NBER WORKING PAPER SERIES

CAUSES AND EXTENT OF INCREASING PARTISAN SEGREGATION IN THE U.S. – EVIDENCE FROM MIGRATION PATTERNS OF 212 MILLION VOTERS

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Working Paper 33422
http://www.nber.org/papers/w33422

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
January 2025

For suggestions that have improved this paper, we are particularly grateful to Carolina Arteaga, Ceren Baysan, Pierre Boyer, Pedro Dal Bo, Rafael Di Tella, Olivier Gossner, Brian Knight, Yukio Koriyama, Stelios Michalopoulos, Massimo Morelli, Torsten Persson, Alessandro Riboni, Jesse Shapiro, Arthur Silve, Stefanie Stantcheva, Cecilia Testa, Matthew Weinzierl, and Ekaterina Zhuravskaya. We thank Catalist and TargetSmart for providing the U.S. individual-level panel data and responding to our queries about them, as well as Paul DiBello and Robert Freeman for invaluable help managing the data acquisition and setting up the data work. We further thank Sahil Chinoy and Martin Koenen for collaboration on the code to clean and construct the TargetSmart voter panel. We gratefully acknowledge generous funding from the Eric M. Mindich Research Fund on the Foundations of Human Behavior. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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January 2025
JEL No. D72, P00

ABSTRACT

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Causes and Extent of Increasing Partisan Segregation in the U.S. – Evidence from Migration Patterns of 212 Million Voters

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Using data on the residential location and migration for every voter in U.S. states recording partisan registration between 2008–2020, we find that residential segregation between Democrats and Republicans has increased year over year at all geographic levels, from neighborhoods to Congressional Districts. Individual demographic information reveals that segregation increases for voters of most demographic backgrounds, but that Democratic and Republican trending places have starkly different demographic profiles, thus contributing to the growing confluence of demographics, partisanship, and geography in the United States. We further decompose the change in segregation into different sources. Increases in segregation have not been driven primarily by migration but rather by generational

change, as young voters enter the electorate, causing some places to become more homogeneously Democratic, and by existing voters leaving the Democratic party and causing other places to become more Republican.

Introduction Concerns about partisan animosity in the United States coincide with renewed interest in the geography of partisanship, with scholars documenting extensive segregation between Democrats and Republicans (*1–3*). Drawing on a large literature showing that segregation is associated with negative social outcomes—including animosity, violence, and poor governance (*4–7*)—scholars and journalists alike have warned that geographic sorting of voters by party affiliation poses a threat to the sustainability of democracy (*8, 9*). However, because existing studies have largely relied on aggregate data (*3, 10*), the extent to which these changes affect the partisan makeup of an individual's daily life, the drivers of these changes, and the demographics of voters contributing to them remain unclear.

While racial and ethnic segregation generally involves population replacement, either by migration or generational change (*4, 11*), this is not necessarily the case for changes in partisan segregation. Changes in partisan segregation may be caused by 1) demographic changes, such as individuals dying, coming of age, or entering or exiting the electorate at later ages, 2) internal mobility, where individuals relocate within the country, driven either by preferences based on partisanship or factors correlated with partisanship, such as racial preferences or the pursuit of a specific type of job; but also 3) party switching, when voters change their partisan registration to align with local majorities. Understanding the respective contributions of these different sources of segregation is important as they have different implications for the health of democracy: while residential sorting can be seen as a symptom of social fragmentation and political polarization (*9, 12*), demographic change and party-switching dynamics may not have the same implications.

Existing scholarship suggests all three types of factors may contribute to geographic partisan segregation. Long-standing theories of macro-partisanship (*13*) emphasize that generational change can reshape the partisan composition of the electorate (*14*), and recent demographic trends such as the widening rural-urban divide (*10*) and the increasingly uneven geographic distributions of age and education (*15*), which show a growing correlation with partisanship (*16*), could drive changes in partisan geography. On the other hand, popular accounts have claimed that partisan considerations

can influence where people choose to live (*9, 17*). Although some scholars have found that there is less opportunity for such sorting than is popularly believed (*18*), and that internal migration flows tend to be too small to explain partisan-based residential clustering (*19, 20*), others provide evidence of political homophily in residential preferences (*21, 22*). Even if voters are not sorting directly on partisanship, sorting by education, income, or race could have the effect of increasing partisan segregation. Finally, although party switching is somewhat infrequent, geographic context has been shown to influence this behavior (*23–26*). Large-scale party realignments in U.S. history, such as white Southern Democrats who changed their party registration to Republican in the latter half of the 20$^{\text{th}}$century (*27*), further underscore the plausibility of geographically-based party switching.

Changes in partisan segregation can either reproduce and exacerbate existing social-geographic cleavages or serve to diminish these. For example, the well-documented racial segregation in the United States (*4*) or the relative aging of the population in rural places (*28*) could mean that the alignment of race or age with geography and partisanship is exacerbated if partisan segregation increases for certain places and groups. In contrast, partisan segregation could undermine other types of segregation if, for example, partisanship drives residential choice more than race or other social divisions. These possibilities also have different implications for socio-political harmony, as the first increases the deleterious alignment of social cleavages (*7, 12*), while the other does not.

Finally, while the sorting of partisans at broad geographic levels, such as states, is widely recognized (*29*), this segregation may or may not take place at lower levels of geography. Counties or neighborhoods within states may overwhelmingly support one party or another, reproducing higher-level segregation. Alternatively, state-level segregation could mask heterogeneity at lower levels of aggregation if even in states or Congressional Districts where one party has an electoral majority, voters of different parties live mixed together in the same neighborhoods. Although the latter situation has electoral consequences, it does not carry the same concerns about the potentially destabilizing effects of local segregation present in the first instance.

We study partisan segregation in the United States by leveraging individual-level administrative data from two nationwide panels covering every voter from 2008 to 2020 in states that record party registration, i.e., more than 212 million individuals across 12 years and over 895 million data points. In contrast to previous studies of partisan segregation that have relied on aggregate data (*9, 30*), our approach allows us to track the same individuals over multiple years, while observing their exact

residential addresses and partisan affiliations. We are able to measure changes in partisan segregation at any geographic level, including down to the neighborhood, and decompose these changes across demographic groups and into contributing factors, allowing us to identify the underlying forces driving segregation.

We find that geographic partisan segregation increased every year from 2008 to 2020 across a range of geographic levels, from the Congressional District to the neighborhood. This shift is substantial: the weighted standard deviation of the county-level distribution of the two-party Democratic registration share (i.e., the proportion of Democrats among registered Democrats and Republicans) increased by 9.7% from 2008 to 2020, translating into millions more voters residing in more homogeneous partisan areas. Given contemporary high levels of geographic polarization (*3, 25*), the consistent and continued increase is especially notable.

We also find that this increase in segregation is primarily driven by generational change, adult voters entering or exiting the electorate, and party switching, whereas residential mobility plays a less important role. The main sources of increasing geographic partisan segregation differ across places: in Republican-trending areas, party switching is the key driver, while in Democratic-trending areas, generational change plays a more significant role. As such, the rise in partisan segregation exacerbates the confluence of geographic, demographic, and political divides in the United States.

Data and Measurement Previous studies of geographic sorting based on aggregate election returns have limited geographic precision and are subject to issues of scale and to the Modifiable Areal Unit Problem (*1, 7*). Furthermore, these data can only track changes when elections occur, sometimes as infrequently as every four years, and may reflect election-specific factors rather than underlying partisan preferences, obscuring or distorting the actual geographic sorting of voters.

In contrast, we measure changes in partisan segregation using nationwide high-frequency individual-level data on partisanship and exact residential location, allowing us to decompose sources of change at the individual level. We measure segregation across multiple geographic levels to assess the sensitivity of our results to the choice of areal unit. Because we use individual data, we could aggregate the data to any arbitrary scale, but we choose to examine geographic units that are politically and socially meaningful and are commonly used in social science. In the main

analysis, we focus on counties and neighborhoods, using Census Tracts to represent neighborhoods.[1] Results using Congressional Districts, Census Block Groups, and Census Blocks are provided in the Supporting Information (SI).

To vote in federal elections, U.S. citizens must register on official voter lists maintained by state governments. These lists are regularly updated to reflect changes in voters' addresses and entry or exit from the local electorate. Crucially, because the data are collected and maintained by states or, in some cases, counties within states, there is no publicly controlled nationwide database of registered voters and, as such, the same voter can appear in more than one state or even more than once in the same state. In addition, some entries may remain on voter files after the voters have died. Commercial vendors obtain these lists, consolidate the data across states, account for movement and death, and resell them to political campaigns and other interested parties (*31*).

Because commercial vendors must make probabilistic guesses about the identity of many voters, there are discrepancies between different commercial files, with even the raw counts of registered voters differing by millions of entries (*32*). Therefore, we rely on data from two distinct vendors: Catalist (covering even years from 2008 to 2018) and TargetSmart (covering even years from 2012 to 2020). To our knowledge, we are the first large-scale study to use commercial files from two different vendors. Where possible, we replicate our analyses using both datasets. Furthermore, due to differences in data availability, the two datasets are better suited for analysis at different levels and also allow for an increased analytical timespan.[2]

Registered party membership, which prior research has shown to reflect both voters' self-declared partisan identity and their ideological leanings (*33, 34*), is available in 29 states, along with the District of Columbia, where voters can declare membership in a political party when registering to vote (Democrat, Republican, or one of many minor parties).[3] We limit our analysis to these states

[1]Census Tracts contain an average of 2,527 voters in our data. Census Tracts are drawn by the Census Bureau for each decennial Census and generally include between 1,200 and 8,000 people.

[2]The TargetSmart data include the exact addresses of individuals and can thus be used at any level of geography. On the other hand, our version of the Catalist data does not include individual addresses and requires aggregation to larger geographic levels. The Catalist data also span a congressional redistricting cycle in 2010, where the districts for Congress and other electoral districts were redrawn. As such, we primarily use the Catalist data for examining county-level segregation and TargetSmart for other geographic levels. SI Section A.2 presents similar comparative summary statistics for the Catalist and TargetSmart panels.

[3]Idaho started recording partisan registration in 2013 and is not included in our voter file analyses that span from

and determine voters' partisanship based on this official registration. Notably, party registration is not mandatory and between 2008 and 2018, the percentage of registered voters not affiliated with the Democratic or Republican parties rose from 25.9% to 30.6%. We test the robustness of our results that rely on registration by using aggregate electoral results as a proxy for partisan ideology and including all states in the sample.

We employ two metrics of partisan segregation:[4] 1) the *Exposure to Democrats*, which measures geographic sorting *across* units and, in a given geography, is computed as the share of Democrats and Republicans that are Democrats (the two-party Democratic registration share), so that higher values indicate higher Exposure to Democrats, for Republicans, and higher isolation, for Democrats; and 2) the index of *Dissimilarity*, which measures geographic sorting *within* units by assessing how evenly members of the two parties are distributed. The first metric evaluates whether areas are becoming more politically homogeneous, while the second measures the internal evenness of partisan distribution across neighborhoods within those areas (*35*).[5] We then measure year-to-year changes in each.

Changes in Partisan Segregation We first document trends in partisan segregation across counties and neighborhoods. Figure 1 displays the distribution of Exposure to Democrats for 2008 and 2018 at the county level and for 2012 and 2020 at the neighborhood level. Red shading indicates greater exposure to Republicans, while blue shading represents more exposure to Democrats. The dotted and solid lines correspond to the earlier and later periods, respectively. The widening of these distributions indicates that partisan segregation has grown *across* both counties and neighborhoods: more voters live in areas that are homogeneously Democratic or Republican at the end of the period than at the beginning, resulting in lower exposure to the other party in their residential environment. Weighted by the number of registered voters in a given year, the standard deviation of Exposure to Democrats rose from 0.155 to 0.167 at the county level and from 0.200 to 0.209 at the neighborhood level, representing increases of 7.7% and 4.5%, respectively (SI Table S2).

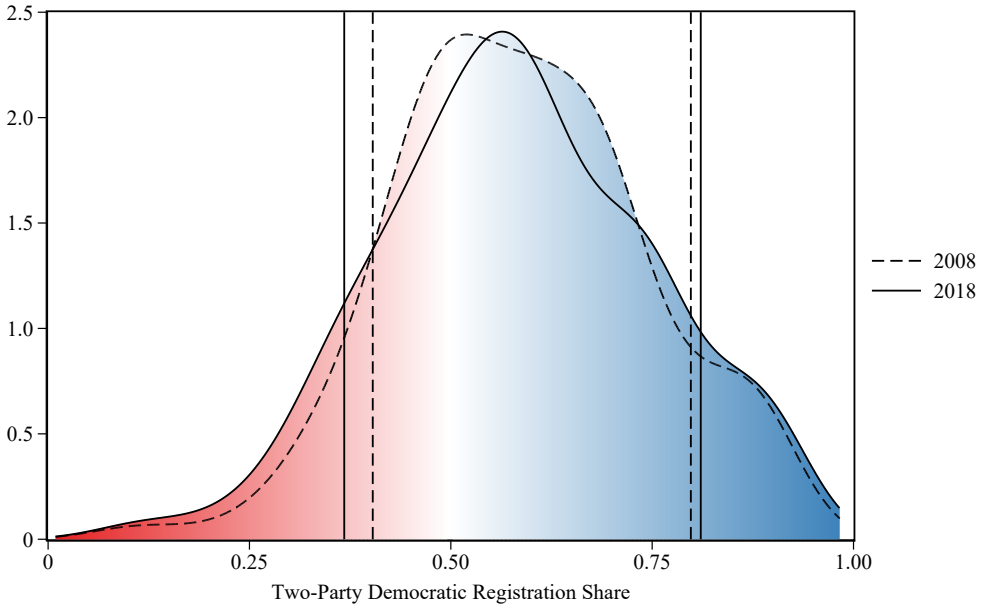
2008 to 2020.

[4]See Materials and Methods in SI Section B for further details.

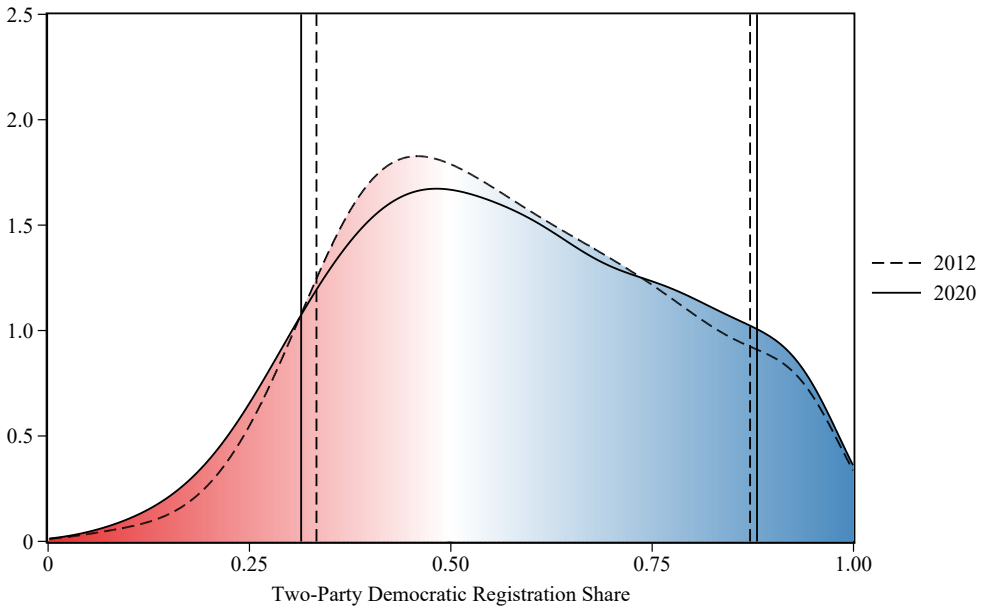
[5]Recent work on partisan segregation (*1*) calculates voter exposure to both parties by examining the proportion of Democrats or Republicans among a voter's closest neighbors. We do not adopt this method, as it does not allow to decompose the forces driving partisan segregation.

Figure 1: Distribution of Exposure to Democrats

(a) County-level Distribution, 2008 and 2018



(b) Neighborhood Distribution, 2012 and 2020



Notes: Kernel density plots of Exposure to Democrats. All kernel density estimates are weighted by counts of registered voters in a given election and use a Gaussian kernel with bandwidth of 0.05. In each plot, vertical lines represent the 10th (vertical lines on the left tail of each plot) and 90th percentiles (vertical lines on the right tail of each plot). Panel A uses the county-level Catalist data for the 2008 and 2018 elections. Panel B uses the Census Tract-level TargetSmart data for the 2012 and 2020 elections.

These changes mark a substantial shift in the proportion of voters residing in highly segregated areas over a relatively short period. In 2008, 20% of U.S. voters lived in counties where Exposure to Democrats was below 0.403 or above 0.798 (the 10th and 90th percentiles of the distribution). By 2018, this figure had risen to 25.7%, indicating a 28.6% increase in Americans living in highly segregated counties over 10 years. This shift translates to an additional 7.7 million voters in 2018 residing in such counties. Similarly, at the neighborhood level, the share of voters in extremely segregated areas grew by 15.7% between 2012 and 2020, with 23.1% of voters in 2020 living in neighborhoods above the 2012 90th percentile (0.872) or below the 2012 10th percentile (0.333), translating to 7.1 million more voters living in extremely segregated neighborhoods in 2020 than in 2012.

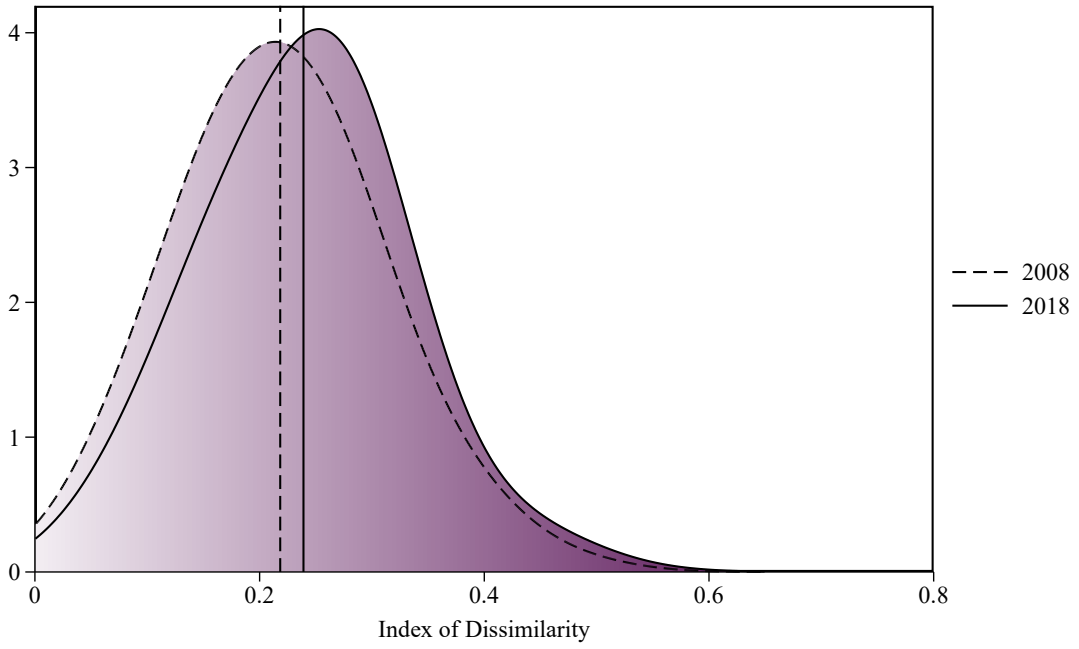
In addition to the sorting of partisans *across* geographic units in the United States, we also find that segregation is increasing *within* geographic units. Figure 2 presents the weighted distribution of the index of Dissimilarity at the county level for 2008 and 2018. The distribution shifted rightward, and the mean increased by 2.1 points (9.6%), indicating that, within counties, voters are increasingly sorted into different neighborhoods based on partisan registration (SI Table S5).

Partisan segregation across counties and neighborhoods has increased year over year, as documented in SI Section C.1. We also observe this increase across other geographic units (SI Section C.2), and when using electoral results instead of partisan registration data (SI Section C.3). Segregation within units has also increased consistently over years and across geographic levels (SI Sections C.4 and C.5), except for the 2018-2020 period, perhaps due to the Covid-19 pandemic and related shocks to mobility.[6]

Characteristics of Areas Driving the Rise in Geographic Partisan Segregation While partisan segregation has increased across the United States, this trend has not been uniform across all regions. To systematically classify counties based on their contributions to rising segregation, we measure counties' deviation from the mean in different years and classify a county as contributing to increased segregation if its deviation from the mean (in absolute terms) widens over time (see Materials and

[6]See Supplementary Information for additional results on the increase in partisan segregation (SI Section C), its statistical significance (SI Section D.1), and partisan composition trends by starting partisan composition (SI Section D.2).

Figure 2: Distribution of the County-level Index of Dissimilarity, 2008 and 2018



Notes: Kernel density plots of the county-level index of Dissimilarity based on the 2008 and 2018 Catalist data, using Census Tracts as sub-units and weighting by counts of registered voters in a given county-year. Vertical lines represent year-specific (weighted) means. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05.

Methods, SI Section B.2). We distinguish between counties trending Democratic or Republican and map these changes at the county level in SI Section E.1.

Of 1,373 counties in states that record partisan registration, 853 counties (representing 64.3 million registrants in 2018, or 59.9% of the total) contributed to the increase in segregation, while 520 counties (representing 42.9 million registrants in 2018, or 40.1% of the total) resisted the trend. The increasingly Democratic counties are clustered around major metropolitan areas on the coasts (SI Figures S8 and S9) and include a disproportionately large share of the electorate. Among the 853 counties with increasing segregation, only 91 counties trended more Democratic, while 762 counties shifted more Republican, yet counties shifting Democratic represented 34.5 million registrants (approximately 379,000 voters per county) in 2018, compared to only 29.8 million registrants in counties shifting Republican (approximately 39,000 voters per county).[7]

[7]Conversely, of the counties resisting segregation, 115 (representing 23.6 million registrants) became more Democratic, and 405 (representing 19.3 million registrants) leaned more Republican.

Examining the index of Dissimilarity within counties, we also observe different patterns for Republican and Democratic-trending counties: Republican-trending counties tend to have partisans relatively evenly distributed across neighborhoods, while Democratic-trending counties have higher values of the index of Dissimilarity initially and also show a larger increase, indicating a rise in geographic partisan segregation *within* Democratic counties. This suggests that voters in high-population counties, representing major metropolitan areas, are clustering away from each other based on partisanship (SI Figures S10 and S11).

Table 1 uses Census and voter file data to compare counties contributing to increased partisan segregation with those that did not.[8] Reflecting the geographic distribution discussed above and an increasing confluence of demographics and partisanship, Democratic-trending counties tend to have higher population density, higher median income, a large share of foreign-born and non-white populations, and younger median age than Republican-trending counterparts. Notably, population density and racial demographic differences between Democratic- and Republican-trending counties are more pronounced in areas contributing to rising segregation than those resisting that trend.[9]

Which Types of Behavior Have Caused the Increase in Segregation? To study the forces driving the increase in partisan segregation, we classify each voter into one of the following contributing factors: internal mobility, generational change, entry and exit of adult voters, and changes in partisanship (see SI Table S15 for voter counts of each factor per dataset).

Internal mobility refers to registered voters moving across geographic units within the U.S. *Generational change* occurs as young adults aged 25 and below register for the first time and as older voters pass away. Additionally, we account for the *entry and exit of adult voters*. Adult entries include voters aged over 25 becoming registered for the first time and voters re-registering, regardless of their age.[10] Adult exits capture registered voters becoming unregistered without being recorded as

[8]The table draws on 2015 5-year ACS Census variables aggregated at the county level and voter file data from 2008. The values reported are averages weighted by the number of registered voters in a county in 2008.

[9]SI Tables S11 and S12 replicate Table 1 using the TargetSmart data at the county and neighborhood levels. SI Tables S13 and S14 also display changes in socio-demographic variables over time in counties contributing to or resisting partisan segregation.

[10]While the median age of new entrants into the electorate is 26 in the Catalist data, 33.2% of new registrants are over 34 years old. Among adult entrants, we include new registrants aged 26 and over, representing 3.2% to 5.4% of registered voters in each electoral year in the Catalist data. These adult entrants consist of natural-born U.S. citizens

Table 1: Demographics of Counties Contributing to the Rise in Partisan Segregation vs. Resisting that Trend

	Increase Segregation		Decrease Segregation	
	More Democratic	More Republican	More Democratic	More Republican
	(1)	(2)	(3)	(4)
	Panel A. Census Statistics			
Total population	653,058	61,787	362,816	76,110
Median age	37.18	40.78	37.14	39.38
Share female	0.513	0.505	0.507	0.510
HHI ethnic homogeneity	0.403	0.638	0.499	0.587
Share foreign-born	0.256	0.073	0.150	0.086
Share non-white	0.539	0.236	0.400	0.292
Population/Sq. mile	7,381	416	1,668	1,032
Share urban population	0.957	0.706	0.897	0.748
Median income	63,627	51,273	63,335	53,271
Gini index	0.486	0.445	0.456	0.459
High-school degree or above	0.856	0.879	0.872	0.872
Share homeowners	0.560	0.699	0.658	0.688
	Panel B. Voter File Statistics on Registered Population			
Democrats	0.504	0.368	0.365	0.503
Independents	0.283	0.232	0.267	0.252
Republicans	0.213	0.400	0.368	0.246
Black	0.145	0.058	0.075	0.109
White	0.614	0.882	0.769	0.824
Hispanic	0.155	0.038	0.103	0.042
Number of counties	91	762	115	405

Notes: The table reports average demographic characteristics of counties that contributed to the increase in partisan segregation and of counties that decreased segregation, separately for counties that trended Democratic or Republican (i.e., counties that featured an increase vs. a decrease in Exposure to Democrats between 2008 and 2018). All figures are weighted by county-level counts of registered voters in 2008, except for total population figures that are unweighted. Census statistics in Panel A are based on 5-year American Community Survey Data. Voter file statistics in Panel B are based on the 2008 Catalist data.

deceased. *Changes in the partisanship* of residents in a given area can also contribute to segregation. These partisan affiliation changes refer to voters who were registered in both time periods and who switched party affiliation. We consider switches between Democrats and Republicans as well as

becoming politically active for the first time, as well as newly naturalized citizens gaining the right to vote. Part of this category may also reflect imperfect tracking of individuals over time and across space.

between Independents and either major party.

