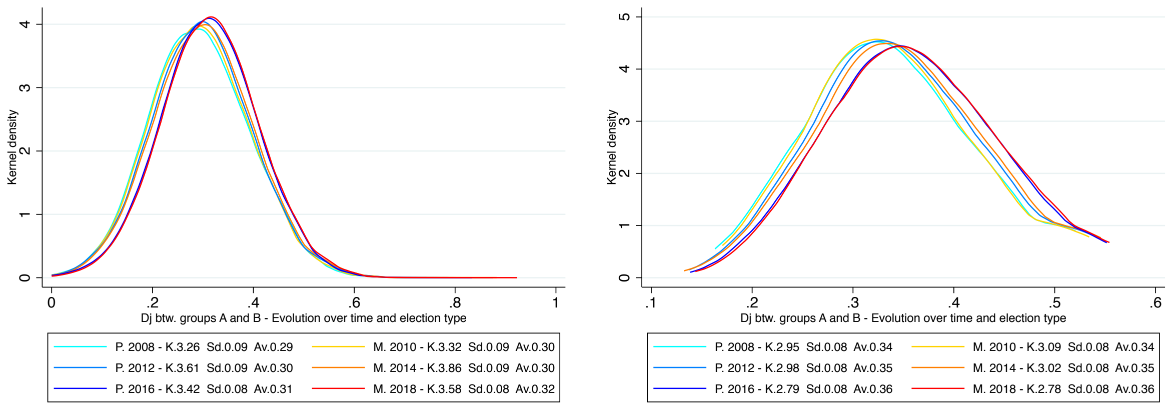
Note: The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2012 in geographic unit i. Dem. Mean (resp. Rep. Mean) displays the average of the fraction of Democrats (resp. Republicans) among the registered population. Dem. Skew (resp. Rep. Skew) indicates the skewness of the kernel distribution of the fraction of Democrats (resp. Republicans) among the registered population.

Figure 11: Weighted kernel distributions of the ratio D/(D+R) between 2008 and 2018 - At the county and pseudo-CD levels (resp. left and right) using Catalist data



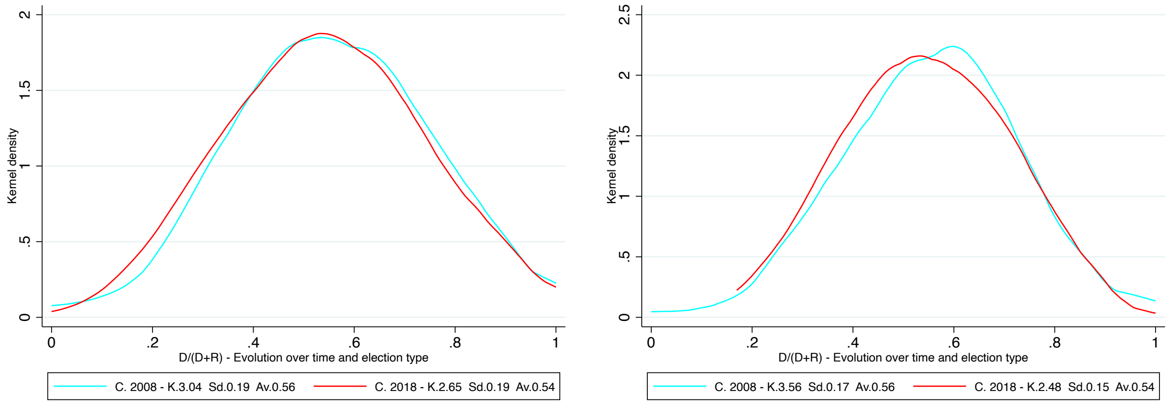
<u>Note:</u> The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distributions of the ratio D/(D+R) are featured in blue at Presidential elections and in orange/red at Midterm elections

Figure 12: Weighted kernel distributions of the dissimilarity index between 2008 and 2018 - At the county and pseudo-CD levels (resp. left and right) using Catalist data



<u>Note:</u> The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distributions of the ratio D/(D+R) are featured in blue at Presidential elections and in orange/red at Midterm elections

Figure 13: Weighted kernel distributions of the ratio D/(D+R) in 2008 and in 2018 - At the county and pseudo-CD levels (resp. left and right) using *Congressional elections results*



Note: The kernel distributions of the ratio D/(D+R) are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution. The kernel distribution of the ratio D/(D+R) is featured in blue in 2008 (at Presidential election) and in red in 2018 (at Midterm election)