Figure 3 shows the percentage of the total changes in Exposure to Democrats explained by these factors, for counties and neighborhoods trending Democratic or Republican (see Materials and Methods, SI Section B.3). Areas trending Democratic and Republican exhibit distinct drivers of increased partisan segregation. In Democratic-trending counties, the shift is driven by compositional changes, with generational change accounting for 46.9% of the trend and adult entries/exits contributing an additional 41.5%. In Republican-trending counties, the primary driver is party switching, which explains 39.6% of the shift.[11] Despite widespread media attention to residential sorting, internal mobility only explains 12.0% and 14.1% of the change in Democratic- and Republican-trending units, at the county level. At the neighborhood level, generational change and adult entries/exits account for 70.8% of the change in Democratic-trending areas. Notably, adult entries/exits play the largest role in Republican-trending neighborhoods, contributing 33.7% to the change. Residential mobility plays a slightly more important role at this level, contributing 22.6% of the compositional change in Democratic-trending neighborhoods and 23.3% of the change in Republican-trending neighborhoods.[12]

Changes in Partisan Segregation by Demographic Group The ability to track individual voters means that we can observe how changes in partisan segregation and the contributing factors vary by demographics. In SI Section G.1, we show changes in segregation within gender, age, and racial groups. We find that segregation has generally increased across all gender and age groups at the county level. However, whites are the only racial group experiencing a marked increase in segregation, while Blacks and Hispanics see no change at the county level and a decrease at the

[11]This figure includes switches between Democrats and Republicans as well as changes involving Independents. Party switches between Democrats and Republicans are doubly impactful because each switch both subtracts a voter from one party and adds them to the other.

[12]Mobility impacts smaller geographies more because voters moving across neighborhoods within a county are categorized as movers in neighborhood analysis but not in county analysis. Conversely, fewer voters are classified as partisan switchers in the neighborhood analysis since staying within the same geographic unit is required for categorization as a switcher. SI Tables S16 and S17 report the counts in each category at the county and neighborhood levels. We find that internal mobility plays a larger role at the Congressional District level than at the county level, which may be explained by strategic political moves across those boundaries (SI Table S22). See SI Section F for additional results on the drivers of the increase in geographic partisan segregation.

neighborhood level. Figure 4 illustrates the partisan patterns of the increases in segregation for racial groups using the Catalist data. The distribution of Exposure to Democrats among white voters shifted noticeably towards lower values over the decade (indicating greater Republican homogeneity), while the distribution among Hispanics shifted towards the other extreme. There was less movement among Black voters, for whom the initial distributions were already centered at very high values of Democratic homogeneity. We observe similar polarizing patterns across age cohorts (SI Figures S25 and S26) and for both genders (SI Figures S23 and S24). These results indicating an increasing confluence of demographics, geography, and partisanship raise concerns about the deleterious influence of partisan sorting on democratic outcomes (*12*).

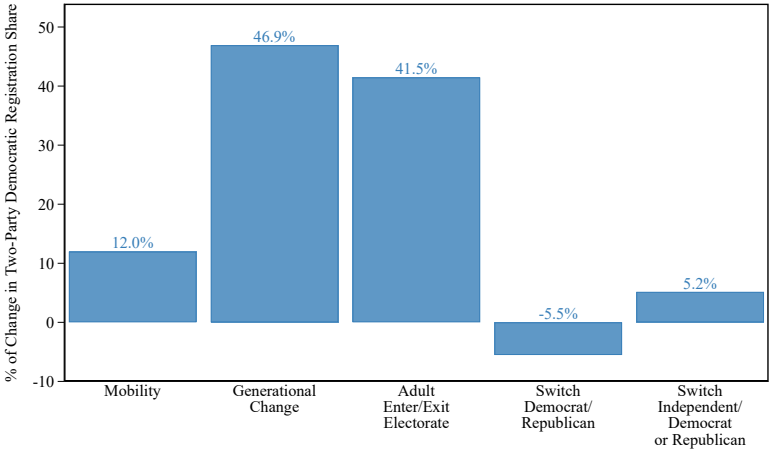
Taking advantage of the individual-level data, we can also examine how each of the factors contributing to segregation is driven by voters of different genders, ages, and races. For instance, we can calculate how much the contribution of residential mobility to geographic partisan segregation results from the mobility of each racial group. The results for factors contributing to increases in county-level segregation are summarized in Table 2.

In areas trending Democratic, increases in segregation appear to be driven by non-white and women voters becoming increasingly Democratic. For example, generational change in the electorate, which explains 46.9% of the increase in segregation in these areas, is primarily fueled by female voters, who contribute 60.6% (28.4/46.9) compared to 39.7% (18.6/46.9) for male voters. Hispanic voters and those in the other race category also play a major role in generational change. By contrast, the contribution of Black voters is limited, as many are already registered Democrats in highly Democratic areas, reducing the potential for further partisan homogenization. Similarly, adult entries/exits are primarily driven by female voters, Hispanic voters, and voters in the other race category.

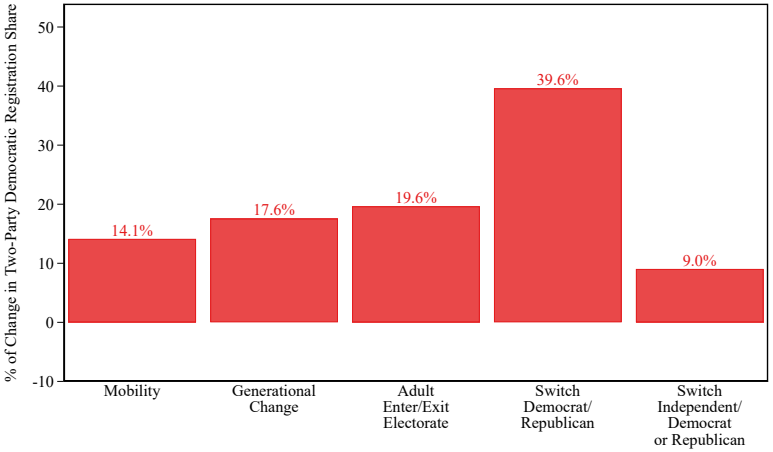
In Republican trending places, the changes are driven more by male, white, and older voters. For example, generational change is overwhelmingly driven by white voters. Party switching, the main factor in counties becoming more Republican, is relatively rare among younger voters but is contributed to relatively equally by voters in older age groups and is mostly attributable to white voters.

Figure 3: Factors Driving Changes in Exposure to Democrats

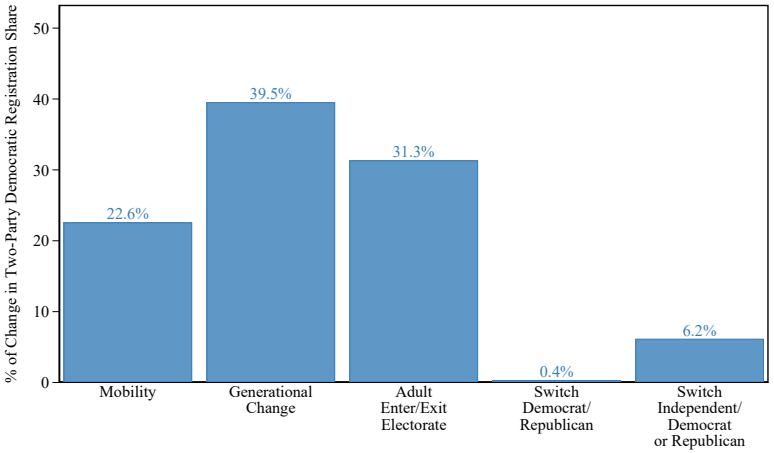
(a) Democratic-Trending Counties, 2008 to 2018



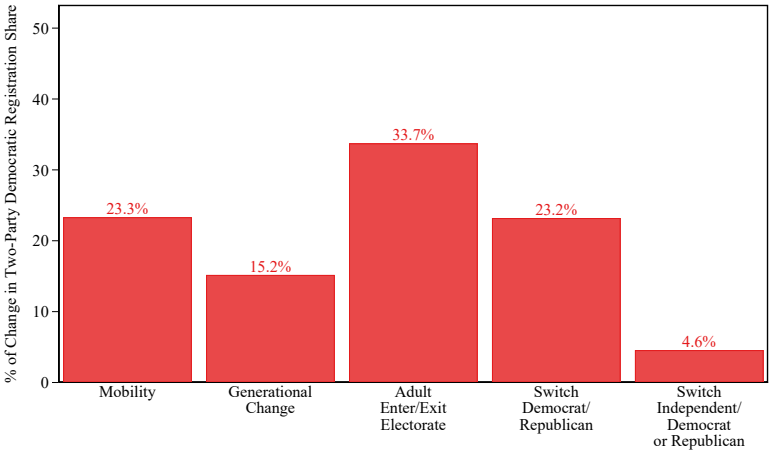
(b) Republican-Trending Counties, 2008 to 2018



(c) Democratic-Trending Neighborhoods, 2012 to 2020

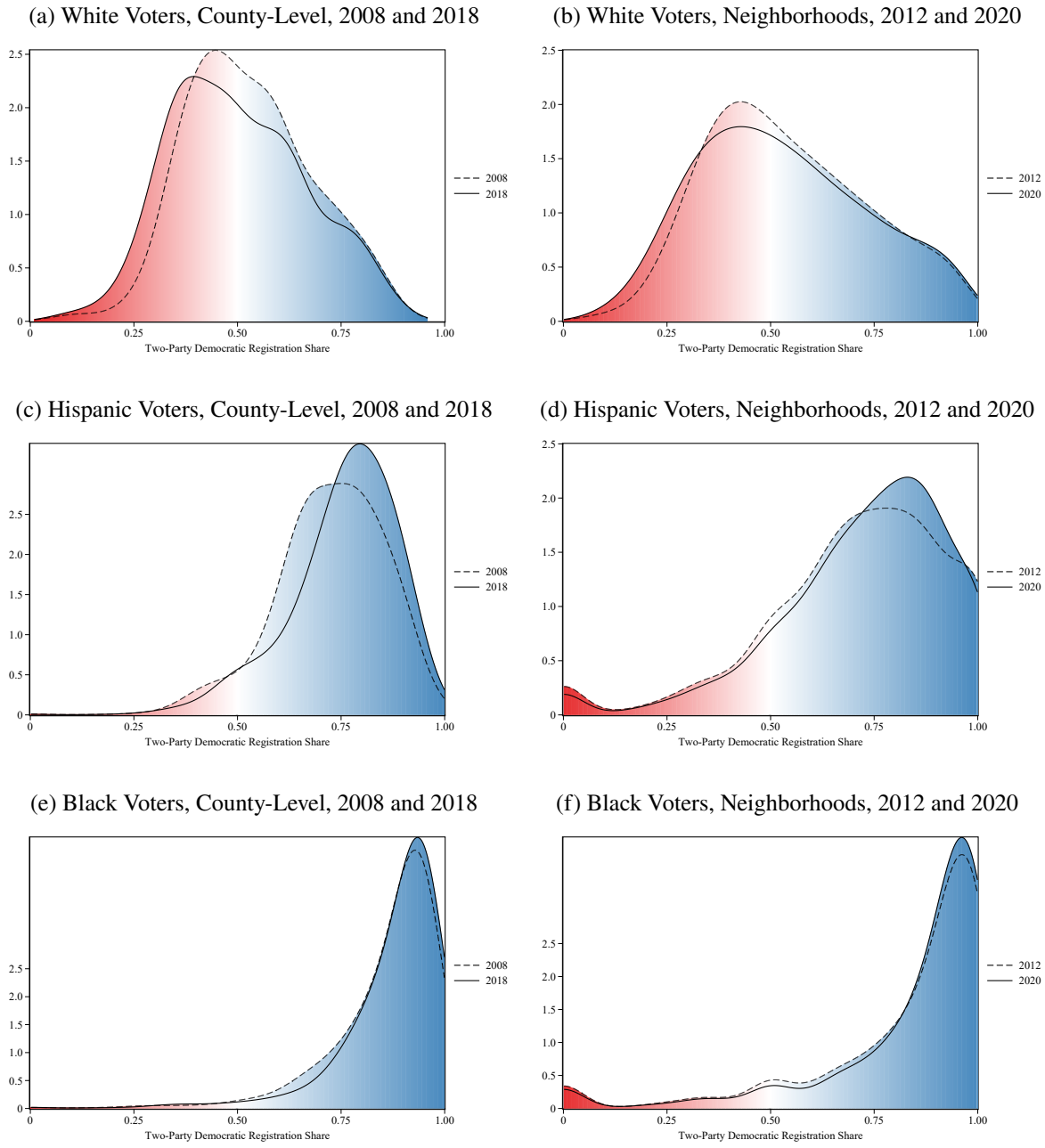


(d) Republican-Trending Neighborhoods, 2012 to 2020



Notes: Each plot shows the percentage of the change in Exposure to Democrats explained by different decomposition factors. Panels A and B are based on 2008 and 2018 Catalist county-level data; Panels C and D are based on 2012 and 2020 TargetSmart neighborhood-level data. Samples for panels A and C (resp. B and D) consist of Democratic-leaning (resp. Republican-leaning) geographies; that is, geographic units that witnessed an increase (resp. a decrease) in Exposure to Democrats over the period.

Figure 4: Exposure to Democrats by Race



Notes: The figure plots kernel density estimates of county- and Census Tract-level Exposure to Democrats by voter race. Panels A, C, and E use 2008 and 2018 Catalist county-level data. Panels B, D, and F use 2012 and 2020 TargetSmart neighborhood-level data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

Table 2: Demographic Groups' Contribution to Factors Driving Changes in Exposure to Democrats

	More Democratic						More Republican					
		Factors						Factors				
	% Voters (1)	Mobility (2)	Gen. Change (3)	Adult Enter/ Exit Electorate (4)	Switch Dem./ Rep. (5)	Switch Ind./ Dem. or Rep. (6)	% Voters (7)	Mobility (8)	Gen. Change (9)	Adult Enter/ Exit Electorate (10)	Switch Dem./ Rep. (11)	Switch Ind./ Dem. or Rep. (12)
Panel A. Overall Contribution		12.0	46.9	41.5	-5.5	5.2		14.1	17.6	19.6	39.6	9.0
Panel B. By Age Quartile												
Aged 18-27 (Q1)	20.4	6.7	54.1	12.0	1.5	2.7	18.8	3.3	12.2	4.6	5.8	1.8
Aged 28-42 (Q2)	26.4	1.5	-0.9	16.6	-1.7	1.3	24.6	3.7	0.6	3.8	10.7	3.0
Aged 43-57 (Q3)	25.2	2.6	-3.5	6.7	-1.9	1.1	25.3	4.2	1.4	6.3	12.8	2.5
Aged 58+ (Q4)	28.0	1.1	-2.9	6.2	-3.4	0.0	31.3	3.0	3.4	4.9	10.3	1.8
Panel C. By Sex												
Male	46.1	6.6	18.6	18.7	-3.8	2.4	46.6	8.1	12.7	12.1	20.9	5.1
Female	53.9	5.4	28.4	22.7	-1.7	2.8	53.4	6.0	4.8	7.6	18.7	3.9
Panel D. By Race												
Black	11.6	1.1	1.3	3.4	-4.6	0.6	7.9	-0.8	15.9	-4.3	-1.4	-0.9
Hispanic	13.3	2.2	16.7	14.1	-4.1	1.5	3.9	3.8	-35.7	-26.4	5.8	-0.5
White	67.9	4.9	3.2	2.7	7.4	0.5	85.9	7.5	89.5	45.5	24.3	8.9
Other race	7.2	3.7	25.8	21.3	-4.2	2.7	2.3	3.7	-52.1	4.7	11.0	1.5

Notes: The table is based on the Catalist data. Panel A reports the share of the change in Exposure to Democrats attributable to each decomposition factor, separately for counties that became more Democratic (columns 1-6) or more Republican (columns 7-12) between 2008 and 2018. Each cell in Panels B, C, and D shows how much a given demographic group (in rows) contributed to a given factor's share of the decomposition (in columns). Vertical sums within panels add up to a given factor's overall contribution reported in Panel A. For example, Democrats changing their party affiliation to Republican or vice versa explain 39.6% of the change in Exposure to Democrats in counties that became more Republican; 5.8, 10.7, 12.8, and 10.30 percentage points of this 39.6% are due, respectively, to voters aged 18-27, 28-42, 43-57, and 58+ (5.8% + 10.7% + 12.8% + 10.3% = 39.6%).

Conclusion

In this paper, we leverage individual-level data from two nationwide panels of every voter in the United States from 2008 to 2020 to offer the most complete accounting of changes in partisan segregation yet presented. Until recently, over-time geographic data on the partisan composition of the electorate was only available at coarse levels of aggregation. As a consequence, while scholars have found evidence for geographic partisan clustering (*1, 3*), first-order questions on the causes and even the trend of partisan segregation in the U.S. remain subject to debate (*9, 18, 20, 36*). By tracking individual voters across time and space, we have documented the recent increase in partisan segregation in the United States and the underlying factors contributing to it.

Voters choosing where to live (directly or indirectly) based on politics could represent a symptom of growing partisan discord. The data, however, demonstrate that to the extent any such sorting exists, it is a secondary explanation for changes in political geography. In Democratic trending places, the most impactful factors are the transformations of the American electorate: influxes of new Democratic-leaning young voters and older first-time registrants replacing voters who are dying or de-registering. In Republican areas, forces of partisan realignment are the most prominent factor driving partisan segregation: voters leaving the Democratic party and registering as Republicans or unaffiliated. Thus, rising geographic polarization is less about Democrats and Republicans fleeing from each other and more about macro-level forces shaping the types of people each party represents and the demographic composition of the U.S. electorate.

Still, the consistent increase in segregation raises important questions about the consequences of rising geographic polarization for the healthy functioning of American democracy. Segregation between Democratic and Republican voters contributes to representational imbalances in state and federal legislatures (*37*), exacerbates discrepancies between Electoral College and popular vote outcomes in presidential elections (*38*), and impedes support for place-based public policy such as transit and infrastructure (*39*). Partisan segregation may also fuel partisan issue polarization among elites (*29*) as parties become representative of distinct geographic areas, and it may contribute to issue and affective polarization within the mass public due to diminished exposure to neighbors with different partisan identities (*40*) and the alignment of partisan, geographic, and social cleavages (*7, 16*).

The study of segregation based on ethnicity has been part of a massive social science literature

on inter-ethnic relations. This rich literature helped scholars understand the causes and consequences of the well-documented racial segregation in the United States and other countries. Similarly, further research on the nature of partisanship, for example whether it is a social identity akin to ethnicity, and on partisan segregation, will help us better understand the connections between the two phenomena and their implications for democracy.

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Acknowledgements

For suggestions that have improved this paper, we are particularly grateful to Carolina Arteaga, Ceren Baysan, Pierre Boyer, Pedro Dal Bo, Rafael Di Tella, Olivier Gossner, Brian Knight, Yukio Koriyama, Stelios Michalopoulos, Massimo Morelli, Torsten Persson, Alessandro Riboni, Jesse Shapiro, Arthur Silve, Stefanie Stantcheva, Cecilia Testa, Matthew Weinzierl, and Ekaterina Zhuravskaya. We thank Catalist and TargetSmart for providing the U.S. individual-level panel data and responding to our

queries about them, as well as Paul DiBello and Robert Freeman for invaluable help managing the data acquisition and setting up the data work. We further thank Sahil Chinoy and Martin Koenen for collaboration on the code to clean and construct the TargetSmart voter panel. We gratefully acknowledge generous funding from the Eric M. Mindich Research Fund on the Foundations of Human Behavior.

Supplementary Materials

Description of Data and Data Processing

Materials and Methods

Additional Analysis

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Tables S1 - S24

Supporting Information for "Causes and Extent of Increasing Partisan Segregation in the U.S. – Evidence from Migration Patterns of 212 Million Voters"

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A The Catalist and TargetSmart Data

A.1 Processing the TargetSmart Data

While Catalist provided us with anonymized, processed voter files – i.e., without identifying information such as names or residential addresses, the TargetSmart data include voters' names and addresses. Using this information, we process the TargetSmart data in two ways: 1) we further de-duplicate the data relative to what was already done by the data vendor and 2) we build on TargetSmart's work to identify movers. In the following sections, we detail these processing steps and present summary statistics of the pre-processed and processed TargetSmart voter data. The description of the TargetSmart data processing was developed in [1], and this section is largely reproduced from that paper's Supporting Information.

A.1.1 Initial Cleaning and De-duplication

TargetSmart provides a "voterbase ID" field (henceforth VBID) that uniquely identifies a row in the data for a given state and year. TargetSmart also provides an "exact track ID" (henceforth ETID), which represents TargetSmart's efforts to link individuals *across* states and years. We use this information plus first name, middle name, last name, date of birth, and vote history to de-duplicate the TargetSmart data, so that for each year the record used in the analysis is the most likely current record for each voter. We also use this information to build on TargetSmart's linkage model to further link voters across states and years.

First, we take the following steps to clean the raw TargetSmart files:

1. Use TargetSmart's field on whether a voter is found in the Social Security Death records to drop voters that are deceased.

2. Use TargetSmart's information from the United States Postal Service National Change of Address database to drop voters that no longer reside at their listed residence.

3. Remove hyphens and spaces from first and last names. Capitalize all letters of first and last names.

4. Recode invalid ZIP codes and Census IDs as missing.

5. De-duplicate records with the same ETID, first name, and last name, giving preference to the record whose registration status is "Registered" (vs. "Unregistered"), whose voter status is "Active" (vs. "Inactive," based on recent election participation), and with the most recent registration date.

6. Drop any records where the voter's age is listed as under 18 and the individual is listed as "Registered."

A.1.2 De-duplicating within States

To link rows *within the same state* corresponding to the same individual but across multiple years – in other words, to assign a state unique identifier (henceforth "SUID") – we take the following steps:

1. Assume records that share a VBID are the same person, and assign them the same SUID. However, if the same VBID has been assigned to two rows where the first name, last name, and date of birth are *all* different, or where the maximum difference in birth year is more than five years *and* the month and day of birth are different too, then break this link.

2. Drop individuals with a SUID that is never associated with a name or date of birth.

3. Group by ETID.

    - Case 1: If *at least one* of the first name, last name, and DOB are the same among all members of the group, and there is only one record per year, and the maximum age difference is less than or equal to five years, then assign all rows the same SUID.

- Case 2: If not everyone in the group shares *either* a first name, last name, or DOB, group them by name and DOB and – as long as there is only one record per year – assign rows within each group the same SUID.

4. For records that are unique *within a year* by first name, last name, and DOB, group records by these variables and assign them the same SUID.

5. For records that are unique *within a year* by first name, middle name, last name, and DOB, group records by these variables and assign them the same SUID.

A.1.3 De-duplicating across States

To link rows corresponding to the same individual *across* states – in other words, to assign a nationally unique identifier (henceforth "UID") – we take the following steps.

1. Drop rows missing first name, last name, or DOB.

2. Split the DOB field into year, month, and day. If the DOB ends in "01," set the DOB day to missing. If the DOB ends in "0101," set the DOB month and day to missing.[1]

3. Group by ETID and check that the maximum vote count for any election is 1. If so, assign these rows the same UID.

4. Group by first name, last name, and year, month, and day of birth. Ensure that:

    - Each record has non-missing information for all of the grouping variables.
    - Each record is uniquely identified by these variables within state.
    - The group has a record from at least two states.
    - The records do not have different middle initials.
    - The maximum vote count among records in the group for any election is one.

[1] We lose information by excluding some people who were actually born on the first of the month, or who were actually born on January 1. But there is no reliable way of determining whether a DOB ending in "0101" actually corresponds to a January 1 birthday, or whether it indicates that the month and day are missing.

If so, assign these rows the same UID.

5. Repeat the previous step using the following sets of grouping variables:

   - First name, middle name, last name, and year, month, and day of birth.
   - First name, last name, and year and month of birth.
   - First name, middle name, last name, and year and month of birth.
   - First name, last name, and year of birth.
   - First name, middle name, last name, and year of birth.

A.2 Catalist and TargetSmart: A Comparison

In SI Table S1, we provide year-by-year comparisons of summary statistics in states recording partisan registration for comparable variables in the Catalist and TargetSmart data. The proportions of Democratic, Republican, Black, Hispanic, white, and male voters are similar between the two datasets. However, we note a slight difference in the number of registered voters, which is lower in the TargetSmart data.[2]

The number of counties and Census Tracts in the Catalist data is slightly lower than in the TargetSmart data. We exclude from the Catalist data several sparsely populated Alaskan county equivalents and their Census Tracts as they were divided into multiple counties between 2008 and 2018. We proceed that way as it is unclear whether the county FIPS codes for individuals in the original counties changed due to relocation or reassignment to new counties without moving. Additionally, we drop Mono county, California (FIPS code 06-051), Broomfield County, and Colorado (FIPS code 08-014), due to apparent inconsistencies in voter partisanship classification during certain years. For example, in some years, most or all voters in these counties are reported as having missing party affiliation.

[2]The numbers presented in this subsection are based on TargetSmart counts following the processing outlined in Section A.1.