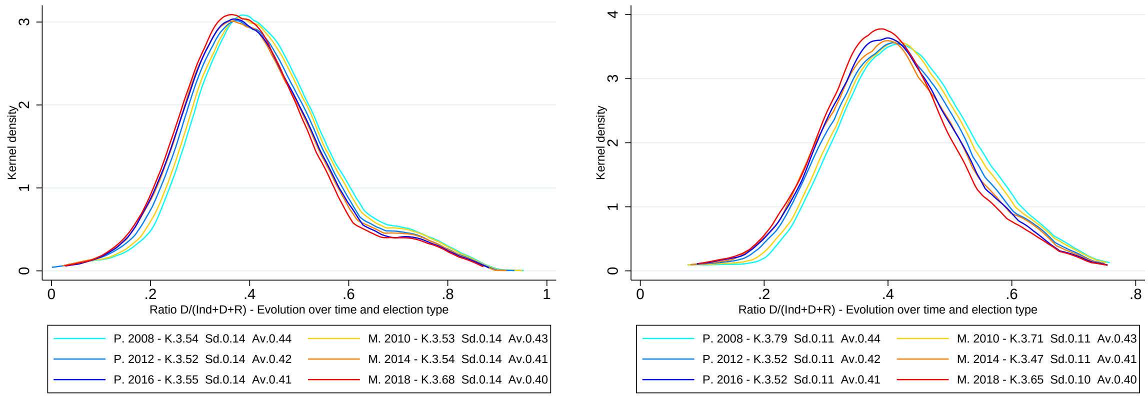
B Appendix - Where has partisan segregation risen the most over the last decade?

Table 5: Share of pseudo-CDs experiencing an increase vs. decrease in partisan homogeneity between 2008 and 2018 - Using Catalist data

Variable	Obs	Mean (%)
Increase in partisan homogeneity	***135***	***54***
In favor of Republicans	135	41
In favor of Democrats	135	13
Decrease in partisan homogeneity	***135***	***46***
In favor of Republicans	135	26
In favor of Democrats	135	2

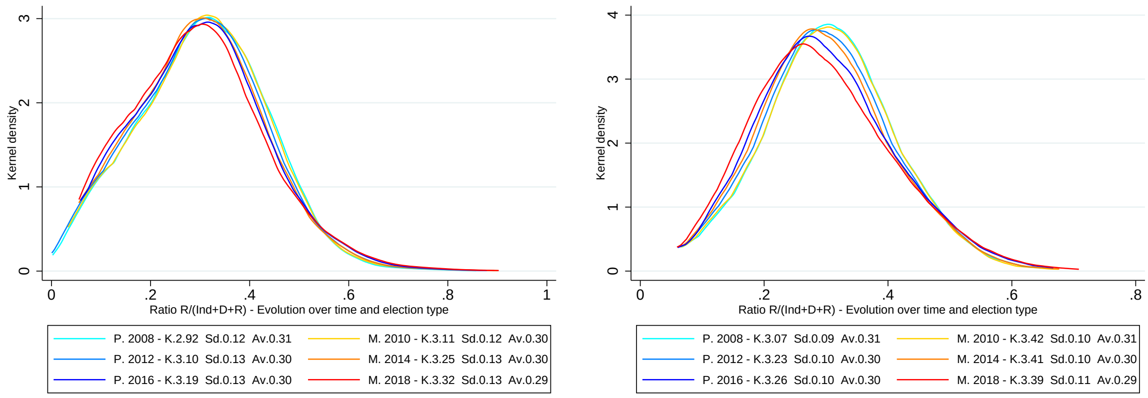
Note: Pseudo-CDs experiencing an increase (resp. a decrease) in partisan homogeneity contribute to (resp. alleviate) the rising trend in partisan segregation. Pseudo-CDs becoming more homogeneous in favor of Republicans are "Republican" Pseudo-CDs with an initial ratio of D/(D+R) below the median and where the change in D/(D+R) is below the median change over time. Pseudo-CDs becoming more heterogeneous in favor of Republicans are "Democratic" Pseudo-CDs with an initial ratio of D/(D+R) above the median and where the change in D/(D+R) is below the median change over time.

Figure 14: Change over time in the share of Democrats among registered voters - At the county (on the left) and pseudo-CD (on the right) level using Catalist data



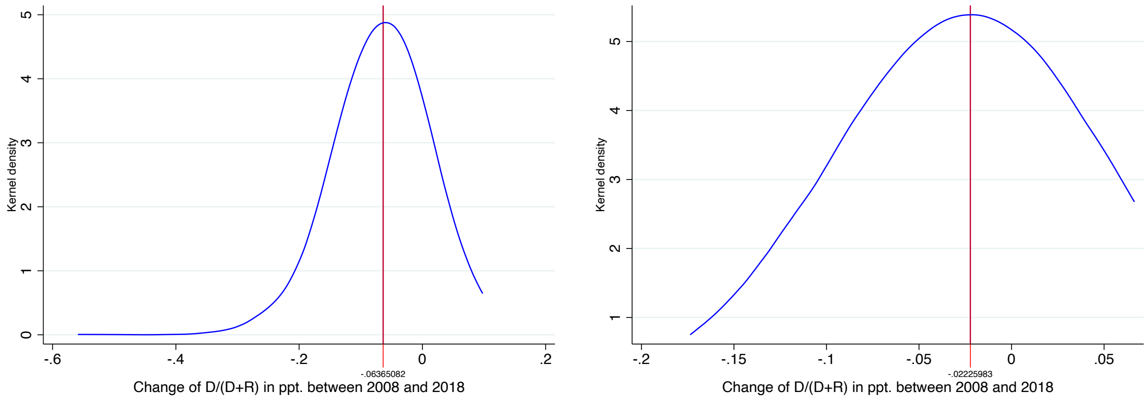
Note: The kernel distributions of the share of Democrats among registered voters are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution.

Figure 15: Change over time in the share of Republicans among registered voters - At the county (on the left) and pseudo-CD (on the right) level using Catalist data



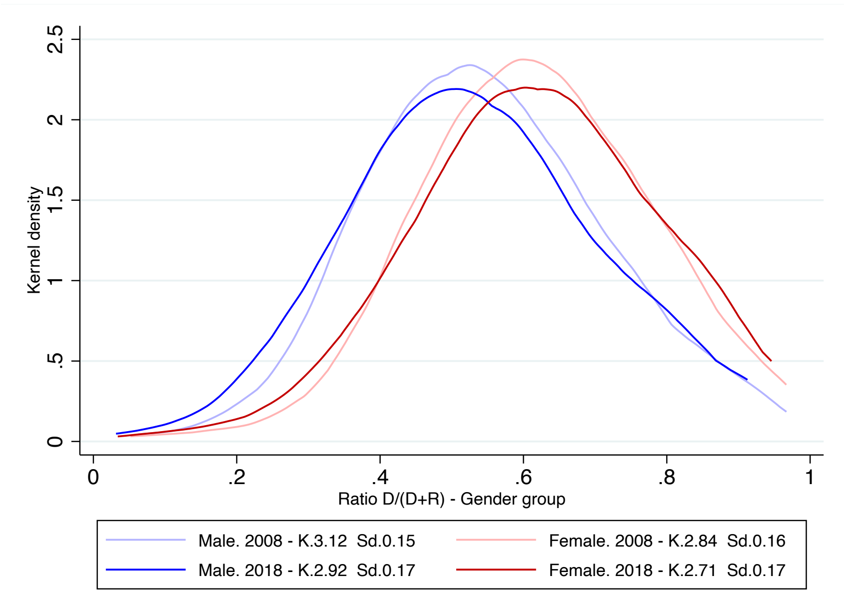
Note: The kernel distributions of the share of Republicans among registered voters are weighted by the number of registered voters in 2008 in geographic unit i. K. refers to the kurtosis, Sd. to the standard deviation and Av. to the average of the kernel distribution.

Figure 16: Change of the ratio D/(D+R) between 2008 and 2018 - At the county (on the left) and pseudo-CD (on the right) level using Catalist data



Note: The kernel distributions are weighted by the number of registered voters in 2008 in geographic unit i.

Figure 17: Weighted kernel distributions of the ratio D/(D+R) - Per Gender - At the county level using Catalist data



Note: Kernel distributions are weighted by the number of registered voters in 2008.

C Appendix - The Drivers of the Increase in Partisan Segregation

Table 6: Frequency per year - Entry of registered voters

	Nb of young entrants	Prct	Nb of adult entrants	Prct
2010	3,372,255	1.4	3,000,400	1.2
2012	6,565,797	2.5	5,278,785	2.0
2014	4,285,358	1.6	4,114,352	1.5
2016	8,668,469	3.0	8,299,274	2.9
2018	5,927,825	2.0	6,594,512	2.2

Note: Young entrants are defined as voters aged under 25 at their entry in the dataset. Adult entrants are aged over 25.

Table 7: Correlation coefficient between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$ - At the county level

	↓ in Homog.		**↓ in Homog. (R)**		**↓ in Homog. (D)**	
	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.
Generational change	.960***	-.631***	.935***	-.572***	.792***	-.194***
U.S. Internal migration	.907***	.692***	.856***	.544***	.638***	.045***
Change in partisan affil. btw. Ind & D/R	.924***	.160***	.892***	-.119***	.479***	-.126***
Change in partisan reg. status	.921***	.375***	.857***	.249***	.768***	-.254***
Voters "entering" the dataset as reg.	.957***	-	.937***	-	.691***	-
Change in partisan affil. btw. D & R	.932***		.874***		.752***	
	N = 532		**N = 426**		**N = 106**	

Note: The table features the correlation between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$. Counties are classified according to their trend in partisan homogeneity.

Table 8: Number of voters registered as Democrats or Republicans per factor - At the county level

	↓ in Homog. Infl.	↓ in Homog. Outfl.	↓ in Homog. (R). Infl.	↓ in Homog. (R). Outfl.	↓ in Homog. (D) Infl.	↓ in Homog. (D) Outfl.
Generational change	7802.047	6243.602	4847.467	4513.739	19676.113	13195.689
	(19098.407)	(13455.002)	(11018.706)	(10168.279)	(34284.197)	(20882.977)
U.S. Internal migration	6401.295	6657.878	3685.423	3937.291	17316.028	17591.557
	(14329.063)	(14122.529)	(8670.837)	(8635.894)	(24162.735)	(23580.646)
Change in partisan affil. btw. Ind & D/R	2697.923	2464.487	1504.284	1375.514	7495	6840.925
	(7257.693)	(7086.662)	(4199.587)	(3777.7)	(12883.435)	(13117.285)
Change in partisan reg. status	1870.397	10421.867	1187.427	6245.556	4615.16	27205.906
	(4726.462)	(29751.262)	(2976.198)	(13605.447)	(8223.322)	(58067.806)
Voters "entering" the dataset as reg.	7027.677	-	4239.493	-	18233.019	-
	(20917.67)	-	(11908.38)	-	(38476.759)	-
Change in partisan affil. btw. D & R	4751.566		2966.932		11923.774	
	(11195.638)		(6555.467)		(19876.59)	
	N = 532		**N = 426**		**N = 106**	

Note: The table features the number of voters registered as Democrats or Republicans per factor. Counties are classified according to their trend in partisan homogeneity.