Table S1: Summary Statistics, Catalist and TargetSmart Data

	Catalist	TargetSmart
	(1)	(2)
	Panel A. 2008	
States	30	-
Counties	1,373	-
Census Tracts	36,541	-
Registered voters	99,239,654	-
Share Democrat	0.435	-
Share Republican	0.305	-
Share Black	0.099	-
Share Hispanic	0.089	-
Share white	0.763	-
Share male	0.461	-
	Panel B. 2010	
States	30	-
Counties	1,373	-
Census Tracts	36,532	-
Registered voters	97,234,739	-
Share Democrat	0.428	-
Share Republican	0.305	-
Share Black	0.100	-
Share Hispanic	0.093	-
Share white	0.756	-
Share male	0.461	-
	Panel C. 2012	
States	30	30
Counties	1,373	1,378
Census Tracts	36,543	40,944
Registered voters	100,387,678	84,797,031
Share Democrat	0.419	0.420
Share Republican	0.300	0.303
Share Black	0.104	0.089
Share Hispanic	0.100	0.092
Share white	0.742	0.763
Share male	0.461	0.461
	Panel D. 2014	
States	30	30
Counties	1,373	1,380
Census Tracts	36,544	41,015
Registered voters	100,266,211	88,916,458
Share Democrat	0.412	0.415
Share Republican	0.296	0.297
Share Black	0.106	0.089
Share Hispanic	0.104	0.096
Share white	0.734	0.755
Share male	0.462	0.463

(continued)

	Catalist	TargetSmart
	(1)	(2)
	Panel E. 2016	
States	30	30
Counties	1,373	1,380
Census Tracts	41,010	41,020
Registered voters	106,278,208	92,171,092
Share Democrat	0.411	0.415
Share Republican	0.296	0.299
Share Black	0.105	0.089
Share Hispanic	0.114	0.102
Share white	0.720	0.746
Share male	0.463	0.462
	Panel F. 2018	
States	30	30
Counties	1,373	1,380
Census Tracts	41,074	41,022
Registered voters	107,182,121	95,770,825
Share Democrat	0.404	0.406
Share Republican	0.290	0.292
Share Black	0.105	0.087
Share Hispanic	0.120	0.111
Share white	0.709	0.735
Share male	0.463	0.462
	Panel G. 2020	
States	-	30
Counties	-	1,380
Census Tracts	-	41,024
Registered voters	-	103,676,124
Share Democrat	-	0.409
Share Republican	-	0.295
Share Black	-	0.085
Share Hispanic	-	0.118
Share white	-	0.723
Share male	-	0.460

Notes: The table reports year-specific summary statistics of comparable variables from the Catalist (column 1) and the TargetSmart data (column 2). For both datasets, the sample is restricted to registered voters in the 29 states plus DC that record party affiliation in every general election, 2008-2020.

B Materials and Methods

B.1 Measures of Segregation

We define Exposure to Democrats as the two-party Democratic registration share, which is:

$$\text{Two-party Democratic registration share}_{i,t} = \frac{\sum_{v \in i,t} D_{v,t}}{\sum_{v \in i,t} (D_{v,t} + R_{v,t})}, \tag{1}$$

where $D_{v,t}$ and $R_{v,t}$ are equal to 1 if voter v is registered as Democrat and Republican, respectively, in year t in geographic unit i and 0 otherwise. This measure ranges from 1 (all voters are Democrats) to 0 (all voters are Republicans).

The index of Dissimilarity, which measures the evenness of the distribution of partisans across sub-units within a geographic area, is defined as:

$$\text{Index of Dissimilarity}_{i,t} = \frac{1}{2} \sum_{j \in i} \left| \frac{\sum_{v \in j,t} D_{v,t}}{\sum_{v \in i,t} D_{v,t}} - \frac{\sum_{v \in j,t} R_{v,t}}{\sum_{v \in i,t} R_{v,t}} \right|, \tag{2}$$

where j is a sub-unit within i,[3] and $D_{v,t}$ and $R_{v,t}$ are defined as before. This index ranges from 0 (complete evenness) to 1 (complete segregation). It can be interpreted as the proportion of Democrats (Republicans) who would have to move to make Democrats (Republicans) evenly spread throughout unit i.

B.2 Classifying Geographic Units as Increasing versus Decreasing Segregation

To classify geographic units into those that contribute to increasing or decreasing geographic partisan segregation, we compute the change in each unit's contribution to the weighted variance of Exposure to Democrats.

Let $x_{i,t}$ be the Exposure to Democrats for unit i at time t, and $w_{i,t}$ the unit's weight defined as the fraction of registered voters living in that unit, so that $\sum_{i=1}^{n} w_{i,t} = 1$. The

[3] For our main calculations, we use Census Tracts as the sub-unit.

weighted variance σ_t^2 of the Exposure to Democrats at time t is given by:

$$\sigma_t^2 = \frac{\sum_{i=1}^{n} w_{i,t} \times (x_{i,t} - \mu_t)^2}{\sum_{i=1}^{n} w_{i,t}}, \tag{3}$$

where the weighted mean μ_t at time t is:

$$\mu_t = \frac{\sum_{i=1}^{n} w_{i,t} \times x_{i,t}}{\sum_{i=1}^{n} w_{i,t}}. \tag{4}$$

The contribution of unit i to the weighted variance at time t is:

$$c_{i,t} = w_{i,t} \times (x_{i,t} - \mu_t)^2. \tag{5}$$

The change in the contribution of unit i to the weighted variance between t and $t+1$ is:

$$\Delta c_i = c_{i,t+1} - c_{i,t}. \tag{6}$$

With this, we obtain:

$$\text{Contribution to partisan segregation} = \begin{cases} \text{Increased it} & \text{if } \Delta c_i > 0 \\ \text{Decreased it} & \text{if } \Delta c_i \leq 0 \end{cases}$$

B.3 Decomposing the Increase in Segregation into Contributing Factors

The change in Exposure to Democrats $\frac{D}{(D+R)}$ between years y_1 and y_2 in a particular area can be written as follows, after using partial derivatives:

$$\begin{aligned} \Delta \frac{D}{(D+R)} &\approx \frac{R_{y_1}}{(D_{y_1}+R_{y_1})^2}\Delta D - \frac{D_{y_1}}{(D_{y_1}+R_{y_1})^2}\Delta R \\ &\approx \sum_f \left(\frac{R_{y_1}}{(D_{y_1}+R_{y_1})^2}\Delta D_f - \frac{D_{y_1}}{(D_{y_1}+R_{y_1})^2}\Delta R_f \right) \\ &\approx \sum_f \Delta_f, \end{aligned} \tag{7}$$

where Δ's indicate changes between y_1 and y_2, R_{y_1} and D_{y_1} are counts of Republicans and Democrats in the area in y_1, and contributing factors are indexed by f. ΔD_f and ΔR_f denote net changes in counts of Democrats and Republicans due to factor f, and Δ_f is the contribution of factor f to the change in Exposure to Democrats, and is equal to:

$$\Delta_f = \frac{R_{y_1}}{(D_{y_1} + R_{y_1})^2} \Delta D_f - \frac{D_{y_1}}{(D_{y_1} + R_{y_1})^2} \Delta R_f. \tag{8}$$

For all factors except voters switching between the Democratic and Republican parties, 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 $N_{I,f}$ is the number of voters who, due to factor f, were registered Democrats or Republicans in the area in y_2 but not in y_1; $N_{O,f}$ is the number of voters who, due to factor f, were registered Democrats or Republicans in the area in y_1 but not in y_2; $s^D_{I,f}$ (resp. $s^R_{I,f}$) is the share of voters who were newly registered as Democrats (resp. Republicans) in the area in y_2 due to factor f; and $s^D_{O,f}$ (resp. $s^R_{O,f}$) is the share of voters who were no longer registered Democrats (resp. no longer registered Republicans) in the area in y_2 due to factor f. For instance, when we consider the contribution of voters moving across locations to changes in Exposure to Democrats, $N_{I,f}$ is the number of voters registered as Democrats or Republicans in the area in y_2 who used to live in another area before, and $s^D_{I,f}$ is the share of those voters registered as Democrats in y_2.

Replacing ΔD_f and ΔR_f in Equation (8), we obtain the following equation:

$$\begin{aligned} \Delta_f = N_{I,f} \times \Big(&\frac{R_{y_1}}{(D_{y_1} + R_{y_1})^2} s^D_{I,f} - \frac{D_{y_1}}{(D_{y_1} + R_{y_1})^2} s^R_{I,f}\Big) \\ - N_{O,f} \times \Big(&\frac{R_{y_1}}{(D_{y_1} + R_{y_1})^2} s^D_{O,f} - \frac{D_{y_1}}{(D_{y_1} + R_{y_1})^2} s^R_{O,f}\Big). \end{aligned} \tag{9}$$

A factor f can contribute to the change in Exposure to Democrats for two reasons: i) if the number of Democrats and Republicans concerned by factor f is large (i.e., $N_{I,f}$

and $N_{O,f}$ take large values), 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 correlation between $\Delta\frac{D}{(D+R)}$ on one hand, and $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ or $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ on the other. This correlation is informative because affiliated voters appearing in (resp. disappearing from) the area between y_1 and y_2 due to factor f generate a positive Δ_f and contribute to increasing $\frac{D}{(D+R)}$ if and only if $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ is positive (resp. $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ is negative). Intuitively, $\frac{D}{(D+R)}$ 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:

$$\Delta D_f = -\Delta R_f = \beta R_{y_1} - \alpha D_{y_1},$$

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 (8), we obtain that:

$$\Delta_f = \frac{\beta R_{y_1} - \alpha D_{y_1}}{R_{y_1} + D_{y_1}}. \tag{10}$$

Δ_f is positive if and only if $\frac{\beta}{\alpha+\beta} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ 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 $\frac{\beta}{\alpha+\beta} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$.

B.4 Decompositions by Demographic Groups

For decompositions by demographic groups, we drop voters with missing demographic information. For example, for the decomposition by age, we drop voters with missing age information. Let i be a geographic unit (e.g., county) identifier classified in geographic category I (e.g., all counties trending Democratic). Let g be a socio-demographic

sub-category in group category G (e.g., male or female in the group category gender). Let f be a contributing factor (e.g., generational change). We can decompose the change in Exposure to Democrats explained by factor f in geographic category I into the sum of the change explained by that factor in each group for all groups g in demographic category G and all geographies i comprising geographic category I:

$$\Delta \frac{D_I}{D_I + R_I} = \sum_{i \in I} \sum_{g \in G} \Delta_{i,g,f}. \tag{11}$$

Per the decomposition formalized in the previous section, we define $\Delta_{i,g,f}$ as follows:

$$\Delta_{i,g,f} = \frac{R_{y_1}}{(D_{y_1} + R_{y_1})^2} \Delta D_{i,g,f} - \frac{D_{y_1}}{(D_{y_1} + R_{y_1})^2} \Delta R_{i,g,f}. \tag{12}$$

We are interested in the share of an explaining factor explained by a socio-demographic group computed across all counties that share the same trend in partisan composition (either trending Democratic or trending Republican). Mathematically, we want to compute the following share, $S_{g,f}$, per factor f and socio-demographic sub-category g, knowing that $\sum_{g \in G} S_{g,f} = 1$:

$$S_{g,f} = \frac{\sum_{i \in I} \Delta_{i,g,f}}{\sum_{g \in G} \sum_{i \in I} \Delta_{i,g,f}}. \tag{13}$$

We compute the above statistics for each race, gender, and age category in our data. We do so separately for counties that trended Democratic and trended Republican across the time period. For gender, the categories are male and female. For race, the categories are white, Black, Hispanic, and other. For age, we group voters into age quartiles based on their age at first registration in the voter files.

C Increase in Geographic Partisan Segregation Across all Years, Using Different Geographic Units, and Using Presidential Election Results

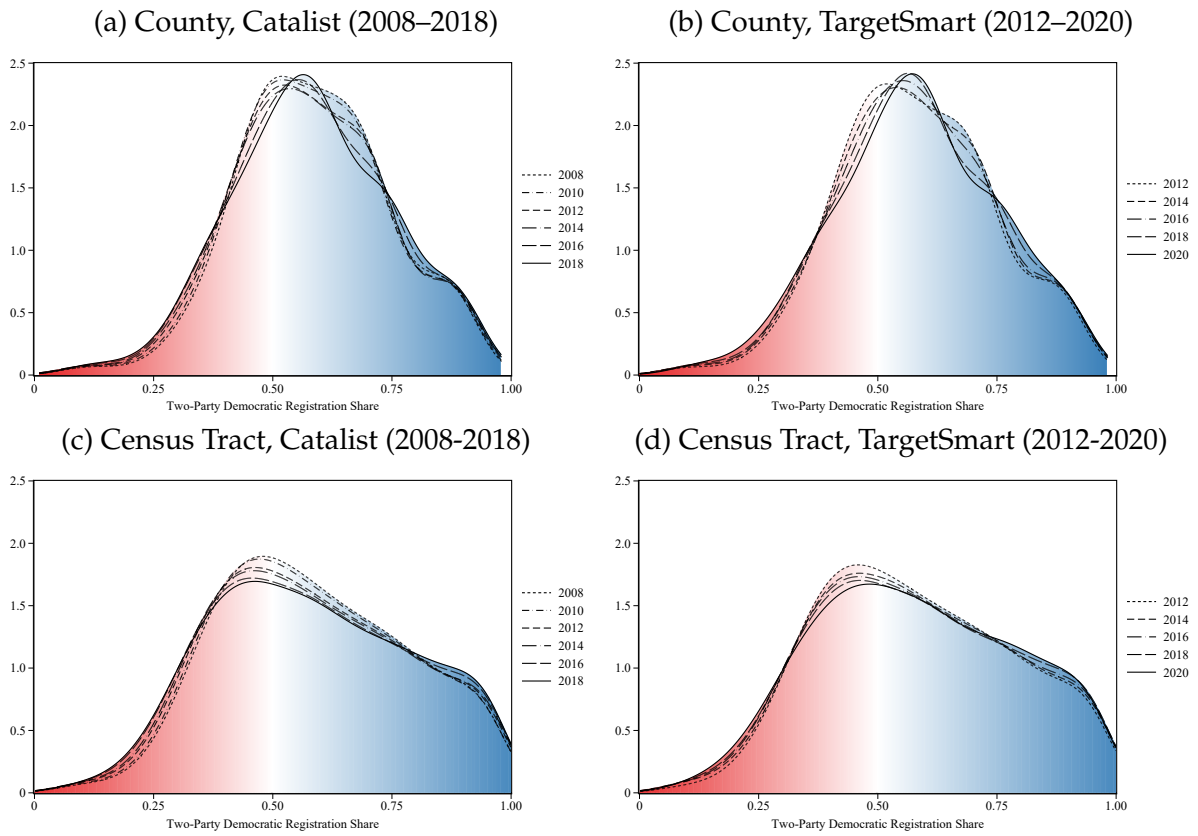
In the main paper, we document rising geographic partisan segregation across counties and Census Tracts. This is evidenced by the widening distributions of Exposure to Democrats in these geographic units and the increasing segregation of partisan groups across neighborhoods within counties, as measured by the index of Dissimilarity. Here, we demonstrate the robustness of these trends across all years covered by our data, across different geographic units (i.e., Congressional Districts, Census Block Groups, and Census Blocks), and using both Catalist and TargetSmart voter files. We also validate these trends using alternative data sources, such as presidential election results, and assess the overall increase in the proportions of Democrats or Republicans out of total registrants.

C.1 Year-to-year Increase in Geographic Partisan Segregation at the County and Census Tract Levels

SI Figure S1 shows the weighted distributions of Exposure to Democrats in each election year at the county and Census Tract levels, using the Catalist data from 2008 to 2018 (left panel) and the TargetSmart data from 2012 to 2020 (right panel). The standard deviation, mean, and kurtosis – each weighted by counts of registered voters in a given year in a county (resp. Census Tract) – are presented in SI Table S2.

Both data sources show year-to-year increases in geographic partisan segregation across counties. This is evidenced by a widening distribution, with the weighted SD increasing by 7.7% between 2008 and 2018 in the Catalist data, and by 6.9% between 2012 and 2020 in the TargetSmart data. The near-identical year-by-year weighted standard deviations at the county level between the two datasets indicate that geographic partisan segregation has increased by approximately 9.7% from 2008 to 2020 at this level. Wider distributions imply that more people in the electorate are living in homogeneous

Figure S1: Distribution of Exposure to Democrats at the County and Census Tract Levels, All Years, Catalist and TargetSmart Data



Notes: The figure plots kernel density estimates of Exposure to Democrats at the county and Census Tract levels. Panels A and C use Catalist data for the 2008–2018 elections. Panels B and D use TargetSmart data for the 2012–2020 elections. All kernel density estimates are weighted by counts of registered voters in a given election and use a Gaussian kernel with bandwidth of 0.05.

counties, trending either Democratic or Republican. However, the decrease in the weighted kurtosis shows that the likelihood of having counties in the extreme tails of this distribution has decreased.

The equivalent distributions and statistics at the Census Tract level are also shown in SI Figure S1 and SI Table S2. They confirm the continuous increase in geographic partisan segregation, with year-to-year increases in weighted standard deviations and the widening of the distribution at the Census Tract level. While slightly smaller than those at the county level, Census Tract-level shifts are still substantial, with an increase of 7.2% between 2008 and 2018 in the Catalist data and 4.5% between 2012 and 2020 in the TargetSmart data. The weighted kurtosis also decreases at the Census Tract level in both datasets.

Table S2: County- and Census Tract-Level Summary Statistics of Exposure to Democrats, All Years, Catalist and TargetSmart Data

	Catalist			TargetSmart		
	Std. Dev.	Mean	Kurtosis	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A. Counties			
2008	0.155	0.587	2.956	-	-	-
2010	0.157	0.583	2.948	-	-	-
2012	0.161	0.582	2.920	0.159	0.581	2.869
2014	0.163	0.581	2.864	0.163	0.582	2.856
2016	0.165	0.581	2.784	0.164	0.582	2.819
2018	0.167	0.583	2.759	0.167	0.584	2.786
2020	-	-	-	0.170	0.584	2.703
			Panel B. Census Tracts			
2008	0.195	0.587	2.291	-	-	-
2010	0.197	0.584	2.282	-	-	-
2012	0.202	0.582	2.250	0.200	0.579	2.214
2014	0.204	0.581	2.224	0.204	0.580	2.225
2016	0.207	0.581	2.169	0.206	0.580	2.189
2018	0.209	0.583	2.148	0.208	0.581	2.169
2020	-	-	-	0.209	0.581	2.150

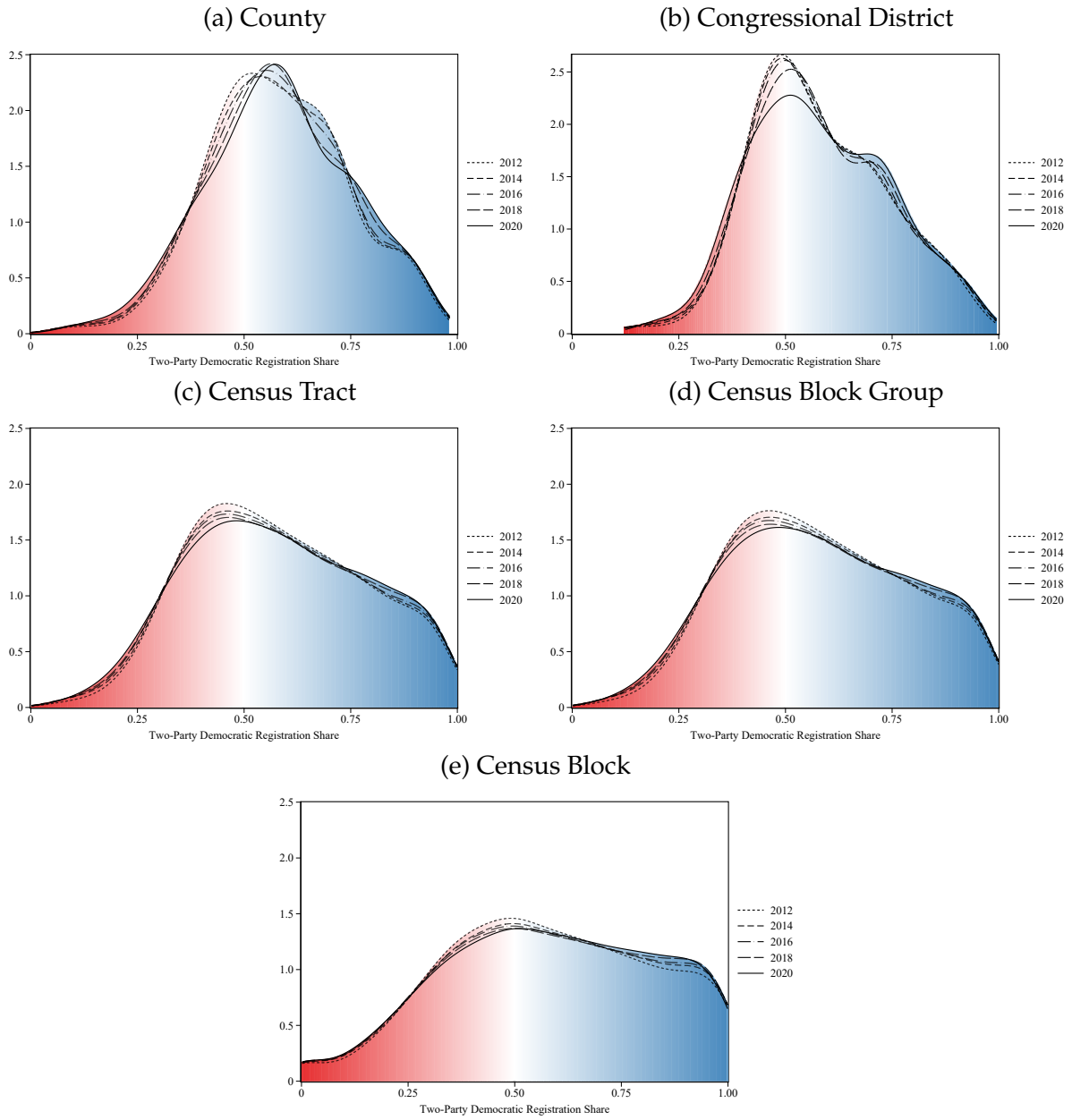
Notes: The table reports county-level (Panel A) and Census Tract-level (Panel B) year-specific standard deviations, means, and kurtoses of Exposure to Democrats, based on the Catalist and TargetSmart data. All statistics are weighted by counts of registered voters in each geographic unit in a given year.

C.2 Increase in Geographic Partisan Segregation across other Geographic Units Using the TargetSmart Data

SI Figure S2 presents year-by-year distributions of the Exposure to Democrats at other geographic levels: Congressional Districts, Census Block Groups, and Census Blocks. We use the TargetSmart data for these analyses, because these data feature detailed residential address information and consistent Congressional District boundaries, 2012–2020 (i.e., coverage of the TargetSmart data does not span a Decennial Census, which would result in redistricting).

SI Table S3 provides the weighted standard deviation, mean, and kurtosis for Congressional Districts, Census Block Groups, and Census Blocks using the TargetSmart

Figure S2: Distribution of Exposure to Democrats, All Years and Geographic Levels, TargetSmart Data



Notes: The figure plots kernel density estimates of Exposure to Democrats at the county (Panel A), Congressional District (Panel B), Census Tract (Panel C), Census Block Group (Panel D), and Census Block (Panel E) levels. All panels use TargetSmart data for the 2012–2020 elections. All kernel density estimates are weighted by counts of registered voters in a given election and use a Gaussian kernel with bandwidth of 0.05.

data across election years from 2012 to 2020. Trends and distributions at the Congressional District level largely reflect those observed at the county and Census Tract levels, with a 5.1% increase in the weighted standard deviation between 2012 and 2020. The distribution also widens at smaller geographic levels, such as Census Block Groups and

Census Blocks, although less than at the county and Census Tract levels. Specifically, the weighted standard deviation increased by 4.4% at the Census Block Group level and by 1.6% at the Census Block level between 2012 and 2020.

Table S3: Congressional District-, Census Block Group-, and Census Block-Level Summary Statistics of Exposure to Democrats, All Years, TargetSmart Data

	TargetSmart		
	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)
Panel A. Congressional Districts			
2012	0.156	0.581	2.678
2014	0.158	0.582	2.679
2016	0.158	0.582	2.659
2018	0.160	0.584	2.604
2020	0.164	0.584	2.444
Panel B. Census Block Groups			
2012	0.205	0.581	2.179
2014	0.210	0.581	2.188
2016	0.211	0.581	2.152
2018	0.213	0.583	2.132
2020	0.214	0.583	2.119
Panel C. Census Blocks			
2012	0.243	0.579	2.284
2014	0.245	0.582	2.253
2016	0.247	0.582	2.233
2018	0.248	0.584	2.229
2020	0.247	0.584	2.243

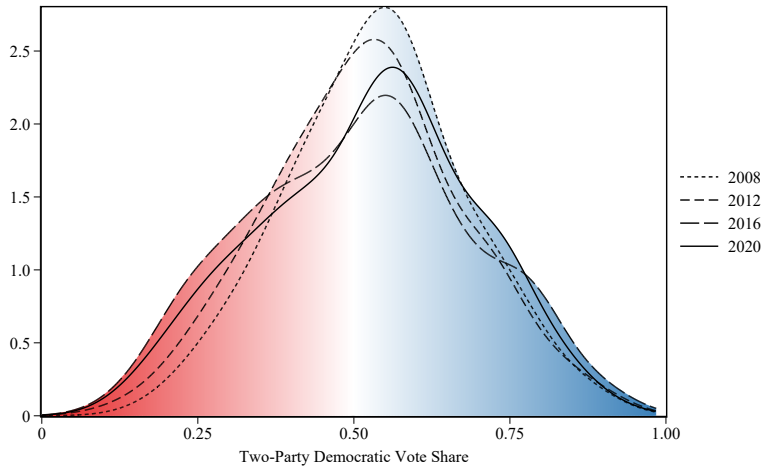
Notes: The table reports Congressional District- (Panel A), Census Block Group- (Panel B), and Census Block-level year-specific standard deviations, means, and kurtoses of Exposure to Democrats, based on the TargetSmart data. All statistics are weighted by counts of registered voters in each geographic unit in a given year.

The consistency of these trends across different geographic units confirms an overall increase in geographic partisan segregation. While the trend is more salient in larger geographic units, smaller geographic areas exhibit an initially higher concentration of registrants in homogeneously Democratic or Republican areas, as evidenced by the larger weighted standard deviations in these smaller geographies.

C.3 Increase in Geographic Partisan Segregation Using Electoral Results

We now use county-level vote share data from Dave Leip's Atlas of U.S. Presidential Elections [2] to check that our main findings are not limited to states with available partisan registration data. SI Figure S3 displays the weighted distribution of the two-party Democratic vote share at the county level for all presidential elections from 2008 to 2020. Consistent with our previous findings, there is an overall widening of the distribution over time, except for the period between 2016 and 2020. SI Table S4 further confirms this observation, showing an 18.1% increase in the standard deviation of the two-party Democratic vote share distribution in presidential elections between 2008 and 2020.

Figure S3: Distribution of County-Level Two-party Democratic Vote Share in Presidential Elections, Dave Leip's Atlas



Notes: The figure plots kernel density estimates of the county-level two-party Democratic vote share in presidential elections, 2008–2020, using data from Dave Leip's Atlas of U.S. Presidential Elections. All kernel density estimates are weighted by counts of total ballots cast in a given election and use a Gaussian kernel with bandwidth of 0.05.

Table S4: County-Level Statistics of the Two-Party Democratic Vote Share in Presidential Elections, Dave Leip's Atlas

	Dave Leip's Atlas of U.S. Presidential Elections		
	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)
2008	0.144	0.537	2.810
2012	0.155	0.520	2.774
2016	0.179	0.511	2.362
2020	0.170	0.523	2.444

Notes: The table reports county-level year-specific standard deviations, means, and kurtoses of the two-party Democratic vote share in presidential elections, based on Dave Leip's Atlas of U.S. Presidential Elections data. All statistics are weighted by county-level total votes cast in a given election.

C.4 Increase in Geographic Partisan Segregation within Larger Geographies Using the Index of Dissimilarity

To check the robustness of the increase in geographic partisan segregation *within* larger geographic units, we present the distributions of the index of Dissimilarity at the county and Congressional District levels.

SI Figure S4 displays the weighted distribution of the index across counties for each election year, using the Catalist and TargetSmart data. SI Table S5 reports the weighted statistics across years for both datasets. There is a general increase in the index of Dissimilarity over time, with an overall rightward shift in the distributions. The increase was particularly pronounced up to 2018, with a 9.6% increase in the mean of the index of Dissimilarity in the Catalist data between 2008 and 2018, and a 3.5% increase in the TargetSmart data between 2012 and 2018. We then observe a 1.7% decrease between 2018 and 2020 using the TargetSmart data.

SI Figure S4 and SI Table S6 demonstrate a similar pattern at the Congressional District level, with an overall increase of 2.9% between 2012 and 2020, which compounds a 5.0% increase between 2012 and 2018 and a 2.0% decrease between 2018 and 2020.

Table S5: County-Level Summary Statistics of the Index of Dissimilarity, Catalist and TargetSmart Data

	Catalist			TargetSmart		
	Std. Dev.	Mean	Kurtosis	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)	(4)	(5)	(6)
2008	0.088	0.218	3.025	-	-	-
2010	0.088	0.220	3.070	-	-	-
2012	0.092	0.227	4.023	0.087	0.230	3.205
2014	0.092	0.230	3.052	0.091	0.233	3.266
2016	0.091	0.237	3.056	0.090	0.237	3.235
2018	0.089	0.239	3.243	0.089	0.238	3.267
2020	-	-	-	0.086	0.234	3.625

Notes: The table reports county-level, year-specific standard deviations, means, and kurtoses of the two-party index of Dissimilarity (using Census Tracts as subunits), based on the Catalist and TargetSmart data. All statistics are weighted by county-level counts of registered voters in a given year.

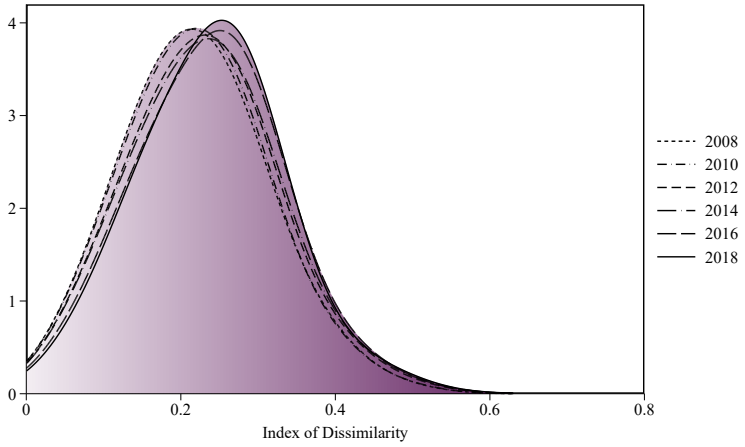
Table S6: Congressional District-Level Summary Statistics of the Index of Dissimilarity, TargetSmart Data

	TargetSmart		
	Std. Dev.	Mean	Kurtosis
	(4)	(5)	(6)
2012	0.081	0.241	5.173
2014	0.083	0.247	5.174
2016	0.083	0.252	5.162
2018	0.082	0.253	5.438
2020	0.082	0.248	5.354

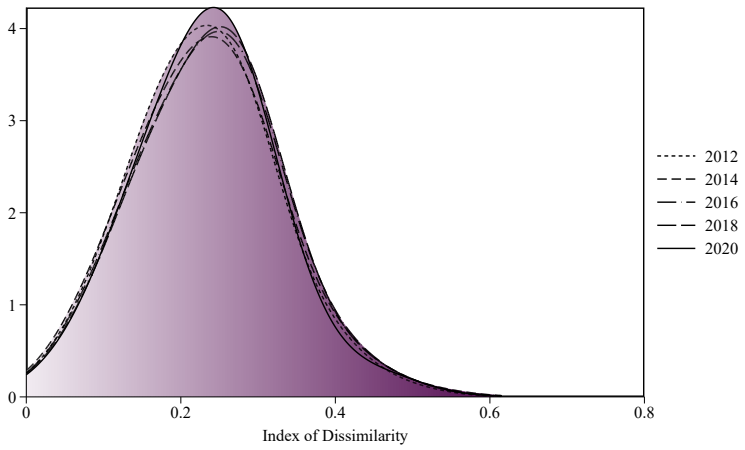
Notes: The table reports Congressional District-level, year-specific standard deviations, means, and kurtoses of the two-party index of Dissimilarity (using Census Tracts as subunits), based on the TargetSmart data. All statistics are weighted by Congressional District-level counts of registered voters in a given year.

Figure S4: Distribution of the Index of Dissimilarity at the County and Congressional District levels, Catalist and TargetSmart Data

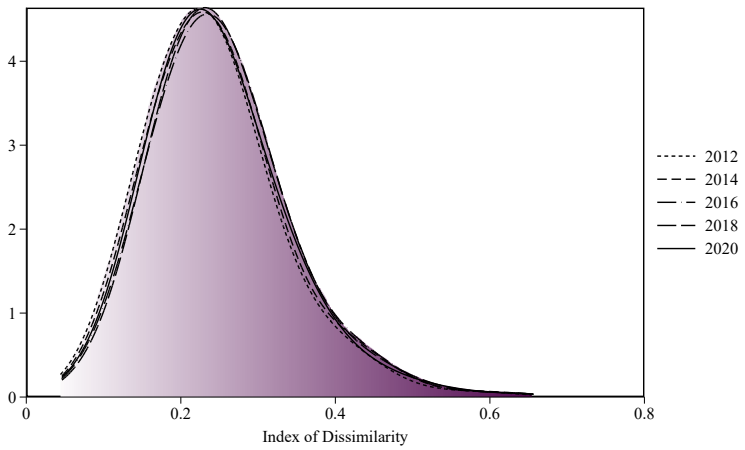
(a) County, Catalist (2008–2018)



(b) County, TargetSmart (2012–2020)



(c) Congressional District, TargetSmart (2012–2020)



Notes: The figure plots kernel density estimates of the index of Dissimilarity at the county and Congressional District levels, using Census Tracts as sub-units and weighting by counts of registered voters in a given geographic unit-year. Panel A is based on Catalist data, 2008–2018. Panels B and C are based on TargetSmart data, 2012–2020. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05.

C.5 Comparing Trends in the Nationwide Index of Dissimilarity Computed with Different Data Sources

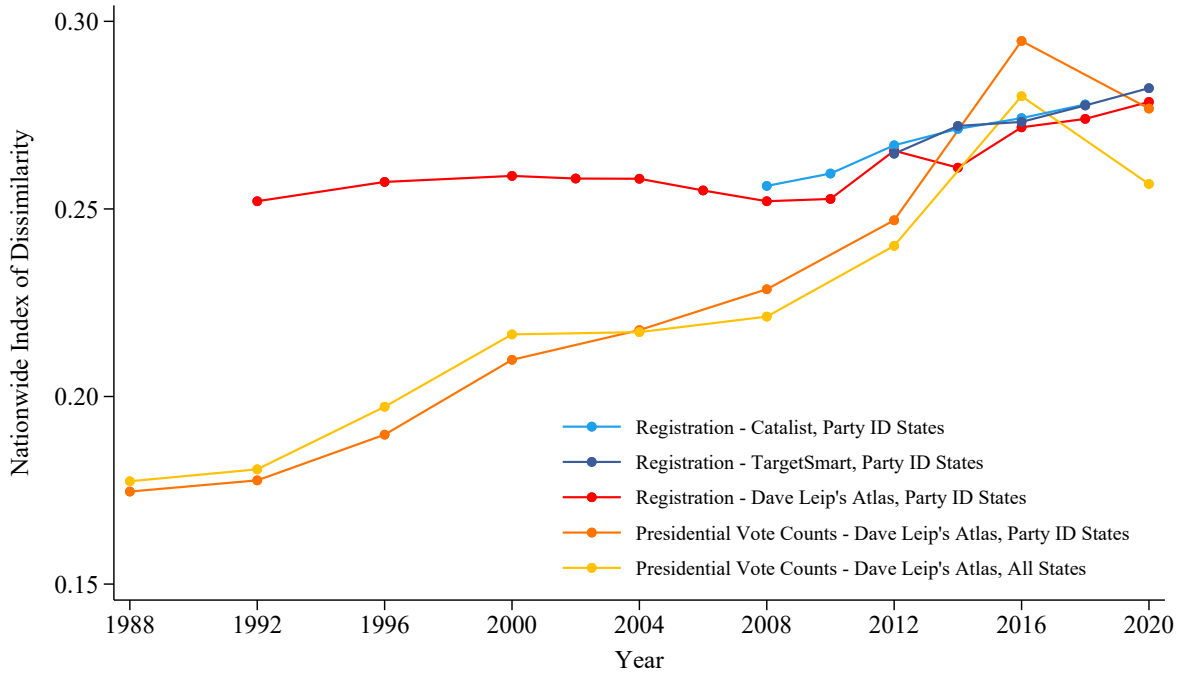
Here, we investigate whether geographic partisan segregation within the United States has increased, using the nationwide index of Dissimilarity computed with different data sources.

SI Figure S5 shows the trend in the nationwide index of Dissimilarity over time using different datasets: individual registration data from Catalist and TargetSmart, as well as county-level aggregate registration data and vote counts from Dave Leip's Atlas of U.S. Presidential Elections. All series use counties as sub-units. We observe that the nationwide index of Dissimilarity has generally increased since the respective starting dates of the different data sources (namely, 1988 for aggregate presidential vote counts, 1992 for aggregate registration data, 2008 for the Catalist data, and 2012 for the TargetSmart data). Compared to aggregate vote counts, registration data (both aggregate and individual) tend to show a higher value of the nationwide index of Dissimilarity, but a less pronounced increase over time and no abrupt decrease between 2016 and 2020.

Overall, we find that the results obtained using individual partisan registration data closely align with the trends observed using aggregate registration data. In addition, the use of vote counts confirms that the states for which partisan registration data are available follow a similar trend as the rest of the United States.

SI Figure S6 demonstrates that the nationwide increase in geographic partisan segregation is visible irrespective of the choice of geographic sub-unit: Congressional Districts, counties, Census Tracts, Census Block Groups, or Census Blocks. We find that the smaller the geographic sub-unit, the greater the magnitude of the nationwide index of Dissimilarity. This result is expected, given the higher level of partisan segregation observed across smaller geographic units (see SI Figure S2). The trends are similar in the TargetSmart and Catalist data, regardless of the specific geographic sub-units studied.

Figure S5: Nationwide Index of Dissimilarity Across Data Sources



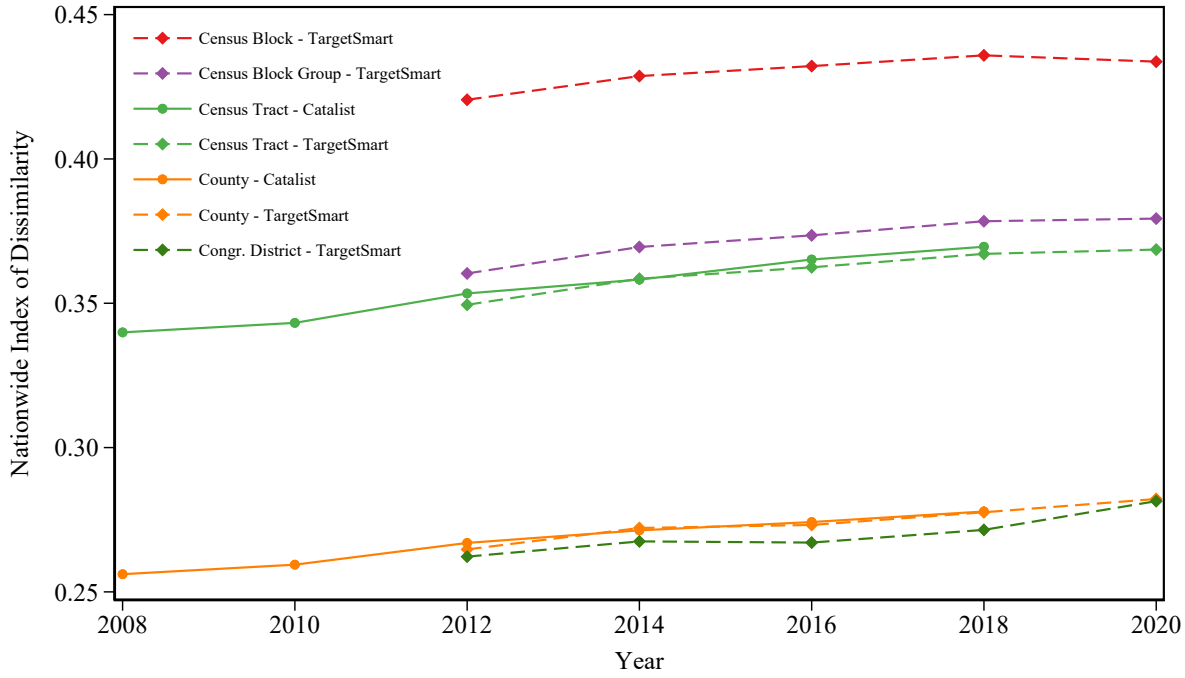
Notes: The figure plots the over-time evolution of the nationwide index of Dissimilarity using data from Catalist, TargetSmart, and Dave Leip's Atlas of U.S. Presidendial Elections. All series use counties as sub-units. For both Catalist and TargetSmart, the plotted index of Dissimilarity is computed for the 29 states plus D.C. that record party affiliation in every general election, 2008–2020. For Dave Leip's Atlas of U.S. Presidential Elections, we plot three series of the index of Dissimilarity: one for two-party voter registration shares in the 29 states plus D.C. that record party affiliation; one for two-party vote shares in presidential elections in all 50 states plus D.C.; and one for two-party vote shares in presidential elections in the 29 states plus D.C. that record party affiliation.

C.6 Shifts in the Relative Proportion of Democrats or Republicans out of Total Registrants

Our preferred measure of Exposure to Democrats is the two-party Democratic registration share (i.e., the proportion of Democrats out of the total number of Democrats and Republicans). This statistic symmetrically indicates whether a place is more Democratic or more Republican by excluding non-partisans from the denominator. Here, we present statistics showing the proportions of Democrats and Republicans out of total registrants across counties and Census Tracts (SI Tables S7 and S8).

One general pattern is the increasing number of non-partisan voters over this period, resulting in a decrease in the weighted averages of both the proportions of Democrats and Republicans over time. This decrease is more pronounced for Democrats at the

Figure S6: Nationwide Index of Dissimilarity Across Geographic Sub-Units, Catalist and TargetSmart Data



Notes: The figure plots the over-time evolution of the nationwide index of Dissimilarity using data from Catalist and TargetSmart, for different types of geographic sub-units. Different colors denote indices of Dissimilarity computed using different geographic sub-units (e.g., red for Census Blocks and purple for Census Block Groups). Solid and dashed lines refer to indices of Dissimilarity computed using Catalist and TargetSmart data, respectively.

county and Census Tract levels, particularly in the Catalist data,[4] although there are more registered Democrats than Republicans overall.

While the standard deviation of the proportion of Democrats fluctuates, there is a consistent increase in the standard deviation of the proportion of Republicans. This trend suggests that counties and Census Tracts are increasingly likely to contain either a small or a large proportion of Republicans over time.

[4]Specifically, we observe a 7.1% decrease (resp. 2.6%) in the proportion of Democrats compared to a 4.9% (resp. 2.6%) decrease in the proportion of Republicans in the Catalist data between 2008 and 2018 (resp. in the TargetSmart data between 2012 and 2020) at the county level. We find similar magnitudes at the Census Tract level: a 7.1% (resp. 2.9%) decrease in the proportion of Democrats compared to a 4.9% (resp. 2.3%) decrease in the proportion of Republicans in the Catalist data (resp. in the TargetSmart data).

Table S7: County- and Census Tract-Level Summary Statistics of the Democratic Registration Share Using All Registrants, Catalist and TargetSmart Data

	Catalist			TargetSmart		
	Std. Dev.	Mean	Kurtosis	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A. Counties			
2008	0.138	0.435	3.535	-	-	-
2010	0.139	0.428	3.528	-	-	-
2012	0.139	0.419	3.516	0.137	0.420	3.570
2014	0.139	0.412	3.530	0.140	0.415	3.549
2016	0.137	0.411	3.554	0.136	0.415	3.565
2018	0.134	0.404	3.694	0.135	0.406	3.698
2020	-	-	-	0.135	0.409	3.458
			Panel B. Census Tracts			
2008	0.171	0.437	2.907	-	-	-
2010	0.172	0.431	2.914	-	-	-
2012	0.173	0.421	2.952	0.170	0.420	3.008
2014	0.173	0.415	2.981	0.172	0.413	3.003
2016	0.171	0.413	2.943	0.170	0.413	2.946
2018	0.168	0.406	3.024	0.167	0.405	3.054
2020	-	-	-	0.165	0.408	2.909

Notes: The table reports county-level (Panel A) and Census Tract-level (Panel B) year-specific standard deviations, means, and kurtoses of the Democratic registration share (i.e., the share of Democrats among all registered voters), based on the Catalist and TargetSmart data. All statistics are weighted by counts of registered voters in each geographic unit in a given year.

Table S8: County- and Census Tract-Level Summary Statistics of the Republican Registration Share Using All Registrants, Catalist and TargetSmart Data

	Catalist			TargetSmart		
	Std. Dev.	Mean	Kurtosis	Std. Dev.	Mean	Kurtosis
	(1)	(2)	(3)	(4)	(5)	(6)
			Panel A. Counties			
2008	0.122	0.305	2.928	-	-	-
2010	0.123	0.305	3.075	-	-	-
2012	0.125	0.300	3.073	0.125	0.303	2.931
2014	0.125	0.296	3.215	0.127	0.297	3.211
2016	0.128	0.296	3.150	0.129	0.299	3.194
2018	0.131	0.290	3.287	0.131	0.292	3.334
2020	-	-	-	0.136	0.295	3.251
			Panel B. Census Tracts			
2008	0.153	0.305	2.327	-	-	-
2010	0.154	0.304	2.377	-	-	-
2012	0.156	0.300	2.363	0.156	0.303	2.330
2014	0.156	0.296	2.413	0.157	0.298	2.439
2016	0.159	0.296	2.384	0.160	0.300	2.423
2018	0.160	0.290	2.452	0.161	0.293	2.501
2020	-	-	-	0.164	0.296	2.499

Notes: The table reports county-level (Panel A) and Census Tract-level (Panel B) year-specific standard deviations, means, and kurtoses of the Republican registration share (i.e., the share of Republicans among all registered voters), based on the Catalist and TargetSmart data. All statistics are weighted by counts of registered voters in each geographic unit in a given year.

D Additional Results on the Overall Changes in Geographic Partisan Segregation

D.1 Statistical Significance of Changes in Geographic Partisan Segregation

To test the statistical significance of changes in geographic partisan segregation, we estimate the following model:

$$\mathrm{c}_{i,t} = \alpha + \beta t + \mu_i + \epsilon_{i,t},$$

where t represents time measured as the order of the election (one for the first election, two for the second one, etc.), μ_i is a unit fixed effect, and $c_{i,t}$ is the contribution of unit i to the weighted variance of the Exposure to Democrats at time t as defined in Section B.2. The coefficient on time β reflects the average rate at which a unit's contribution to the weighted variance changes across elections. Standard errors are clustered at the geographic unit level.

SI Table S9 presents the time coefficients for each type of geographic unit based on the Catalist and TargetSmart data. All columns point to a statistically significant increase in geographic partisan segregation over time.

We estimate a similar model using the index of Dissimilarity at the county level at time t as the dependent variable. Again, SI Table S10 shows a positive and significant correlation between time and the index of Dissimilarity.

D.2 Partisan Composition Trends by Baseline Partisan Composition

Here, we investigate whether geographic units that are initially Democratic (Republican) tend to become even more Democratic (Republican) over time. We do so by examining the relationship between the baseline partisan composition and the subsequent change in Exposure to Democrats.

A positive correlation is not required for the overall distribution to widen. For example, areas that are initially Democratic could become more homogeneously Republican,

Table S9: Regressions of the Contribution to Geographic Partisan Segregation on Electoral Years

	Outcome: Contribution to the Weighted Variance of Exposure to Democrats						
	County		Census Tract		Congr. Dist.	Census Block Group	Census Block
	Catalist	TargetSmart	Catalist	TargetSmart	TargetSmart	TargetSmart	TargetSmart
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Time	0.0020 **	0.0017 ~	0.0021 **	0.0019 **	0.0020 *	0.0019 **	0.0009 **
	(0.0007)	(0.0010)	(0.0001)	(0.0001)	(0.0010)	(0.0001)	(0.00002)
R^2	0.937	0.931	0.957	0.924	0.878	0.920	0.833
Observations	2,746	2,758	77,518	81,871	481	243,005	5,665,403
Unit FEs	✓	✓	✓	✓	✓	✓	✓

Notes: The table reports estimates from linear regressions of a geographic unit's contribution to partisan segregation on election years. We use two observations per unit, corresponding to 2008 and 2018 for the regressions using Catalist data, and to 2012 and 2020 for the regressions using TargetSmart data. All regressions, as well as year averages used to construct the dependent variable, are weighted by counts of registered voters in a given geographic unit in a given year.

** p < .01, * p < .05, ~ p < .10

Table S10: Regressions of the Index of Dissimilarity on Electoral Years

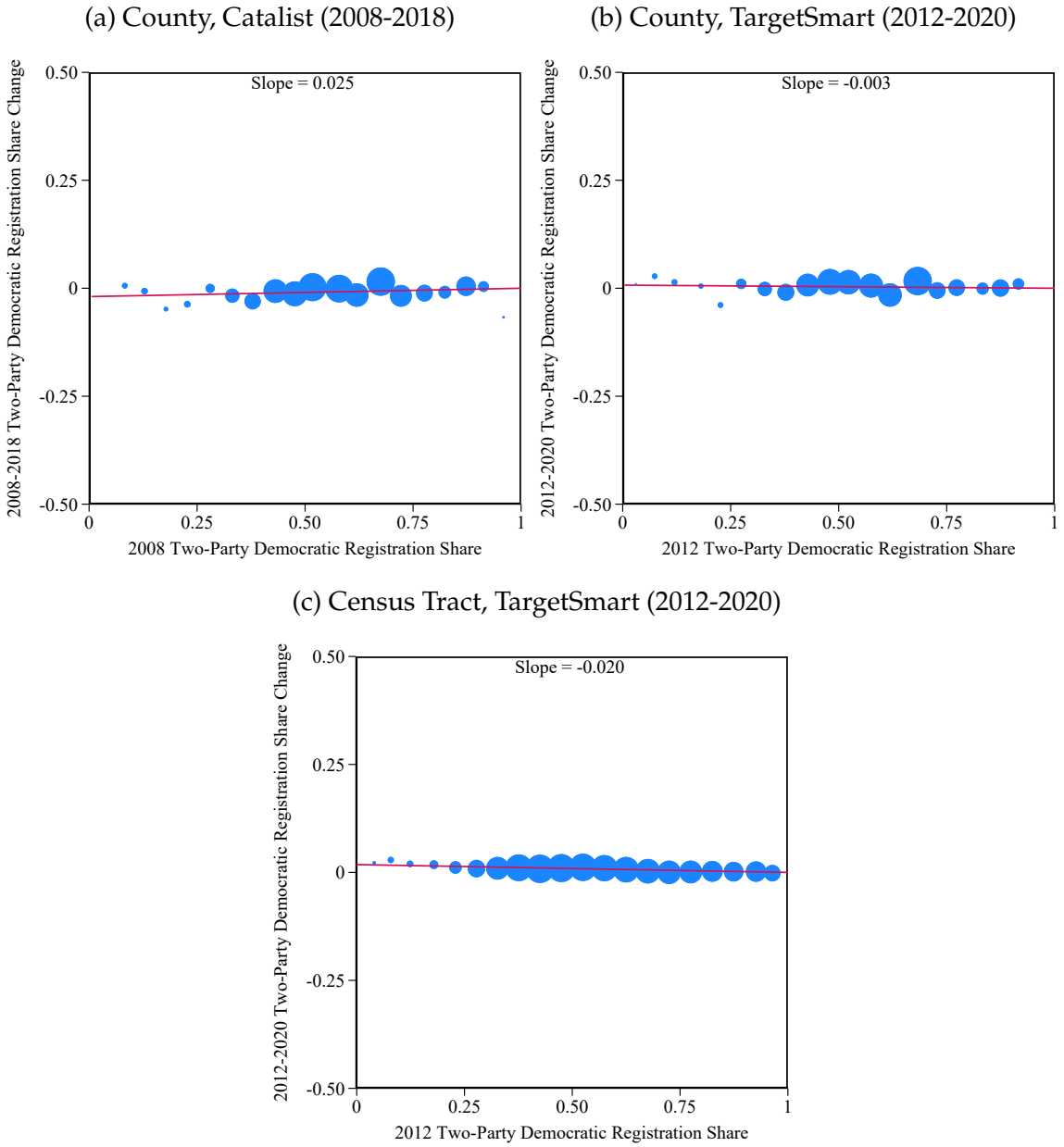
	Outcome: County-Level Index of Dissimilarity	
	Catalist	TargetSmart
	(1)	(2)
Time	0.0039 **	0.0013 **
	(0.0004)	(0.0005)
R^2	0.976	0.967
Observations	2,494	2,493
Unit FEs	✓	✓

Notes: The table reports estimates from linear regressions of a county's index of Dissimilarity (using Census Tracts as subgeographies) on election years. We use two observations per unit, corresponding to 2008 and 2018 for the regressions using Catalist data, and to 2012 and 2020 for the regressions using TargetSmart data. All observations are weighted by the corresponding number of registered voters.