Table 9: Correlation between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$ - At the pseudo-CD level

	All pseudo-CDs Infl.	All pseudo-CDs Outfl.	↑ in Homog. Infl.	↑ in Homog. Outfl.	↑ in Homog. (R) Infl.	↑ in Homog. (R) Outfl.	↑ in Homog. (D) Infl.	↑ in Homog. (D) Outfl.
Generational change	.940***	-.750***	.900***	-.779***	.906***	-.722***	.846***	-.380***
U.S. Internal migration	.887***	.503***	.816***	.123***	.673***	.306***	.509***	-.346***
Change in partisan affil. btw. Ind & D/R	.916***	-.287***	.903***	-.551***	.885***	-.153***	.784***	.441***
Change in partisan reg. status	.904***	-.130***	.863***	-.451***	.726***	-.013***	.794***	-.486***
Voters "entering" the dataset as reg.	.936***	-	.915***	-	.868***	-	.723***	-
Change in partisan affil. btw. D & R	.936***		.915***		.868***		.723***	
	N = 135		**N = 73**		**N = 55**		**N = 18**	

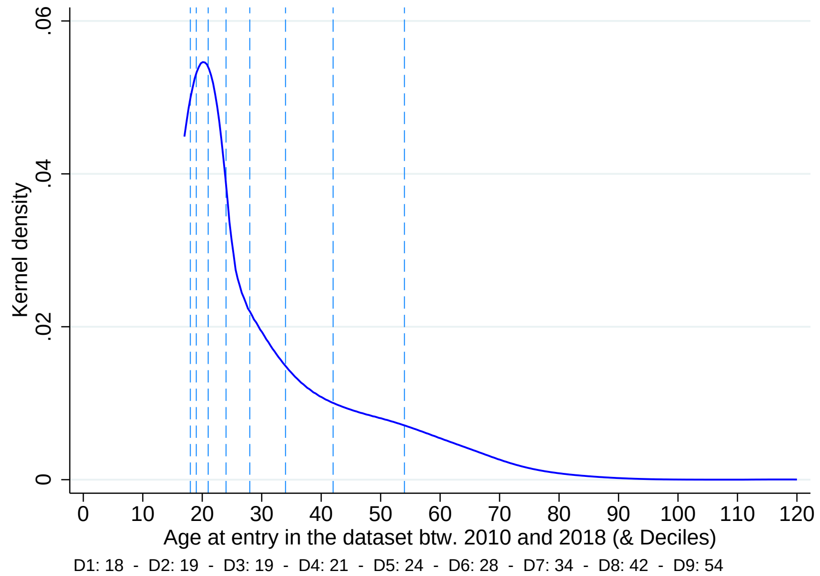
Note: The table features the correlation between the change in D/(D+R) and $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$. Pseudo-CDs are classified according to their trend in partisan homogeneity.

Table 10: Number of voters registered as Democrats or Republicans per factor - At the pseudo-CD level

	All pseudo-CDs		**↑ in Homog.**		**↑ in Homog. (R)**		**↑ in Homog. (D)**	
	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.	Infl.	Outfl.
Generational change	70353.015	55890.252	73441.589	57411.342	47407.782	40220.218	152989.333	109939.778
	(92440.858)	(61773.835)	(100938.542)	(69984.037)	(43531.627)	(25797.868)	(168045.923)	(121456.8)
U.S. Internal migration	48291.667	49858.837	54480.507	53839.438	45017.073	37119.836	83396.556	104927.111
	(47496.874)	(56714.837)	(50348.549)	(58038.581)	(43888.744)	(28394.462)	(58674.692)	(89652.597)
Change in partisan affil. btw. Ind & D/R	25813.615	23326.519	24143.849	21816.219	17064.364	14870.582	45775.611	43039
	(33994.282)	(35179.318)	(30936.947)	(33070.359)	(17239.432)	(14468.253)	(49516.946)	(57740.925)
Change in partisan reg. status	17026.719	95104.178	17931.932	100859.274	12141.491	74509.8	35624.944	181371.556
	(22422.029)	(136203.13)	(24640.69)	(127938.304)	(11612.331)	(66751.504)	(41270.42)	(214617.795)
Voters "entering" the dataset as reg.	69229.911	-	77865.233	-	50446.4	-	161645	-
	(100930.355)	-	(112620.238)	-	(59426.896)	-	(180652.966)	-
Change in partisan affil. btw. D & R	44726.044		44614.534		33312.945		79147.167	
	(49748.737)		(49638.806)		(25517.948)		(81801.724)	
	N = 135		**N = 73**		**N = 55**		**N = 18**	

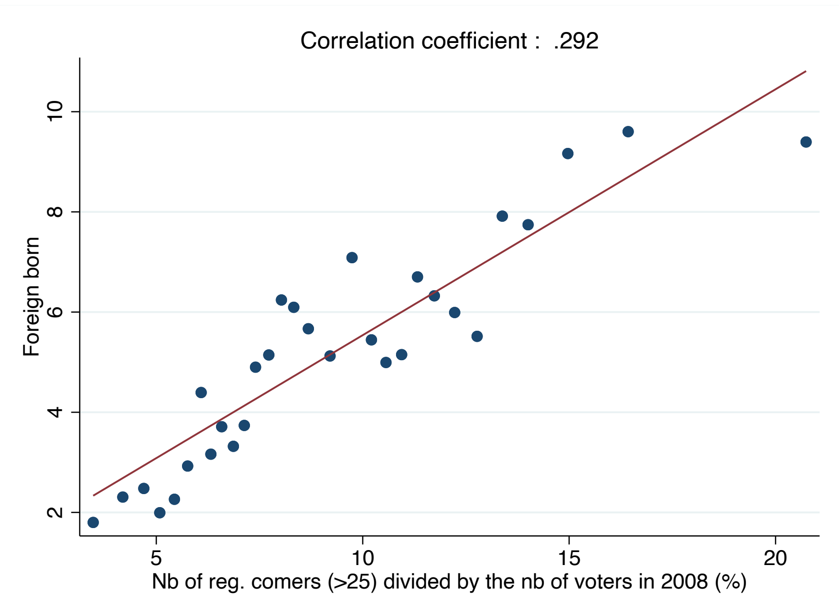
Note: The table features the number of voters registered as Democrats or Republicans per factor. Pseudo-CDs are classified according to their trend in partisan homogeneity.

Figure 18: Age distribution of voters who first enter the dataset between 2010 and 2018



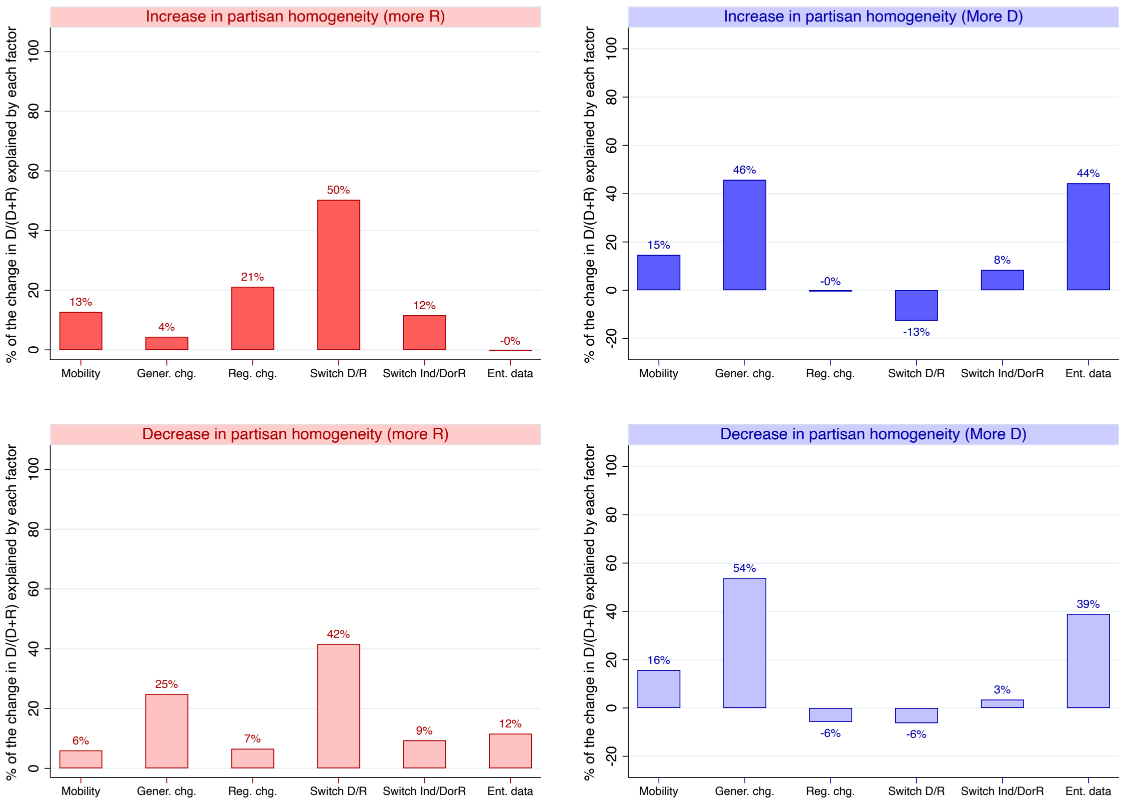
Note: This figure displays the age distribution of voters who are not in the dataset in 2008 but enter between 2010 and 2018. The variable age is defined as age at first appearance in the dataset.