** p < .01, * p < .05, ~ p < .10

and vice versa. SI Figure S7 (a) displays the correlation between the change in Exposure to Democrats between 2008 and 2018 (y-axis) and its baseline value in 2008 (x-axis), using the Catalist data at the county level. We observe a consistent positive relationship, with Democratic (Republican) counties becoming more Democratic (Republican).

Figure S7: Change in Exposure to Democrats against Initial Levels, Catalist and TargetSmart Data



Notes: The figures plot the binned scatterplot of the relationship between the change in Exposure to Democrats – on the y-axis – and its baseline value in 2008 (Catalist data) or 2012 (TargetSmart data) – on the x-axis, weighting by counts of registered voters in 2008 (Catalist data) or 2012 (TargetSmart data). The red line represents the best linear fit. Dot size reflects how many counties (resp. Census Tracts) are included in each bin.

However, this trend is not consistent across different geographic units or time periods. SI Figure S7 (b) presents the same relationship at the county level from 2012 to 2020, using the TargetSmart data. In that case, the correlation between the change in Exposure to Democrats and the baseline value is close to zero, perhaps reflecting a reversal in segregation in the TargetSmart data between 2018 and 2020. At the Census Tract level – SI Figure S7 (c), the relationship is negative, indicating that the widening of the distribution at the Census Tract level has primarily been driven by Democratic places becoming more Republican.

E Areas Contributing to the Increase in Geographic Partisan Segregation

Here, we present details about the areas contributing to the increase in geographic partisan segregation, categorizing geographic units as trending Democratic or Republican and evaluating whether they contributed to or alleviated segregation.

E.1 County Maps of Geographic Partisan Segregation Trends

SI Figure S8 maps the geographic distribution of county-level shifts in partisanship within states that track partisan affiliation, with counties shaded by their Exposure to Democrats in 2008 (using the Catalist data, top graph) or 2012 (using the TargetSmart data, bottom graph). Darker blue represents stronger Democratic exposure, while darker red indicates stronger Republican exposure. Arrows, colored blue or red, indicate counties that became more Democratic or Republican between 2008 and 2018 in the Catalist data (resp. between 2012 and 2020 in the TargetSmart data), with the arrow size proportional to the number of registered voters in each county as of 2008 (resp. 2012). Thus, the maps capture both the initial partisan composition and the trajectory of counties over the subsequent decade, highlighting the counties that experienced the largest partisan shifts in terms of net gains in the number of Democrats or Republicans.

Democratic exposure increased the most in large, urban coastal counties, especially in California, Florida, and the Northeast – areas already predominantly Democratic at baseline. Fewer instances of Democratic gains occurred in places that were initially Republican. In contrast, Republican exposure grew in diverse regions, including areas that had a higher Democratic base, such as counties in the Southwest, South, and the coal belt regions of Kentucky, West Virginia, and Pennsylvania.

SI Figure S9 shades counties by whether they are trending Democratic or Republican, and whether or not they contributed to the increase in partisan segregation from 2008 to 2018 (Catalist data, top graph) or from 2012 to 2020 (TargetSmart data, bottom graph). The increase in geographic partisan segregation is also well-clustered spatially, for both

Democratic and Republican-leaning places. Democratic-leaning counties that have become more homogeneous are primarily located on the East and West coasts. In contrast, Republican-leaning counties contributing to the rise in partisan segregation are concentrated in states like Nevada, Oregon, Kansas, Nebraska, South Dakota, and Iowa.

The places contributing to the rise in geographic partisan segregation *across* geographic units may not be the same as those experiencing an increase in partisan segregation *within* their boundaries. SI Figures S10 and S11 display county-level maps of the index of Dissimilarity, based on the Catalist and TargetSmart data, respectively. Republican-trending counties that contribute to partisan segregation *across* the U.S. tend to have lower values of the index of Dissimilarity, indicating a partisan population evenly distributed across their Census Tracts. In contrast, East- and West-coast Democratic-trending urban areas, which also contribute to partisan segregation *across* the U.S., typically have a higher index of Dissimilarity and have experienced a more pronounced increase in partisan segregation *within* their boundaries, with an increasingly heterogeneous partisan composition of their Census Tracts.

E.2 Socio-demographic Characteristics and Geographic Partisan Segregation Using the TargetSmart Data

We now present descriptive statistics of geographic units based on their contribution to geographic partisan segregation. These tables replicate Table 1 from the main paper, using TargetSmart data instead of Catalist data.

SI Table S11 categorizes counties by whether they contributed to or alleviated rising segregation and whether they were trending Democratic or Republican. SI Table S12 provides similar statistics by Census Tract.

In both tables, we confirm that the starkest demographic differences are between Democratic-leaning and Republican-leaning areas. Republican-leaning areas typically have lower population density, lower median income, a higher median age, and are less ethnically diverse, with a lower share of foreign-born and non-white individuals.

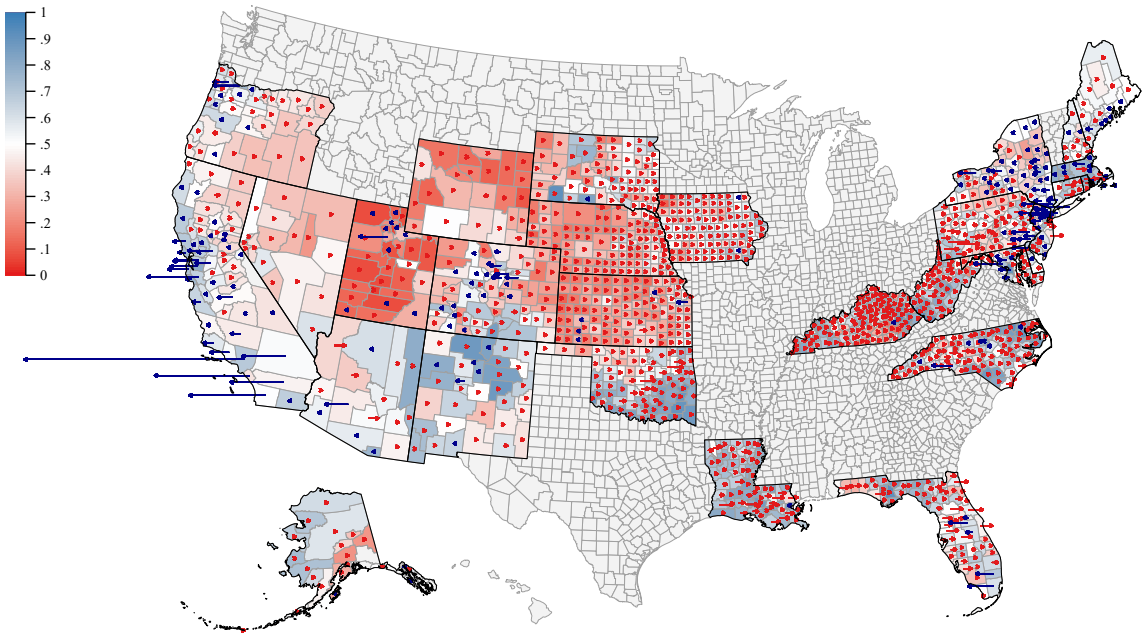
Additionally, Democratic-leaning units that contributed to geographic partisan segregation tend to have higher population densities and more ethnically diverse inhabitants compared to Democratic-leaning units that alleviated segregation, whereas the opposite trend is observed for Republican-leaning places.

E.3 Changes in Demographics and Geographic Partisan Segregation

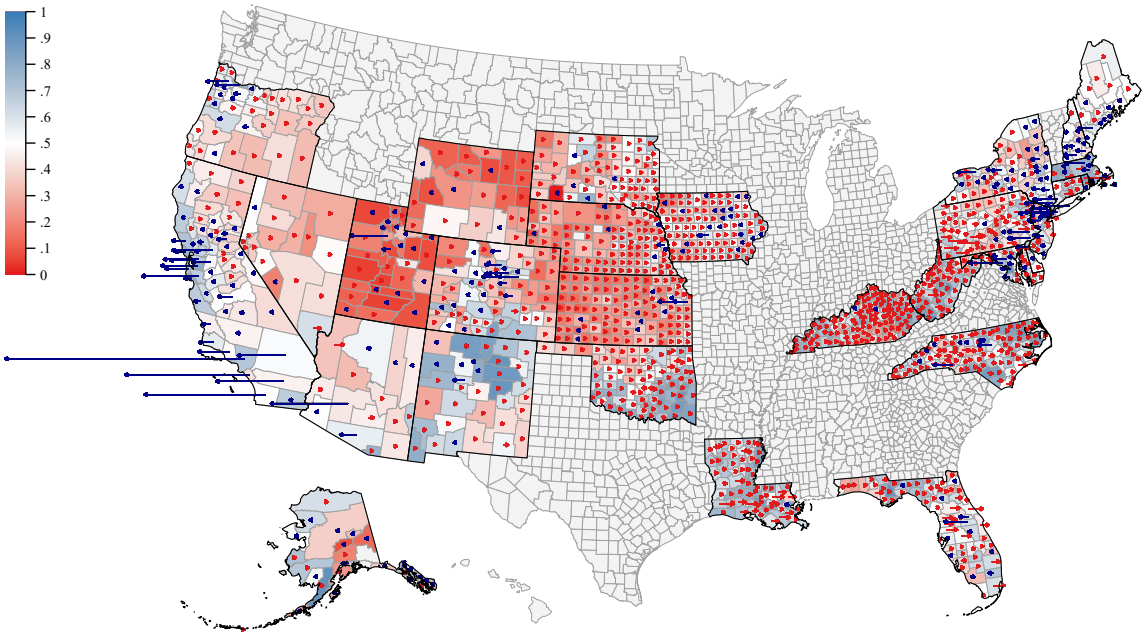
SI Tables S13–S14 present *changes* in average levels of demographic characteristics across counties contributing to or alleviating geographic partisan segregation, using the Catalist and TargetSmart data, respectively. In both tables, we observe a larger increase in the number of inhabitants in Democratic-leaning counties compared to Republican-leaning ones, which is partly due to their initially larger population. Consistent with Democratic segregation increasing in large urban counties, we find that the median age has increased the least in Democratic-leaning counties that contributed to segregation.

Figure S8: Change in County-Level Exposure to Democrats, Catalist and TargetSmart

(a) Catalist, 2008 to 2018



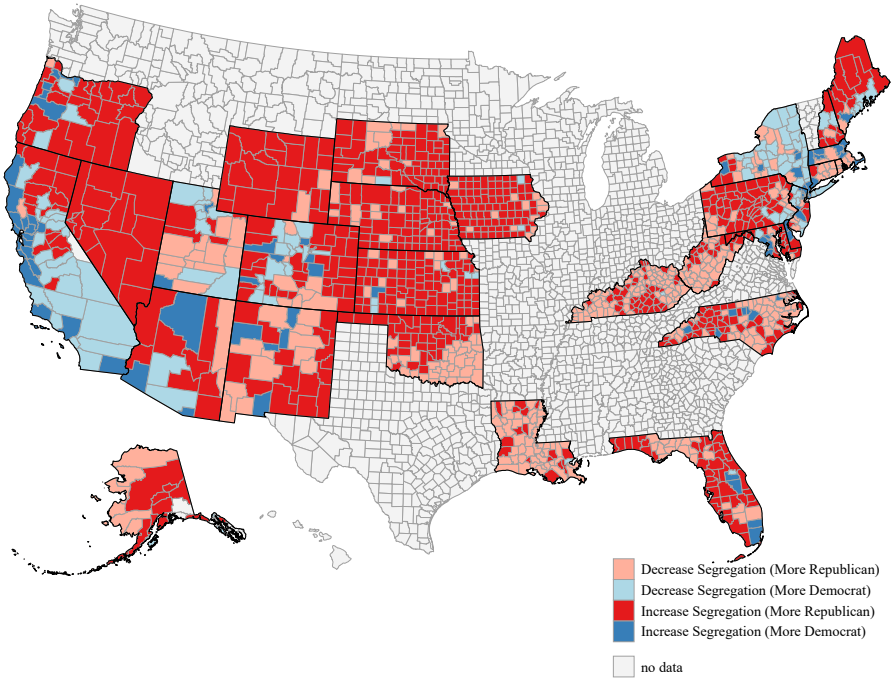
(b) TargetSmart, 2012 to 2020



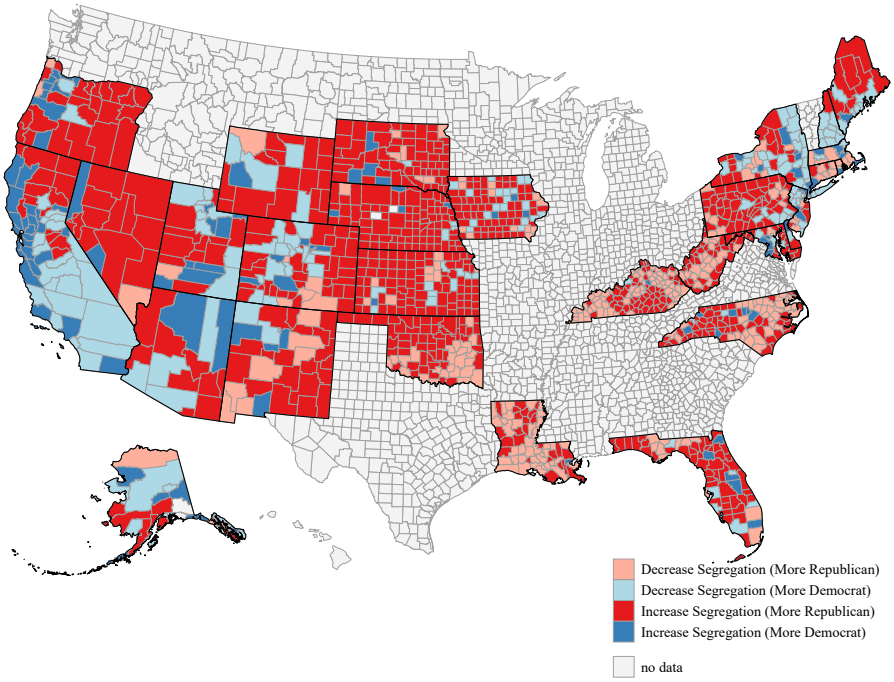
Notes: For the 29 U.S. states (plus D.C.) that record party affiliation in every general election, 2008–2020, counties are shaded red (more Republican) to blue (more Democratic) based on the level of Exposure to Democrats in 2008 (Panel A, based on Catalist data) or in 2012 (Panel B, based on Catalist data). Blue (resp. red) arrows mean that a county's Exposure to Democrats increased (resp. decreased) between 2008 and 2018 (Panel A) or between 2012 and 2020 (Panel B). Arrow length is proportional to the magnitude of the change in Exposure to Democrats, after weighting by baseline counts of registered voters in the county.

Figure S9: Counties Contributing vs. Resisting the Rise in Partisan Segregation, Catalist and TargetSmart

(a) Catalist, 2008 to 2018



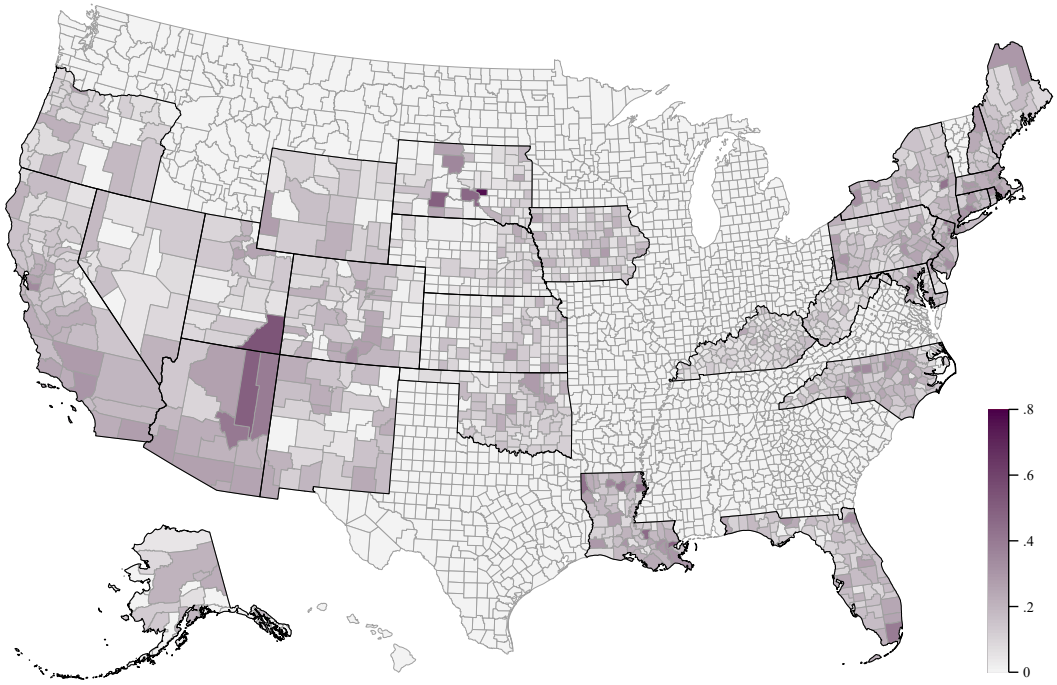
(b) TargetSmart, 2012 to 2020



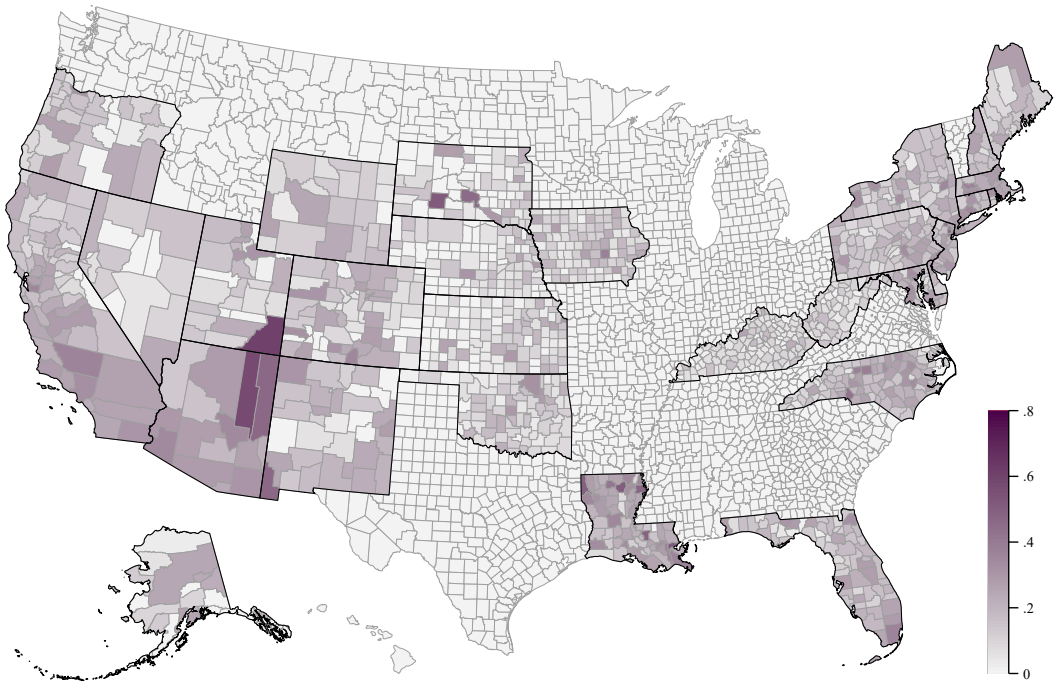
Notes: The maps show counties that, over the sample period, experienced an increase (colored in blue) vs. a decrease (colored in red) of Exposure to Democrats. Light (resp. dark) shades of a color denote counties that, over the sample period, contributed to reducing (resp. increasing) partisan segregation, by reducing (resp. increasing) the variance of Exposure to Democrats. Panel A uses 2008 and 2018 Catalist data. Panel B uses 2012 and 2020 TargetSmart data.

Figure S10: County-Level Index of Dissimilarity, Catalist, 2008 and 2018

(a) 2008



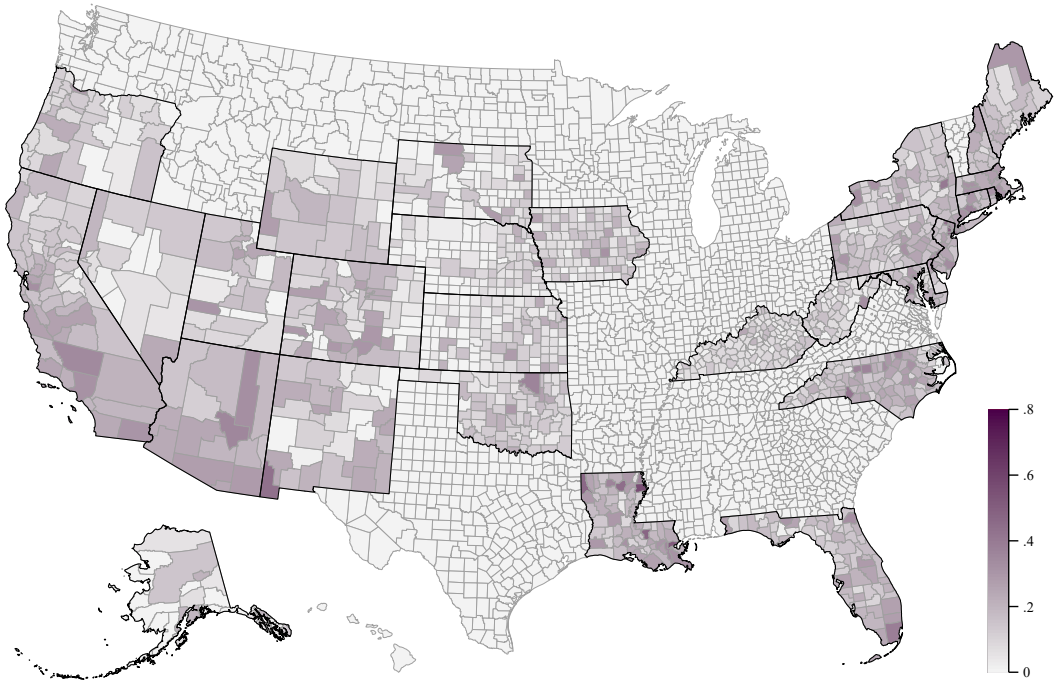
(b) 2018



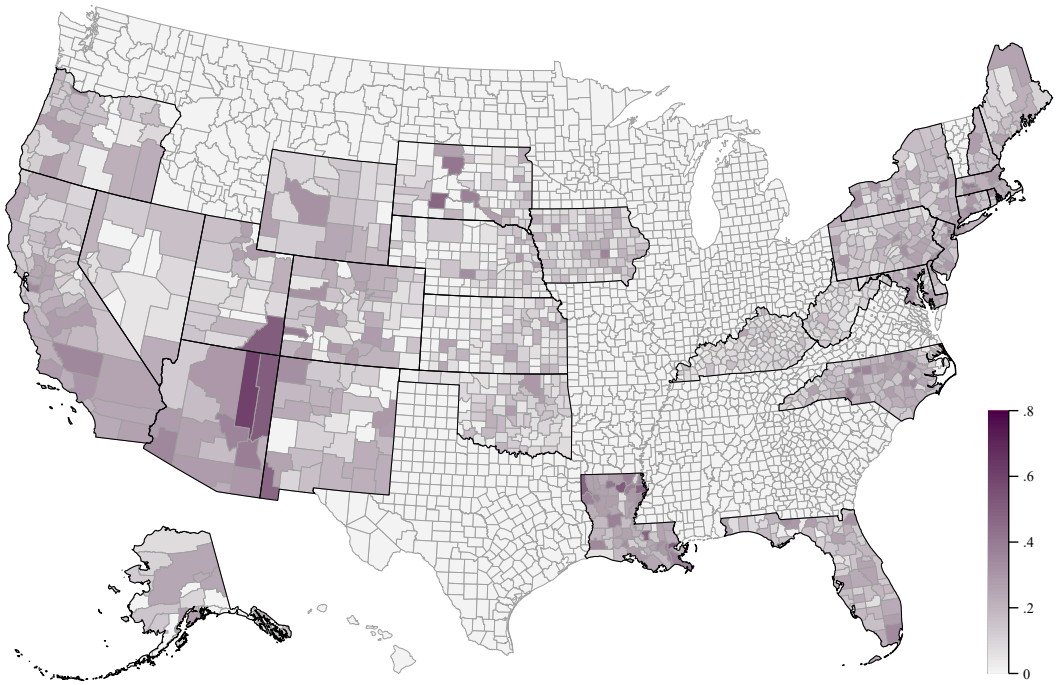
Notes: For counties in the 29 states plus D.C. that record party affiliation, 2008–2020, darker shades of purple denote higher values of within-county index of Dissimilarity (computed with Catalist data for 2008 – top panel – and 2018 – bottom panel – and using Census Tracts as sub-units).

Figure S11: County-Level Index of Dissimilarity, TargetSmart, 2012 and 2020

(a) 2012



(b) 2020



Notes: For counties in the 29 states plus D.C. that record party affiliation, 2008–2020, darker shades of purple denote higher values of within-county index of Dissimilarity (computed with TargetSmart data for 2012 – top panel – and 2020 – bottom panel – and using Census Tracts as sub-units).