Figure 19: Correlation between the share of foreign-born citizens and the share of adult entrants between 2010 and 2010 among registered voters in 2008



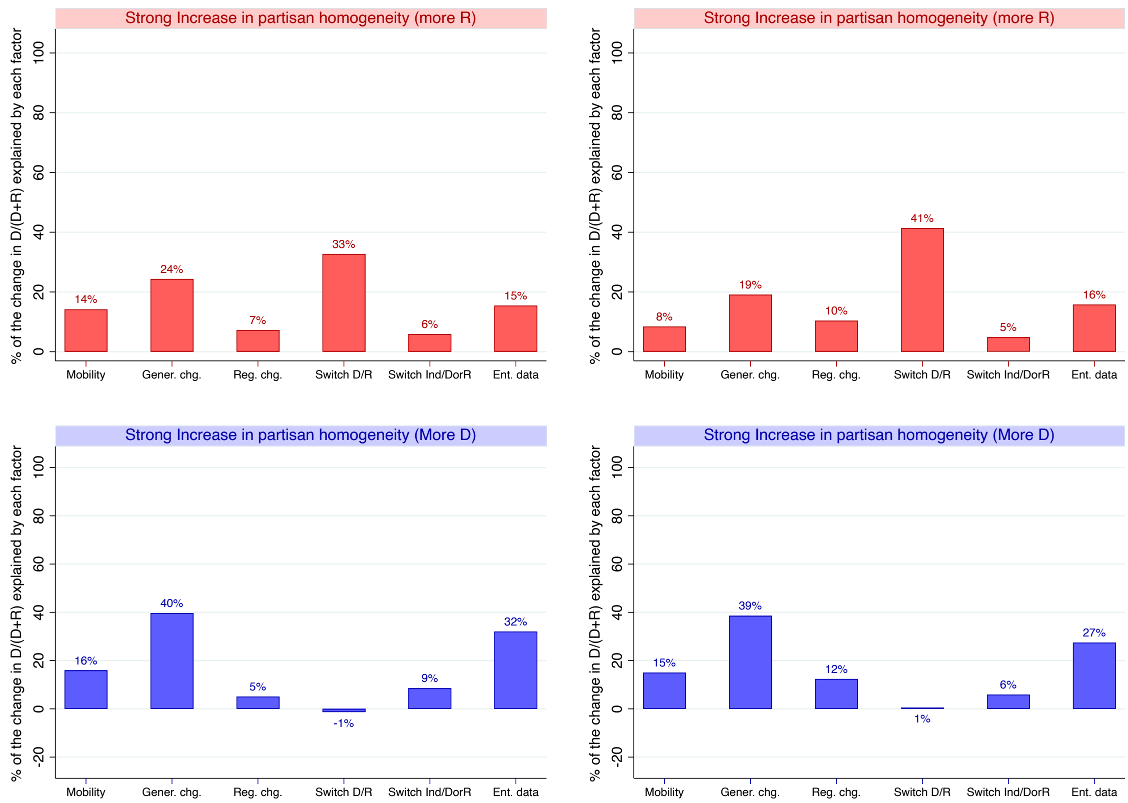
Note: This figure displays the share of foreign-born citizens at the county level in 2010 (Census). Adult entrants are adult voters aged over 25 at their first appearance the dataset.

Figure 20: % of Δ D/(D+R) explained by each factor at the pseudo-CD level - Using Catalist data



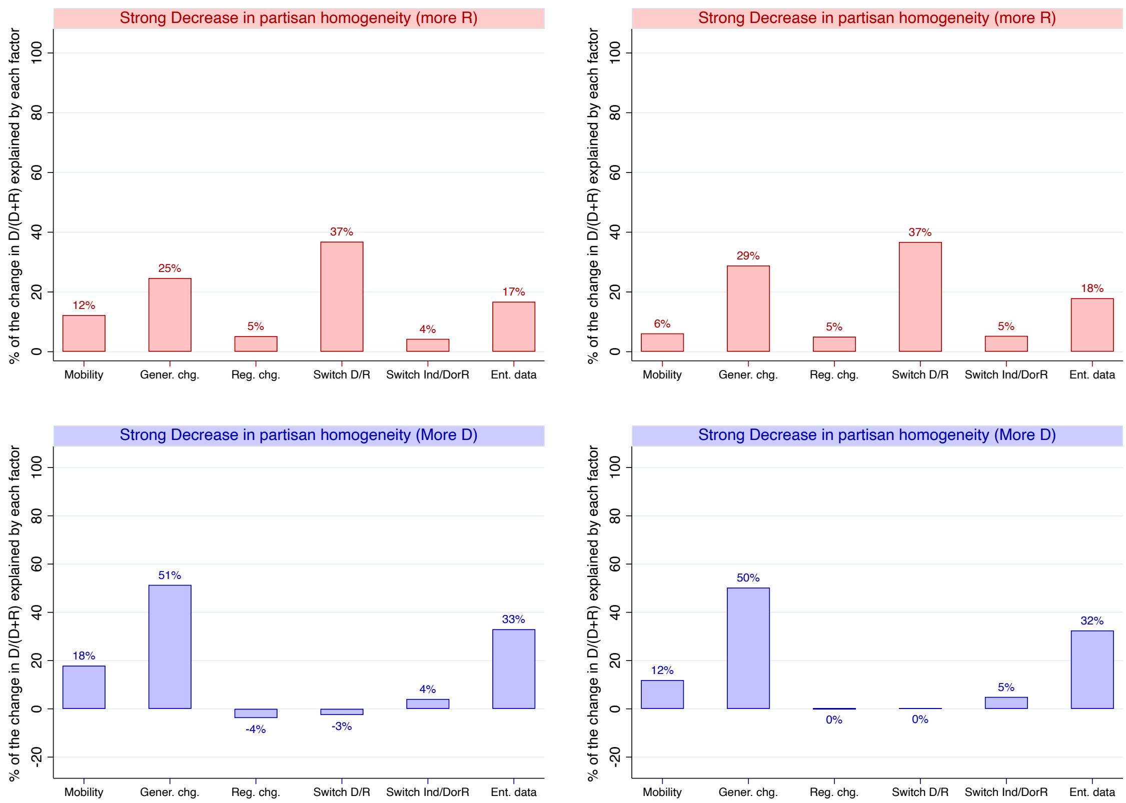
<u>Note:</u> The figure features the % of Δ D/(D+R) explained by each factor per change in partisan homogeneity. Δ D/(D+R) is computed grouping all pseudo-CDs experiencing the same trend in partisan homogeneity. Explaining factors are mobility, generational change, change in registration status, switches between Democrats and Republicans, switches between Independents and Republicans, and adult entries in the dataset.