Table S11: Demographics of Counties Contributing to the Rise in Partisan Segregation vs. Resisting that Trend, TargetSmart Data

	Increase Segregation		Decrease Segregation	
	More Democratic	More Republican	More Democratic	More Republican
	(1)	(2)	(3)	(4)
	Panel A. Census Statistics			
Total population	452,414	49,070	321,808	100,409
Median age	37.11	41.43	37.14	39.78
Share female	0.511	0.505	0.509	0.512
HHI ethnic homogeneity	0.408	0.671	0.498	0.542
Share foreign-born	0.235	0.057	0.152	0.144
Share non-white	0.516	0.206	0.392	0.371
Population/Sq. mile	5,617	323	3,300	1,288
Share urban population	0.952	0.661	0.905	0.820
Median income	64,141	50,765	62,398	52,408
Gini index	0.480	0.442	0.461	0.468
High-school degree or above	0.861	0.877	0.876	0.863
Share homeowners	0.574	0.719	0.641	0.661
	Panel B. Voter File Statistics on Registered Population			
Democrats	0.484	0.354	0.380	0.476
Independents	0.297	0.231	0.286	0.285
Republicans	0.219	0.415	0.334	0.239
Black	0.109	0.053	0.081	0.115
White	0.661	0.894	0.772	0.750
Hispanic	0.137	0.028	0.093	0.097
Number of counties	119	802	181	276

Notes: The table reports average demographic characteristics of counties that contributed to the increase in partisan segregation and of counties that decreased segregation, separately for counties that trended Democratic or Republican (i.e., counties that featured an increase vs. a decrease in Exposure to Democrats share between 2012 and 2020). All figures are weighted by county-level counts of registered voters in 2012, except for total population figures that are unweighted. Census statistics in Panel A are based on 5-year American Community Survey Data. Voter file statistics in Panel B are based on the 2012 TargetSmart data.

Table S12: Demographics of Census Tracts Contributing to the Rise in Partisan Segregation vs. Resisting that Trend, TargetSmart Data

	Increase Segregation		Decrease Segregation	
	More Democrat	More Republican	More Democrat	More Republican
	(1)	(2)	(3)	(4)
	Panel A. Census Statistics			
Total population	4,545	4,258	4,538	3,903
Median age	37.18	42.51	40.99	39.54
Share female	0.511	0.505	0.513	0.517
HHI ethnic homogeneity	0.515	0.732	0.630	0.622
Share foreign-born	0.226	0.067	0.131	0.133
Share non-white	0.508	0.189	0.321	0.408
Population/Sq. mile	11,782	1,755	6,264	6,750
Share urban population	0.964	0.618	0.912	0.857
Median income	68,605	56,710	77,377	49,072
Gini index	0.425	0.411	0.416	0.431
High-school degree or above	0.860	0.882	0.914	0.838
Share homeowners	0.566	0.750	0.711	0.617
	Panel B. Voter File Statistics on Registered Population			
Democrats	0.490	0.346	0.349	0.534
Independents	0.297	0.241	0.287	0.271
Republicans	0.213	0.413	0.364	0.194
Black	0.094	0.036	0.070	0.176
White	0.655	0.896	0.804	0.695
Hispanic	0.159	0.043	0.071	0.088
Number of Census Tracts	12,589	9,653	11,169	7,445

Notes: The table reports average demographic characteristics of Census Tracts that contributed to the increase in partisan segregation and of Census Tracts that decreased segregation, separately for tracts that trended Democratic or Republican (i.e., Census Tracts that featured an increase vs. a decrease in Exposure to Democrats between 2012 and 2020). All figures are weighted by Census Tract-level counts of registered voters in 2012, except for total population figures that are unweighted. Census statistics in Panel A are based on 5-year American Community Survey Data. Voter file statistics in Panel B are based on the 2012 TargetSmart data.

Table S13: Changes in Demographics of Counties Contributing to the Rise in Partisan Segregation vs. Resisting that Trend, Catalist Data

	Increase Segregation		Decrease Segregation	
	More Democratic	More Republican	More Democratic	More Republican
	(1)	(2)	(3)	(4)
	Panel A. Census Statistics			
Δ Total population	117,667	39,431	122,219	23,106
Δ Median age	1.61	2.14	2.03	1.69
Δ Share female	0.001	0.0005	0.002	-0.00004
Δ Share non-white population	0.054	0.059	0.062	0.061
Δ Share urban population	-0.004	-0.018	-0.010	-0.024
Δ Median income	29,572	19,578	26,932	18,696
Δ High-school degree or above	0.030	0.034	0.029	0.036
	Panel B. Voter File Statistics on Registered Population			
Δ Democrats	-0.011	-0.063	0.001	-0.055
Δ Independents	0.050	0.045	0.045	0.031
Δ Republicans	-0.039	0.018	-0.046	0.024
Δ Black	0.005	0.005	0.005	0.012
Δ White	-0.063	-0.031	-0.057	-0.038
Δ Hispanic	0.035	0.019	0.036	0.016

Notes: The table reports 2020-minus-2010 differences of demographic characteristics of counties that contributed to the increase in partisan segregation and of counties that decreased segregation, separately for counties that trended Democratic or Republican (i.e., counties that featured an increase vs. a decrease in Exposure to Democrats between 2008 and 2018). All figures are weighted by county-level counts of registered voters in 2008, except for total population figures that are unweighted. Census statistics in Panel A are based on the 2010 decennial census, the 2008-2012 5-year American Community Survey, the 2020 decennial census, and the 2018-2022 5-year American Community Survey. Voter file statistics in Panel B are based on the 2008 and 2018 Catalist data.

Table S14: Changes in Demographics of Counties Contributing to the Rise in Partisan Segregation vs. Resisting that Trend, TargetSmart Data

	Increase Segregation		Decrease Segregation	
	More Democratic	More Republican	More Democratic	More Republican
	(1)	(2)	(3)	(4)
	Panel A. Census Statistics			
Δ Total population	109,167	20,704	112,888	58,936
Δ Median age	1.71	2.08	1.86	1.77
Δ Share female	0.001	0.0001	0.001	0.001
Δ Share non-white population	0.059	0.056	0.060	0.061
Δ Share urban population	-0.004	-0.022	-0.009	-0.016
Δ Median income	29,484	19,327	26,325	18,938
Δ High-school degree or above	0.028	0.036	0.029	0.037
	Panel B. Voter File Statistics on Registered Population			
Δ Democrats	0.014	-0.058	0.021	-0.046
Δ Independents	0.022	0.025	0.012	0.023
Δ Republicans	-0.036	0.034	-0.033	0.024
Δ Black	-0.001	0.001	-0.001	0.001
Δ White	-0.048	-0.021	-0.039	-0.031
Δ Hispanic	0.028	0.012	0.023	0.018

Notes: The table reports 2020-minus-2010 differences of demographic characteristics of counties that contributed to the increase in partisan segregation and of counties that decreased segregation, separately for counties that trended Democratic or Republican (i.e., counties that featured an increase vs. a decrease in Exposure to Democrats between 2012 and 2020). All figures are weighted by county-level counts of registered voters in 2008, except for total population figures that are unweighted. Census statistics in Panel A are based on the 2010 decennial census, the 2012 5-year American Community Survey, the 2020 decennial census, and the 2022 5-year American Community Survey. Voter file statistics in Panel B are based on the 2012 and 2020 TargetSmart data.

F Drivers of the Increase in Geographic Partisan Segregation

In this section, we provide detailed analyses supporting the decomposition of changes in partisan composition into several explanatory factors: generational change, internal mobility, adult entry and exit from the electorate, and party switching. After presenting counts by data source, we assess whether the strength of each factor is driven by the number of voters involved or by specific behaviors favoring Republicans or Democrats. We then plot changes in partisan composition relative to these factors. These analyses show the robustness of our results regarding the drivers responsible for the rise in geographic partisan segregation. Next, we investigate which places and socio-demographic groups were most impacted by the different factors. Finally, we show decomposition figures for geographic units trending Democratic or Republican across different pairs of years, using alternative data sources and geographic units. We also explore the decomposition for units that contribute or alleviate segregation, including for units that saw the most extreme changes in partisan segregation.

F.1 Total Counts of Voters per Factor Category

SI Table S15 compares the total counts of voters per factor category – both inflows and outflows – between the Catalist and TargetSmart data. Overall, the numbers are comparable. However, in the TargetSmart data, we find lower counts of movers and deregistered voters, but a larger number of new adult voters and voters who died. These discrepancies likely stem from challenges in accurately tracking voter status over time, and different procedures used by the vendors to accomplish this task.

F.2 Inflows and Outflows

As described in Section B.3, a factor can drive the change in Exposure to Democrats either 1) if this factor accounts for a large number of voters, or ii) if there are behavioral differences between Democrats and Republicans, i.e. if changes in this factor are tilted

Table S15: Counts of Movers, New Registrants, Party Switchers, and Voters who Died or Became Unregistered

	Movers	New Young Voters	New Adult Voters	Party Switchers	Deregisters	Died	Voters First Year	Voters Last Year
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Panel A. Catalist, 2008-2018				
County	12,476,146	16,142,133	15,645,143	8,340,674	18,339,436	9,074,711	99,239,654	107,182,121
Census Tract	36,901,599	14,952,379	14,623,162	3,477,152	17,009,463	7,932,314	93,129,048	101,101,906
				Panel B. TargetSmart, 2012-2020				
County	12,298,434	14,772,749	16,514,858	8,244,382	4,829,440	14,460,118	84,797,031	103,676,124
Census Tract	24,927,289	14,758,119	16,358,633	5,182,393	4,766,272	14,280,979	84,140,083	103,275,810

Notes: The table reports counts of county- and Census-Tract-specific categories of voters defined using the first and last years of the Catalist (Panel A) and TargetSmart data (Panel B). Movers (column 1) are defined as voters who are registered in different geographies at baseline and endline. New young voters (column 2) are registered voters who are 25 or younger at endline. New adult voters (column 3) are voters who are unregistered at baseline but who, at endline, are older than 25 and are registered. Party switchers (column 4) are registered voters who are affiliated with a different major party at baseline and endline. Deregisters (column 5) are voters who were registered at baseline and who appear in the data as not being registered at endline. Dead voters (column 6) are voters registered at baseline but not in the data (whether as registered or unregistered) at endline. Columns 7 and 8 report total counts of voters in the first and last years for a given data source and geographic sample.

towards the Republicans or the Democrats away from their equilibrium shares, as captured by $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ for inflows and $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ for outflows being different from zero, with $s^D_{I,f}$ (resp. $s^R_{I,f}$) the share of voters who were newly registered as Democrats (resp. Republicans) in the area in y_2 due to factor f, and $s^D_{O,f}$ (resp. $s^R_{O,f}$) the share of voters who were no longer registered Democrats (resp. no longer registered Republicans) in the area in y_2 due to factor f. SI Tables S16 and S17 provide the weighted average of the number of voters accounted for by each factor across counties and Census Tracts, respectively, for both inflows and outflows.

SI Tables S18 and S19 report, at the county and Census Tract levels respectively, the correlation coefficients obtained by regressing the change in the Exposure to Democrats on $\frac{s^D_{I,f}}{s^D_{I,f}+s^R_{I,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ for inflows, and $\frac{s^D_{O,f}}{s^D_{O,f}+s^R_{O,f}} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$ for outflows.[5] For example, for internal mobility, the deviation from the equilibrium due to inflows (resp. outflows) is defined as the gap between the number of Democrats who moved into (resp. out

[5]Party switching between the Democratic and Republican parties is an exception as an inflow of Democrats is equal to an outflow of Republicans. SI Tables S18 and S19 report instead the correlation between the change in the Exposure to Democrats and $\frac{\beta}{\beta+\alpha} - \frac{D_{y_1}}{D_{y_1}+R_{y_1}}$, 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.

of) a geographic unit divided by the total number of Democrats and Republicans who moved into (resp. out of) that unit and the initial value of the Exposure to Democrats.

The correlation coefficients are generally positive for inflows and negative for outflows, as expected. The more Exposure to Democrats increases, the larger is the fraction of new Democrats appearing as a result of any of the factors compared to the baseline.

Table S16: County-Level Inflows and Outflows by Decomposition Factor, Catalist Data

	All Counties (N = 1,373)		Trending Democrat (N = 206)		Trending Republican (N = 1,167)	
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
	(1)	(2)	(3)	(4)	(5)	(6)
Mobility	25,367	28,714	38,529	45,152	10,374	9,990
	(14,227)	(18,120)	(17,988)	(26,407)	(9,942)	(8,680)
Generational Change	48,537	24,604	80,283	36,890	12,379	10,609
	(15,826)	(13,955)	(22,998)	(20,860)	(7,658)	(6,090)
Adult Entry/Exit	57,625	52,672	95,579	84,532	14,395	16,382
	(23,258)	(31,397)	(34,612)	(49,550)	(10,325)	(10,720)
Switch Dem./Rep.	5,583		9,045		1,641	
	(7,085)		(9,651)		(4,163)	
Switch Ind/Dem. or Rep.	12,420	12,778	20,107	21,013	3,664	3,396
	(6,956)	(8,239)	(10,191)	(13,568)	(3,273)	(2,169)

Notes: The table reports county-level average counts of Democratic voters "entering" or "exiting" each decomposition factor, based on the Catalist data. For example, generational change inflow means new young voters (25 or younger) who are registered as Democrats in 2018; generational change outflow means voters who appear as registered Democrats in 2008 and who disappear from the 2018 voter file. Mobility inflow means voters who were registered in different counties in 2008 and 2018 and who were registered as Democrats in a party affiliation state in 2018; mobility outflow means voters who were registered in different counties in 2008 and in 2018 and who were registered as Democrats in a party affiliation state in 2008. Differences between mobility inflows and outflows in columns 1 and 2 are due to voters who relocate to or from states that do not record party affiliation. In parentheses, we report average Republican inflows and outflows. All figures are weighted by county-level registration counts in 2008.

F.3 Change in Partisan Composition by Decomposition Factor

SI Figures S12 to S14 display the correlation at both the county and Census Tract levels between the change in Exposure to Democrats and the magnitude of each factor's contribution in the decomposition analysis. Generational change, party switching

Table S17: Tract-Level Inflows and Outflows by Decomposition Factor, TargetSmart Data

	All Census Tracts (N = 40,856)		Trending Democrat (N = 23,758)		Trending Republican (N = 17,098)	
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
	(1)	(2)	(3)	(4)	(5)	(6)
Mobility	315	300	364	331	241	254
	(238)	(230)	(216)	(238)	(271)	(218)
Generational Change	171	179	205	169	120	194
	(97)	(129)	(84)	(124)	(116)	(136)
Adult Entry/Exit	240	59	271	55	194	66
	(187)	(49)	(155)	(48)	(235)	(50)
Switch Dem./Rep.	18		21		12	
	(32)		(21)		(49)	
Switch Ind/Dem. or Rep.	40	23	48	23	28	23
	(31)	(20)	(29)	(23)	(32)	(15)

Notes: The table reports Census Tract-level average counts of Democratic voters "entering" or "exiting" each decomposition factor, based on the TargetSmart data. For example, generational change inflow means new young voters (25 or younger) who are registered as Democrats in 2020; generational change outflow means voters who appear as registered Democrats in 2012 and who disappear from the 2020 voter file. Mobility inflow means voters who were registered in different Census Tracts in 2012 and 2020 and who were registered as Democrats in a party affiliation state in 2020; mobility outflow means voters who were registered in different Census Tracts in 2012 and in 2020 and who were registered as Democrats in a party affiliation state in 2012. Differences between mobility inflows and outflows in columns 1 and 2 are due to voters who relocate to or from states that do not record party affiliation. In parentheses, we report average Republican inflows and outflows. All figures are weighted by Census Tract-level registration counts in 2012.

between the Democratic and Republican parties, and adult entry/exit from the electorate are strongly correlated with changes in Exposure to Democrats, in both the Catalist and TargetSmart data, at the county and Census Tract levels. Notably, in absolute value, party switching between the Democratic and Republican parties is larger in Republican-leaning areas than in Democratic-leaning areas. This finding underlines the asymmetric role of this factor, as Democrats were more likely to switch to the Republican party over the time period studied, with the reverse being less common.

Table S18: County-Level Pairwise Correlations Between Factor Inflows and Outflows and 2008-to-2018 Change in Exposure to Democrats, Catalist Data

	All Counties (N = 1,373)		Trending Democratic (N = 206)		Trending Republican (N = 1,167)	
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
	(1)	(2)	(3)	(4)	(5)	(6)
Generational Change	0.882 **	0.469 **	0.687 **	0.060 **	0.801 **	0.421 **
Mobility	0.932 **	-0.704 **	0.785 **	-0.295 **	0.903 **	-0.541 **
Adult Entry/Exit	0.941 **	-0.083 **	0.790 **	-0.104 **	0.916 **	0.148 **
Switch Dem./Rep.	0.907 **	0.907 **	0.615 **	0.615 **	0.834 **	0.834 **
Switch Ind/Dem. or Rep.	0.906 **	-0.358 **	0.630 **	0.034 **	0.855 **	-0.165 **

Notes: The table reports county-level pairwise correlation coefficients between inflow- and outflow-driven decomposition factors' deviations from the equilibrium and the change in Exposure to Democrats between 2008 and 2018, using the Catalist data. For example, for mobility, the deviation from the equilibrium due to inflows (resp. outflows) is defined as counts of Democrats moving into (resp. out of) a county divided by the sum of counts of Democrats and Republicans moving into (resp. out of) that county, minus the county's Exposure to Democtats at baseline.

** p < .01, * p < .05, ~ p < .10

Table S19: Census Tract-Level Pairwise Correlations Between Factor Inflows and Outflows and 2012-to-2020 Change in Exposure to Democrats, TargetSmart Data

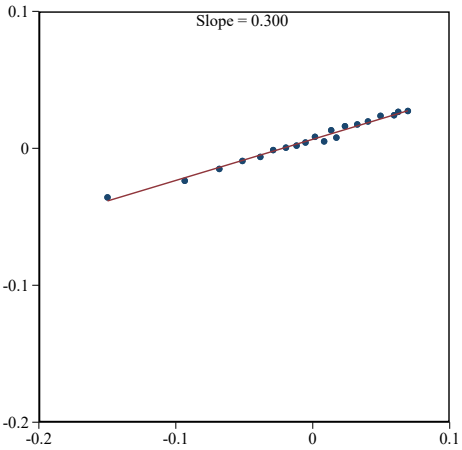
	All Census Tracts (N = 40,856)		Trending Democratic (N = 23,758)		Trending Republican (N = 17,098)	
	Inflow	Outflow	Inflow	Outflow	Inflow	Outflow
	(1)	(2)	(3)	(4)	(5)	(6)
Generational Change	0.922 **	0.471 **	0.770 **	0.123 **	0.883 **	0.499 **
Mobility	0.895 **	-0.381 **	0.727 **	-0.185 **	0.844 **	-0.223 **
Adult Entry/Exit	0.930 **	-0.441 **	0.808 **	-0.214 **	0.872 **	-0.313 **
Switch Dem./Rep.	0.737 **	0.737 **	0.458 **	0.458 **	0.631 **	0.631 **
Switch Ind/Dem. or Rep.	0.732 **	-0.339 **	0.465 **	-0.153 **	0.659 **	-0.182 **

Notes: The table reports Census Tract-level pairwise correlation coefficients between inflow- and outflow-driven decomposition factors' deviations from the equilibrium and the change in Exposure to Democrats between 2012 and 2020, using the TargetSmart data. For example, for mobility, the deviation from the equilibrium due to inflows (resp. outflows) is defined as counts of Democrats moving into (resp. out of) a Census Tract divided by the sum of counts of Democrats and Republicans moving into (resp. out of) that Tract, minus the Census Tract's Exposure to Democrats at baseline.

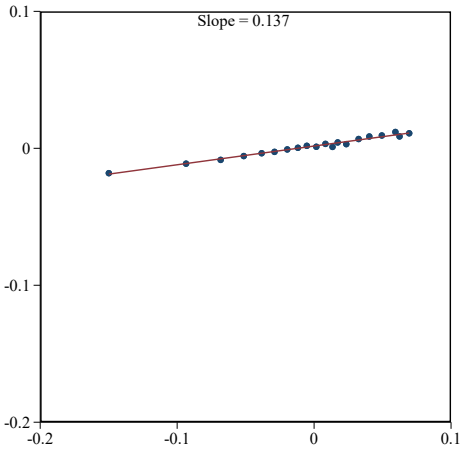
** p < .01, * p < .05, ~ p < .10

Figure S12: County-Level Decomposition Factors and 2008-2018 Changes in Exposure to Democrats, Catalist Data

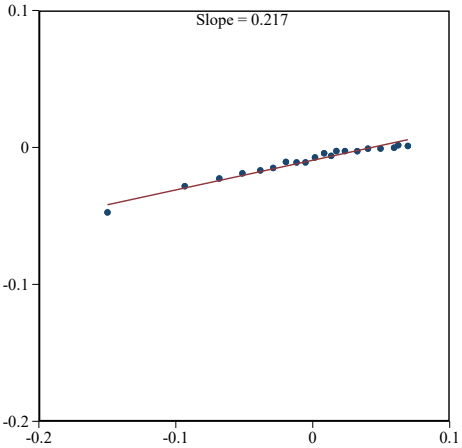
(a) Generational Change



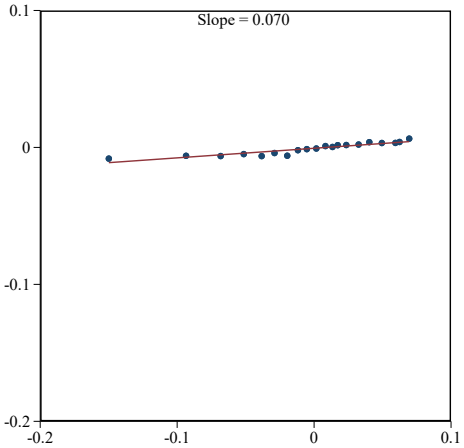
(b) Residential Mobility



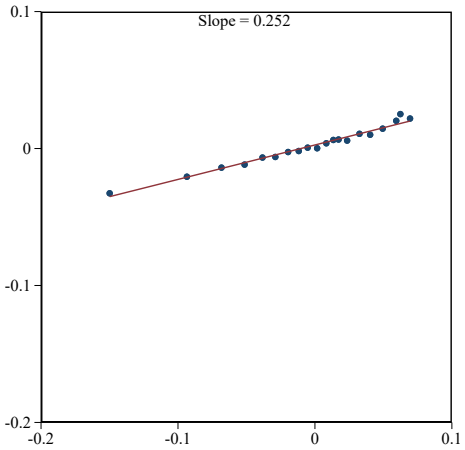
(c) Switch Dem./Rep.



(d) Switch Ind./Dem. or Rep.



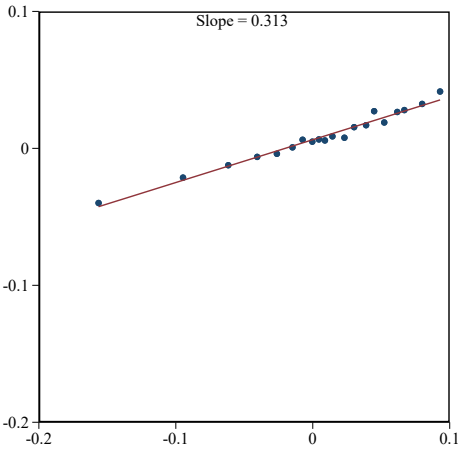
(e) Adult Enter/Exit Electorate



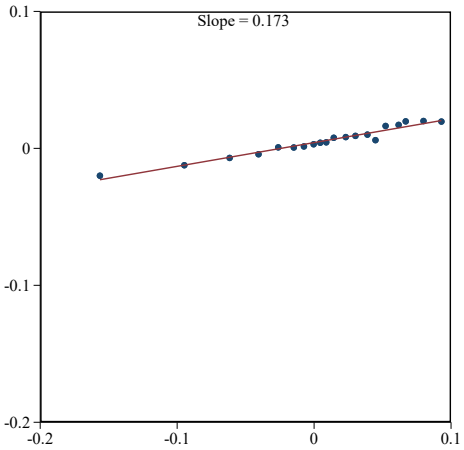
Notes: Using 2008 and 2018 Catalist data, each binscatter plot displays the county-level relationship between the over-time change in Exposure to Democrats (x-axis) and a decomposition factor (y-axis). The red line represents the best linear fit, estimated weighting counties by 2008 counts of registered voters.

Figure S13: County-Level Decomposition Factors and 2012-2020 Changes in Exposure to Democrats, TargetSmart Data

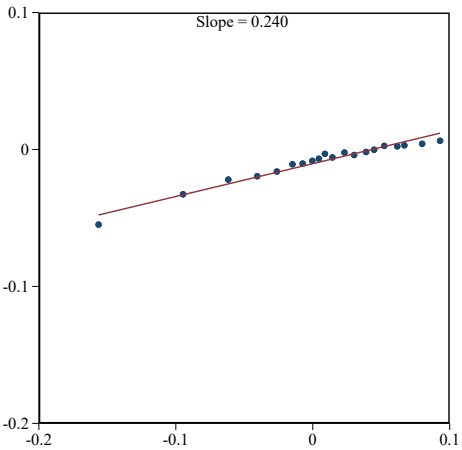
(a) Generational Change



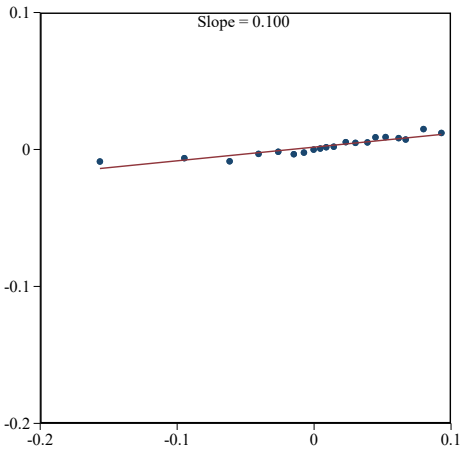
(b) Residential Mobility



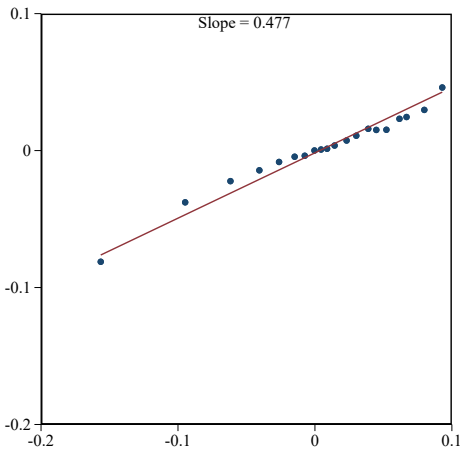
(c) Switch Dem./Rep.



(d) Switch Ind./Dem. or Rep.



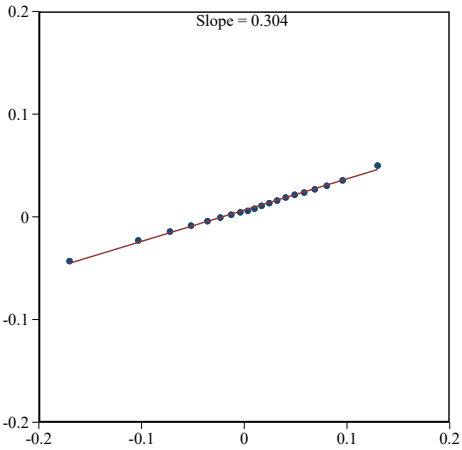
(e) Adult Enter/Exit Electorate



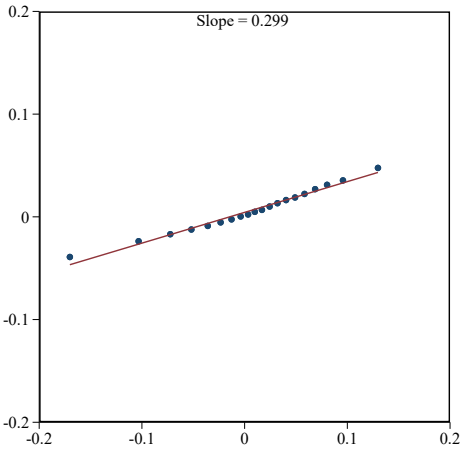
Notes: Using 2012 and 2020 TargetSmart data, each binscatter plot displays the county-level relationship between the over-time change in Exposure to Democrats (x-axis) and a different decomposition factor (y-axis). The red line represents the best linear fit, estimated weighting counties by 2012 counts of registered voters.

Figure S14: Census Tract-Level Decomposition Factors and 2012-2020 Changes in Exposure to Democrats, TargetSmart Data

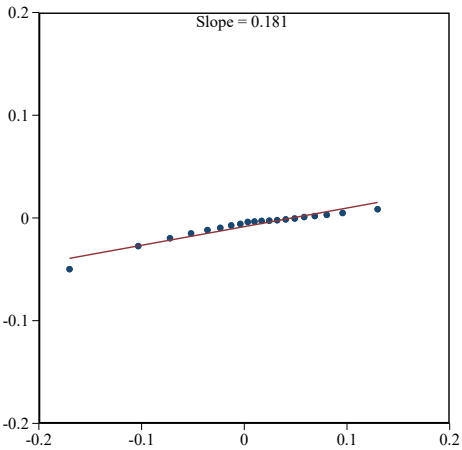
(a) Generational Change



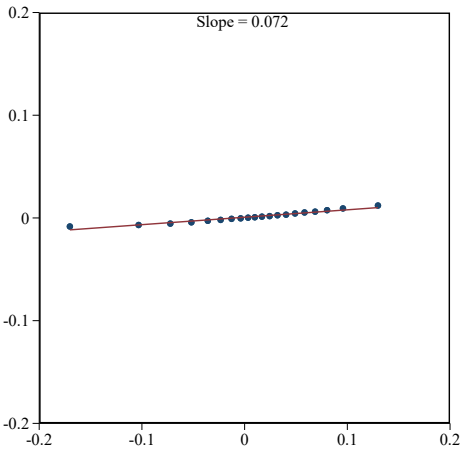
(b) Residential Mobility



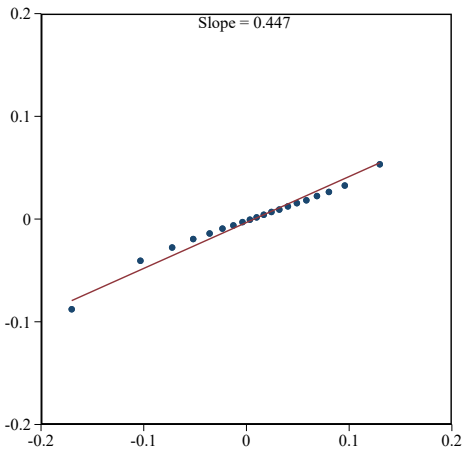
(c) Switch Dem./Rep.



(d) Switch Ind./Dem. or Rep.



(e) Adult Enter/Exit Electorate



Notes: Using 2012 and 2020 TargetSmart data, each binscatter plot displays the Census Tract-level relationship between the over-time change in Exposure to Democrats (x-axis) and a different decomposition factor (y-axis). The red line represents the best linear fit, estimated weighting Census Tracts by 2012 counts of registered voters.

F.4 Socio-demographic Characteristics and Decomposition Factors

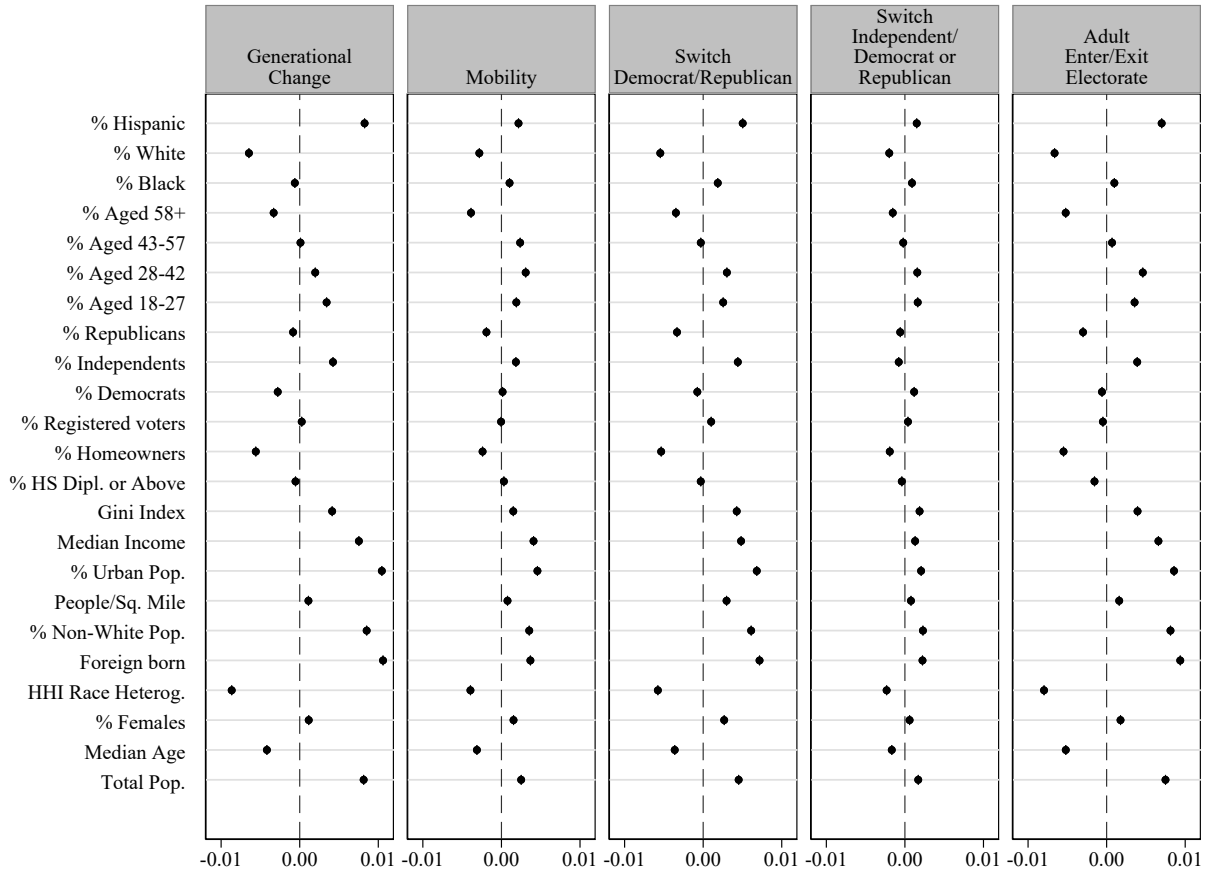
Here, we study the relationship between various ecological demographic characteristics and the decomposition factors to understand how different regions tend to experience Democratic-trending generational change, internal mobility, party switching, and adult entry/exit from the electorate. To do so, we estimate separate regression models for each decomposition factor (as the dependent variable) and each aggregate demographic characteristic (as the sole predictor). We weight observations by the number of registrants at the beginning of the period. The variables are standardized, allowing us to interpret the coefficients as the effect of a one-standard-deviation change in the predictor on the outcome. The resulting coefficients are presented in SI Figure S15 for the Catalist data (2008-2018) and in SI Figure S16 for the TargetSmart data (2012-2020) at the county level.

In Democratic-leaning counties, the population tends to be younger, more urban, and ethnically diverse, with a higher proportion of Hispanic residents, fewer white residents, and a larger share of foreign-born inhabitants. These counties also have a higher concentration of Independents and fewer Republicans. Consequently, the correlations are positive between these demographic characteristics and the decomposition factors. Notably, they are generally larger in absolute values for generational change, adult entry/exit from the electorate, and party-switching between the Democratic and Republican parties, highlighting the importance of these factors in explaining changes in Exposure to Democrats over time.

F.5 Factor Decomposition for Democratic- and Republican-trending Units by Dataset and Year

SI Tables S20 to S22 present the factor decomposition of changes in partisan composition across various geographic units (Congressional Districts, counties, Census Tracts, Census Block Groups, and Census Blocks) for Democratic-leaning and Republican-leaning areas, separately by year and dataset.

Figure S15: Correlations Between Decomposition Factors and County Characteristics, Catalist Data



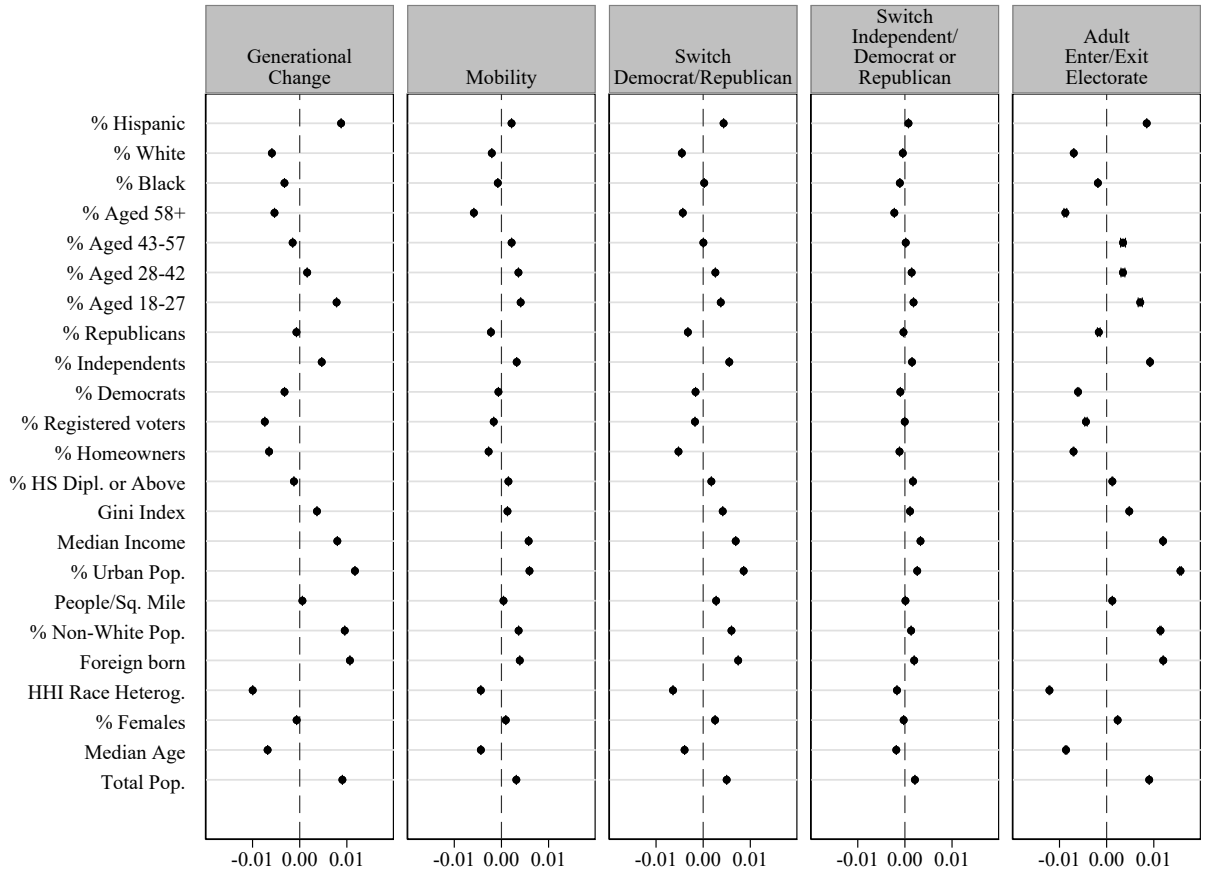
Notes: The figure plots correlation coefficients representing the predictive effect of a one-standard-deviation increase in a given county demographic characteristic (in rows) on a decomposition factor (in panels). Decomposition factors are based on Catalist 2008 and 2018 county-level data. Regressions are weighted by counts of registered voters per county in 2008. County covariates based on voter file data (top rows) come from 2008 Catalist data. County covariates based on census statistics (bottom rows) come from 2015 5-year American Community Survey data.

In general, we find that the drivers of the change in Exposure to Democrats in Democratic-leaning and Republican-leaning places are consistent across years, in both datasets. Still, there is considerable year-to-year variation in the importance of some factors, particularly across shorter time periods.

F.6 Factor Decomposition by Geographic Partisan Segregation Trends

We examine whether the decomposition factors differ in areas that have contributed to the increase in geographic partisan segregation compared to those that have resisted that trend. SI Figures S17 to S19 split the decomposition at the county or Census Tract levels based on whether the geographic units contribute to or alleviate segregation *and*

Figure S16: Correlations Between Decomposition Factors and County Characteristics, TargetSmart Data



Notes: The figure plots correlation coefficients representing the predictive effect of a one-standard-deviation increase in a given county demographic characteristic (in rows) on a decomposition factor (in panels). Decomposition factors are based on TargetSmart 2012 and 2020 county-level data. Regressions are weighted by counts of registered voters per county in 2020. County covariates based on voter file data (top rows) come from 2020 TargetSmart data. County covariates based on census statistics (bottom rows) come from 2015 5-year American Community Survey data.

whether they trended Democratic or Republican (the results are consistent with those in Figure 3 and SI Tables S20 and S21). Notably, while geographic units become more politically homogeneous over time, the factors driving these changes remain specific to Democratic or Republican-trending areas. This holds true regardless of whether the geographic units saw an increase or decrease in segregation at both the county and Census Tract levels and in both the Catalist and TargetSmart data. Specifically, generational change predominantly explains the increase in segregation in areas that became more Democratic, while party switching between the Democratic and Republican parties explains much of the rise in segregation in areas that became more Republican. Adult

Table S20: Factors Driving Changes in County-level Exposure to Democrats by Pairs of Years, Catalist and TargetSmart Data

	More Democratic					More Republican				
	Mobility (1)	Gen. Change (2)	Adult Enter/ Exit Electorate (3)	Switch Dem./ Rep. (4)	Switch Ind./ Dem. or Rep. (5)	Mobility (6)	Gen. Change (7)	Adult Enter/ Exit Electorate (8)	Switch Dem./ Rep. (9)	Switch Ind./ Dem. or Rep. (10)
					Panel A. Catalist					
2008-2010	17.2	25.8	32.5	7.3	17.3	5.1	25.5	14.6	42.4	12.3
2008-2012	13.6	37.2	48.7	-10.1	10.6	9.6	21.7	12.6	40.0	16.0
2008-2014	15.0	33.1	49.3	-6.7	9.3	11.2	23.8	14.9	37.9	12.3
2008-2016	12.6	48.2	43.3	-8.1	4.0	13.7	18.3	18.6	39.7	9.7
2008-2018	12.0	46.9	41.5	-5.5	5.2	14.1	17.6	19.6	39.6	9.0
2010-2012	11.0	36.5	50.1	-5.3	7.7	10.7	16.8	8.0	43.2	21.4
2010-2014	13.4	28.9	51.9	-3.4	9.2	11.5	18.7	16.9	38.5	14.3
2010-2016	12.1	43.7	45.2	-5.6	4.6	13.4	14.3	20.2	41.5	10.6
2010-2018	12.0	43.6	43.6	-4.9	5.7	13.9	14.7	21.4	40.4	9.5
2012-2014	16.2	14.8	46.2	1.1	21.6	9.8	16.7	28.8	32.4	12.3
2012-2016	15.9	35.6	40.2	-3.2	11.5	12.3	12.5	24.3	41.9	9.0
2012-2018	16.0	36.1	39.2	-2.6	11.3	12.9	13.1	23.5	41.5	9.0
2014-2016	13.9	35.4	37.4	-1.6	14.9	9.4	8.3	25.4	47.8	9.1
2014-2018	15.5	35.2	37.4	-1.5	13.4	10.9	10.9	24.0	44.9	9.3
2016-2018	16.4	32.4	33.3	2.2	15.8	13.7	9.4	24.7	43.7	8.6
					Panel B. TargetSmart					
2012-2014	11.2	19.2	55.2	0.6	13.9	8.8	31.3	25.3	29.1	5.5
2012-2016	15.0	36.8	42.6	-3.9	9.5	9.1	16.2	30.6	37.7	6.4
2012-2018	16.3	35.4	40.8	-2.3	9.8	10.9	15.2	32.3	35.3	6.4
2012-2020	19.2	39.4	32.7	-1.5	10.1	12.1	14.3	33.6	33.7	6.3
2014-2016	17.9	40.2	35.1	-5.4	12.1	8.6	16.3	21.8	43.7	9.6
2014-2018	19.1	34.6	35.6	-1.9	12.6	11.3	14.4	21.7	43.8	8.9
2014-2020	20.9	36.9	29.0	0.2	13.0	11.8	12.7	25.8	41.5	8.2
2016-2018	17.1	28.0	35.3	3.7	15.9	14.5	12.0	19.4	48.1	6.1
2016-2020	22.0	30.2	27.0	3.0	17.8	13.3	9.6	27.2	42.4	7.6
2018-2020	22.5	29.2	14.5	3.4	30.5	10.0	9.3	29.9	43.4	7.3

Notes: The table reports the percentage of the change in county-level Exposure to Democrats explained by each decomposition factor across pairs of years, using the Catalist (Panel A) and TargetSmart data (Panel B). For each pair of years and data source, we classify counties as Democratic- ("More Democratic") vs. Republican-trending ("More Republican") depending on whether, between those two election years, counties featured an increase vs. a decrease in Exposure to Democrats.

entry/exit plays a larger role in the TargetSmart data than in the Catalist data, both in Democratic-leaning and Republican-leaning places.

Table S21: Factors Driving Changes in Census Tract-level Exposure to Democrats by Pairs of Years, TargetSmart Data

	More Democratic					More Republican				
	Mobility	Gen. Change	Adult Enter/ Exit Electorate	Switch Dem./ Rep.	Switch Ind./ Dem. or Rep.	Mobility	Gen. Change	Adult Enter/ Exit Electorate	Switch Dem./ Rep.	Switch Ind./ Dem. or Rep.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
2012-2014	19.1	23.5	47.0	1.2	9.2	30.2	22.0	29.7	15.7	2.4
2012-2016	21.5	36.6	39.1	-2.5	5.4	22.5	16.3	29.9	26.0	5.4
2012-2018	21.9	35.9	37.8	-1.2	5.6	23.2	15.8	31.9	24.3	4.8
2012-2020	22.6	39.5	31.3	0.4	6.2	23.3	15.2	33.7	23.2	4.6
2014-2016	28.6	34.2	32.4	-2.5	7.3	19.5	14.4	22.5	34.5	9.2
2014-2018	28.2	32.3	33.3	-0.8	7.0	23.8	14.3	23.4	31.2	7.3
2014-2020	28.0	35.7	27.4	0.9	7.9	25.2	13.5	25.4	29.3	6.5
2016-2018	27.2	26.6	30.5	3.6	12.1	28.7	13.1	22.4	29.2	6.6
2016-2020	29.6	29.7	22.6	4.8	13.3	26.3	11.1	24.1	31.7	7.0
2018-2020	30.4	25.7	13.7	8.1	22.2	21.6	7.5	26.7	37.2	7.0

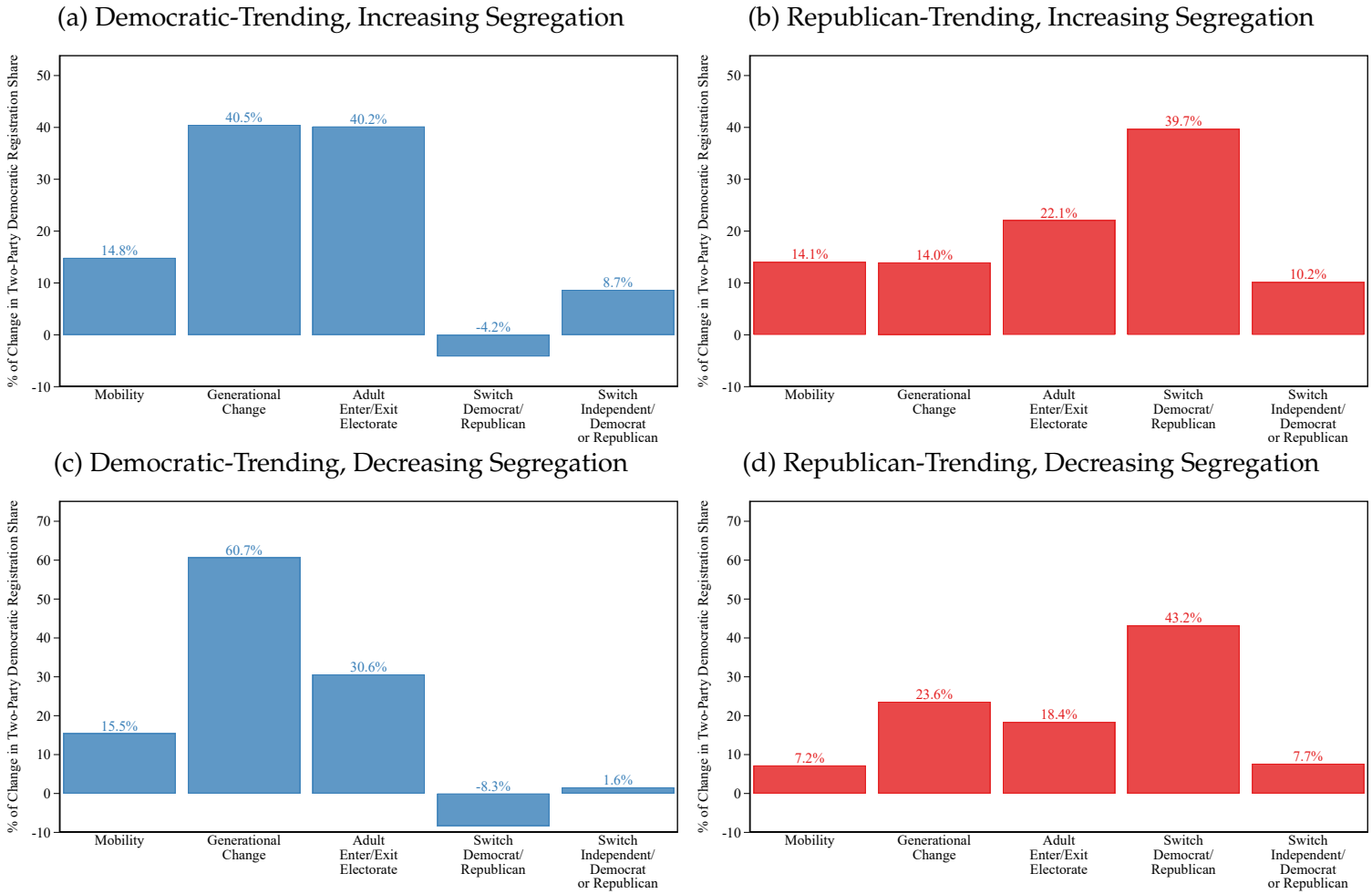
Notes: The table reports the percentage of the change in Census Tract-level Exposure to Democrats explained by each decomposition factor across pairs of years, using the TargetSmart data. For each pair of years, we classify Census Tracts as Democratic- ("More Democratic") vs. Republican-trending ("More Republican") depending on whether, between those two election years, Census Tracts featured an increase vs. a decrease in Exposure to Democrats.