Figure 21: % of Δ D/(D+R) explained by each factor - Counties (resp. left) and Pseudo-CDs (resp. right) experiencing the largest increase in partisan homogeneity - Using Catalist data



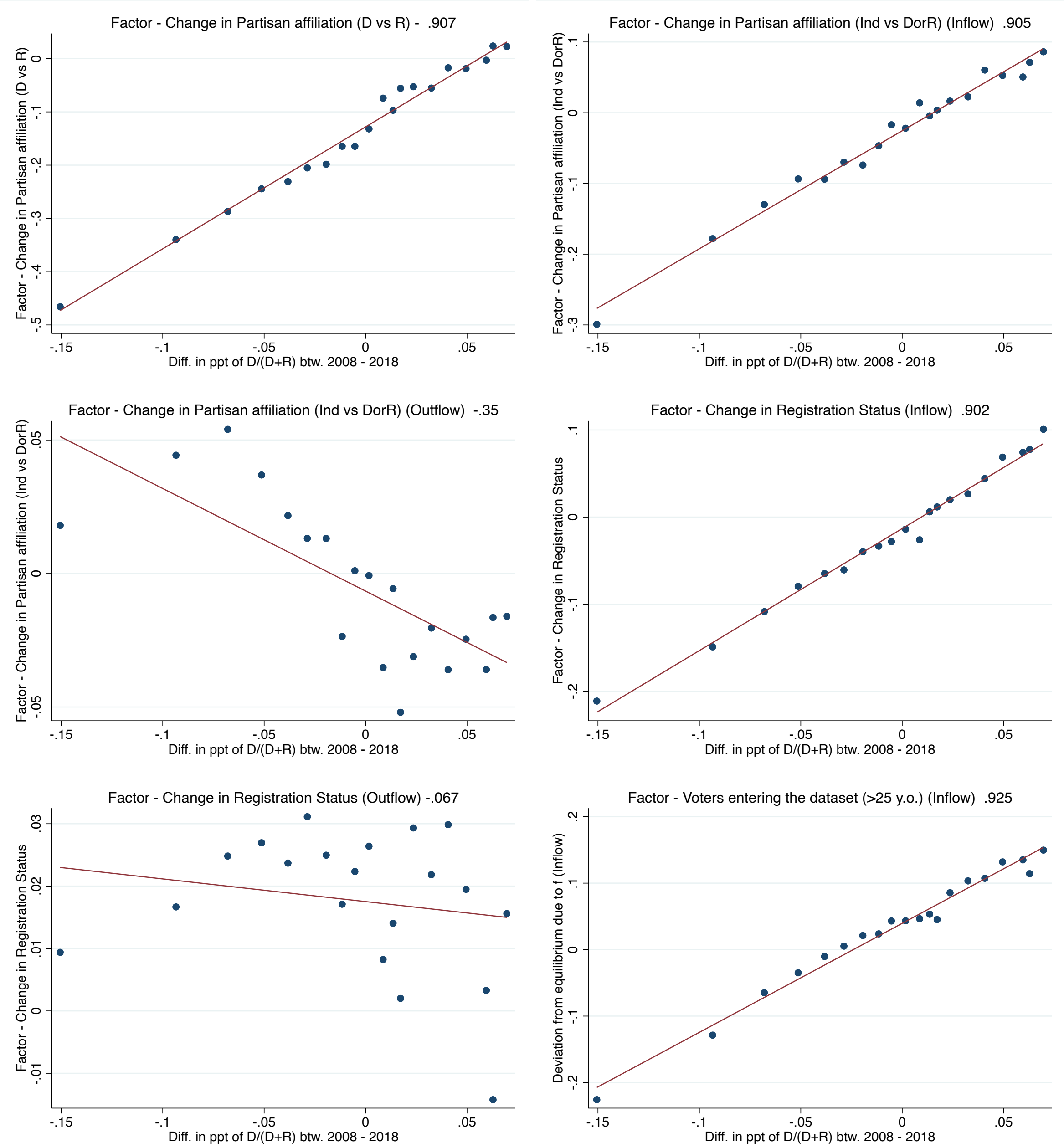
Note: The figure features the % of Δ D/(D+R) explained by each factor per change in partisan homogeneity. Δ D/(D+R) is computed grouping all geographic units i experiencing the same trend in partisan homogeneity. Geographic units where the increase in partisan homogeneity is the largest either correspond to units where partisan segregation is increasing and where Δ D/(D+R) belongs to the first (resp. last) decile of the distribution when it is in favor of Republicans (resp. Democrats). Explaining factors are mobility, generational change, change in registration status, switches between Democrats and Republicans, switches between Independents and Republicans, and adult entries in the dataset.

Figure 22: % of Δ D/(D+R) explained by each factor - Counties (resp. left) and Pseudo-CDs (resp. right) experiencing the largest decrease in partisan homogeneity - Using Catalist data



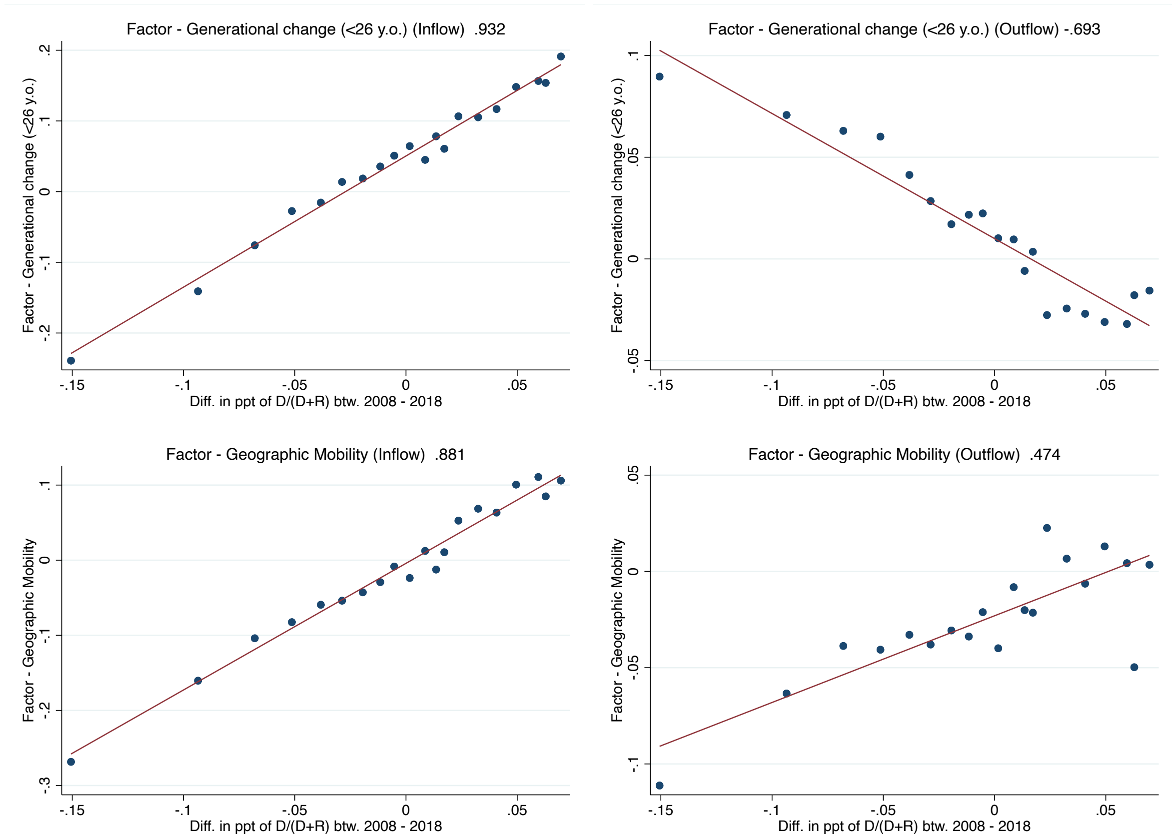
Note: The figure features the % of Δ D/(D+R) explained by each factor per change in partisan homogeneity. Δ D/(D+R) is computed grouping all geographic units i experiencing the same trend in partisan homogeneity. Geographic units where the decrease in partisan homogeneity is the largest either correspond to units where partisan segregation is decreasing and where Δ D/(D+R) belongs to the first (resp. last) decile of the distribution when it is in favor of Republicans (resp. Democrats). Explaining factors are mobility, generational change, change in registration status, switches between Democrats and Republicans, switches between Independents and Republicans, and adult entries in the dataset.

Figure 23: Δ D/(D+R) vs $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$- At the county level (Including all counties, independently from partisan segregation status) - Using Catalist data



Note: Dots represent the local averages of $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$. Averages are computed within bins of the change in D/(D+R) measured in percentage points. The fit is linear.

Figure 24: Δ D/(D+R) vs $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$- At the county level (Including all counties, independently from partisan segregation status) - Using Catalist data



Note: Dots represent the local averages of $\frac{s_f^D}{s_f^R+s_f^D} - \frac{D_{08}}{D_{08}+R_{08}}$. Averages are computed within bins of the change in D/(D+R) measured in percentage points. The fit is linear.