Table S22: Factors Driving Changes in Exposure to Democrats at the Congressional District, Census Block Group, and Census Block Levels by Pairs of Years, TargetSmart Data

	More Democratic					More Republican				
	Mobility (1)	Gen. Change (2)	Adult Enter/ Exit Electorate (3)	Switch Dem./ Rep. (4)	Switch Ind./ Dem. or Rep. (5)	Mobility (6)	Gen. Change (7)	Adult Enter/ Exit Electorate (8)	Switch Dem./ Rep. (9)	Switch Ind./ Dem. or Rep. (10)
					Panel A. Congressional Districts					
2012-2014	11.4	19.8	58.5	-1.3	11.6	5.0	26.4	39.6	26.6	2.5
2012-2016	29.0	34.0	36.2	-5.7	6.4	25.4	13.0	28.1	29.7	3.8
2012-2018	39.0	29.0	29.6	-2.8	5.3	41.5	12.1	25.8	17.5	3.0
2012-2020	33.8	34.7	27.5	-1.9	5.9	35.0	12.4	30.1	19.4	3.1
2014-2016	41.7	31.8	26.2	-7.7	8.1	32.6	10.4	16.6	35.0	5.5
2014-2018	49.1	23.6	24.1	-2.5	5.7	50.6	9.3	16.5	20.0	3.7
2014-2020	40.7	30.5	23.3	-1.7	7.2	40.4	10.8	21.6	23.1	4.0
2016-2018	61.2	14.0	18.9	0.4	5.4	61.9	5.9	13.8	16.5	2.0
2016-2020	49.1	23.4	18.2	-0.1	9.3	44.5	8.7	20.0	23.2	3.6
2018-2020	37.1	29.2	8.8	1.2	23.8	22.2	7.3	26.8	41.0	2.6
					Panel B. Census Block Groups					
2012-2014	28.4	21.9	40.5	1.4	7.8	37.8	20.4	27.9	12.1	1.8
2012-2016	26.9	33.7	36.0	-1.9	5.3	28.5	15.8	28.4	22.6	4.8
2012-2018	25.5	33.7	36.3	-0.8	5.4	28.3	15.7	30.1	21.5	4.4
2012-2020	24.6	37.5	31.2	0.7	6.0	27.0	15.2	32.5	21.1	4.2
2014-2016	33.4	31.0	29.9	-1.4	7.0	25.5	14.8	21.1	30.1	8.5
2014-2018	31.5	30.1	32.1	-0.3	6.6	29.2	14.7	21.7	27.6	6.8
2014-2020	29.6	33.7	27.8	1.4	7.6	29.2	13.8	24.5	26.5	5.9
2016-2018	33.1	24.1	29.5	3.3	10.0	36.8	14.1	19.5	23.8	5.8
2016-2020	31.8	27.3	23.6	5.0	12.2	30.9	11.3	23.0	28.6	6.3
2018-2020	32.9	23.1	15.9	8.1	20.0	26.1	8.7	25.8	33.0	6.4
					Panel C. Census Blocks					
2012-2014	34.3	13.4	47.7	1.8	2.9	43.6	14.8	34.3	5.5	1.8
2012-2016	32.0	20.3	43.0	1.5	3.3	39.0	14.5	30.7	12.1	3.7
2012-2018	30.7	22.4	41.8	1.7	3.4	38.9	14.3	30.9	12.5	3.4
2012-2020	27.4	26.9	39.1	2.5	4.1	35.4	13.8	33.7	13.8	3.3
2014-2016	42.7	24.0	22.9	3.7	6.7	38.4	17.4	19.2	17.8	7.3
2014-2018	42.8	22.9	25.1	3.3	5.9	42.3	15.2	19.8	16.9	5.8
2014-2020	38.2	26.0	25.2	4.1	6.5	39.3	13.7	23.0	18.6	5.3
2016-2018	45.6	20.0	22.9	4.7	6.8	47.8	16.3	18.6	12.2	5.1
2016-2020	41.7	21.1	22.2	6.3	8.6	42.5	12.5	21.7	18.0	5.3
2018-2020	41.7	18.5	18.4	8.6	12.8	38.7	11.9	22.9	20.1	6.5

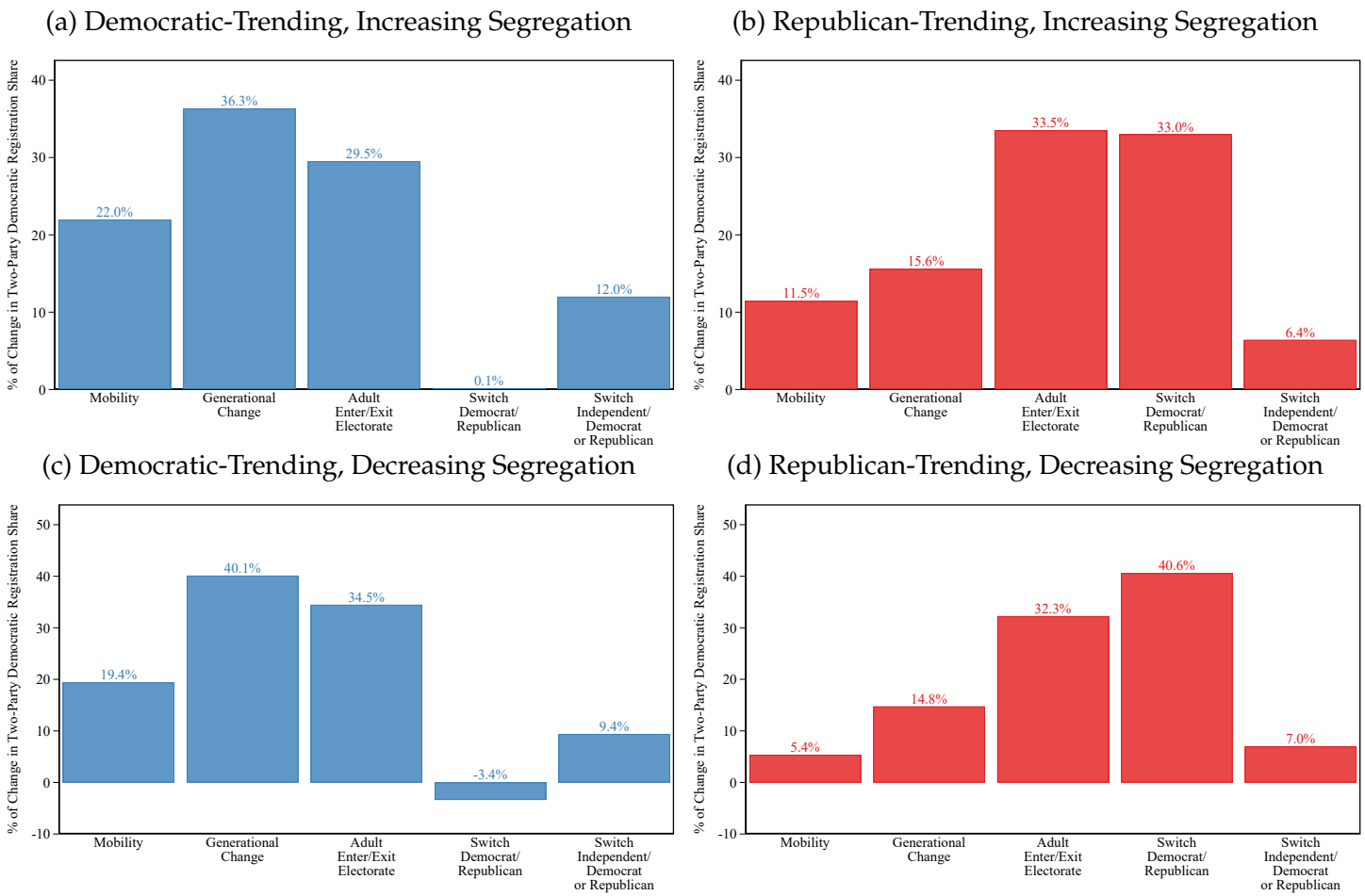
Notes: The table reports the percentage of the change in Exposure to Democrats explained by each decomposition factor across pairs of years, using the TargetSmart data. Panels A, B, and C report decompositions at, respectively, the Congressional District, Census Block Group, and Census Block levels. For each pair of years, we classify geographic units as Democratic- ("More Democratic") vs. Republican-trending ("More Republican") depending on whether, between those two election years, these geographies featured an increase vs. a decrease in Exposure to Democrats.

Figure S17: Factors Driving Changes in Exposure to Democrats by County Segregation Trends, Catalist Data



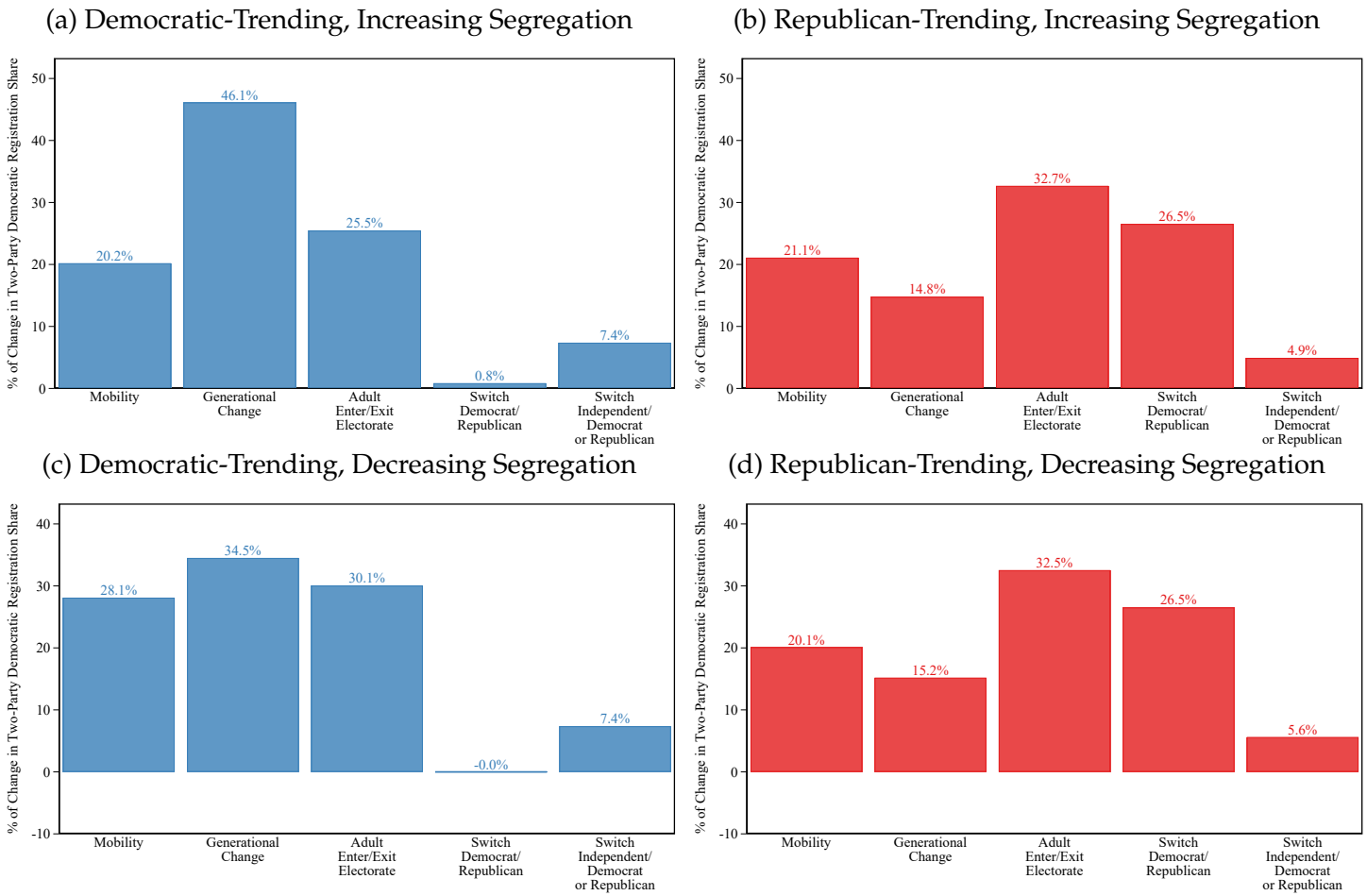
Notes: Each plot shows the percentage of the 2008-to-2018 change in Exposure to Democrats explained by different decomposition factors. All panels are based on Catalist data. Each panel represents a different group of counties. Specifically, we split counties into four groups based on whether, between 2008 and 2018, counties saw an increase vs. a decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they contributed to increasing vs. decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

Figure S18: Factors Driving Changes in Exposure to Democrats by County Segregation Trends, TargetSmart Data



Notes: Each plot shows the percentage of the 2012-to-2020 change in Exposure to Democrats explained by different decomposition factors. All panels are based on TargetSmart data. Each panel represents a different group of counties. Specifically, we split counties into four groups based on whether, between 2012 and 2020, counties saw an increase vs. a decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they contributed to increasing vs. decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

Figure S19: Factors Driving Changes in Exposure to Democrats by Census Tract Segregation Trends, TargetSmart Data



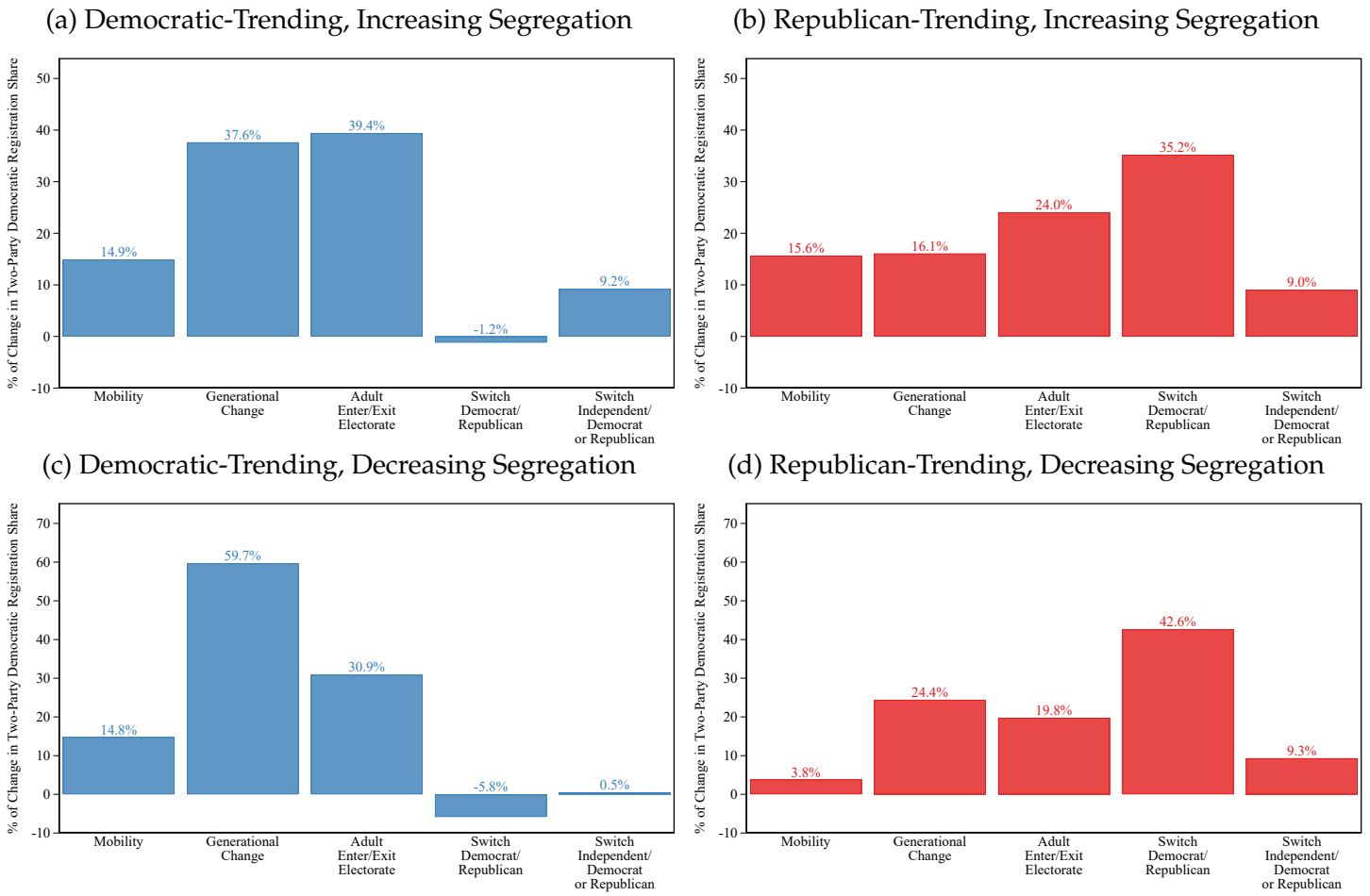
Notes: Each plot shows the percentage of the 2012-to-2020 change in Exposure to Democrats explained by different decomposition factors. All panels are based on TargetSmart data. Each panel represents a different group of Census Tracts. Specifically, we split Census Tracts into four groups based on whether, between 2012 and 2020, tracts saw an increase vs. a decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they contributed to increasing vs. decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

F.7 Factor Decomposition by Extreme Geographic Partisan Segregation Trends

Finally, we examine the strength of decomposition factors in counties and neighborhoods that made the largest contributions to partisan segregation. SI Figures S20 to S22 show the percentage change in Exposure to Democrats at the county level (using the Catalist and TargetSmart data) and at the Census Tract level (using the TargetSmart data) due to each decomposition factor. The geographic units are categorized based on whether they experienced an extreme increase or decrease in geographic partisan segregation. An extreme change is defined as being in the 10th and 90th percentile of the change in contribution to segregation, with positive values indicating a positive contribution to segregation and negative values indicating a negative one.

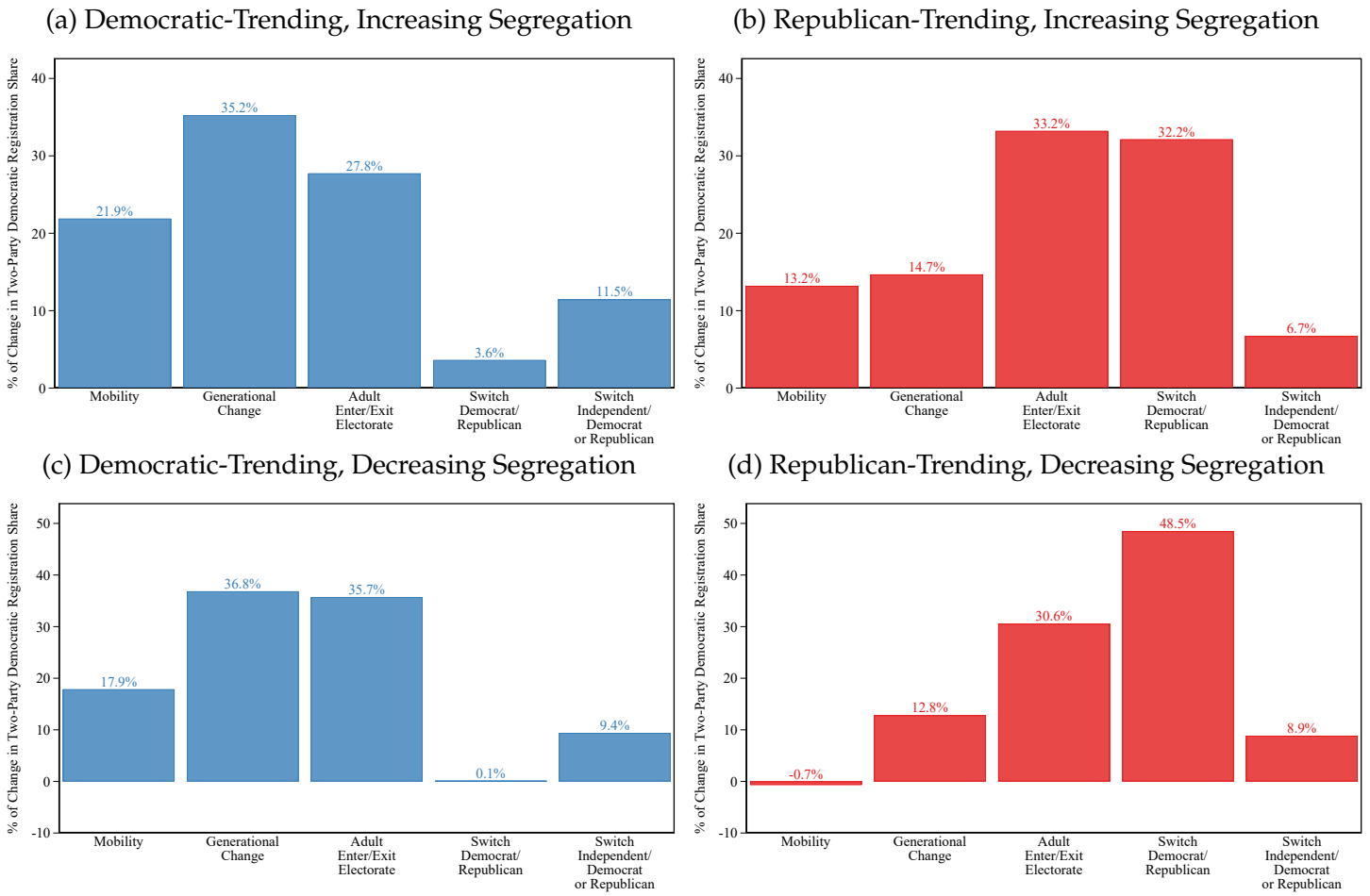
Overall, we find that the patterns in these subsets of counties reflect those from the previous sections. We also find limited differences across counties that experienced extreme increases versus decreases in partisan segregation, conditional on the partisan trend. In Democratic-leaning areas, generational change is the primary driver, while in Republican-leaning areas, party switching between the Democratic and Republican parties plays a more significant role, whether the area experienced an extreme increase or decrease in geographic partisan segregation. Additionally, adult entry/exit from the electorate accounts for a large portion of the change in the Exposure to Democrats in Democratic-leaning areas in the Catalist data and in both Democratic- and Republican-leaning areas in the TargetSmart data. At the neighborhood level, we find more variability across neighborhoods increasing or decreasing segregation.

Figure S20: Factors Driving Changes in Exposure to Democrats by Extreme County Segregation Trends, Catalist Data



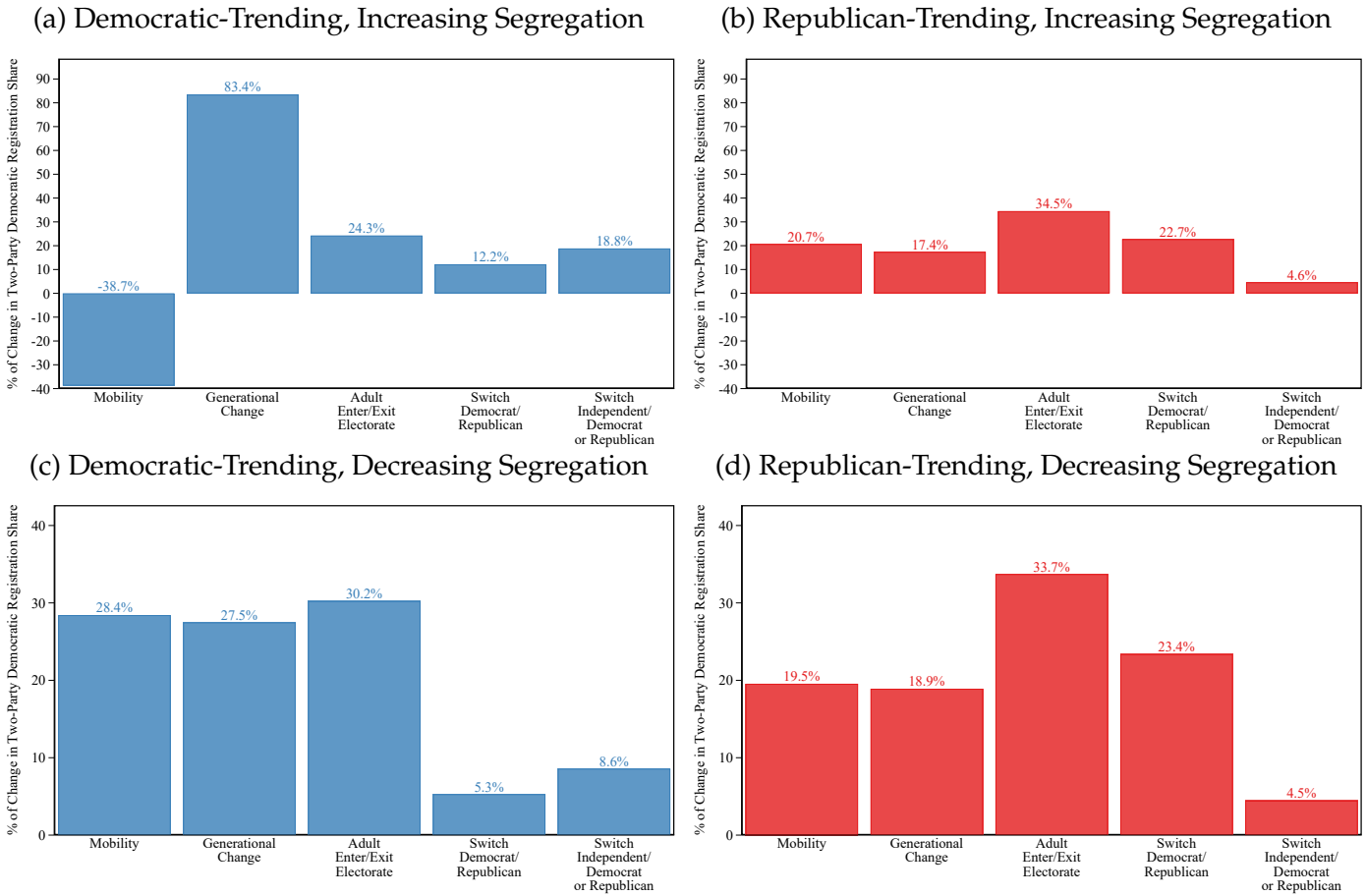
Notes: Each plot shows the percentage of the 2008-to-2018 change in Exposure to Democrats explained by different decomposition factors. All panels are based on Catalist data. Each panel represents a different group of counties. Specifically, we split counties into four groups based on whether, between 2008 and 2018, counties saw an extreme increase vs. an extreme decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they were among the 10% of counties that most contributed to increasing vs. the 10% of counties that most contributed to decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

Figure S21: Factors Driving Changes in Exposure to Democrats by Extreme County Segregation Trends, TargetSmart Data



Notes: Each plot shows the percentage of the 2012-to-2020 change in Exposure to Democrats explained by different decomposition factors. All panels are based on TargetSmart data. Each panel represents a different group of counties. Specifically, we split counties into four groups based on whether, between 2012 and 2020, counties saw an extreme increase vs. an extreme decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they were among the 10% of counties that most contributed to increasing vs. the 10% of counties that most contributed to decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

Figure S22: Factors Driving Changes in Exposure to Democrats by Extreme Census Tract Segregation Trends, TargetSmart Data



Notes: Each plot shows the percentage of the 2012-to-2020 change in Exposure to Democrats explained by different decomposition factors. All panels are based on TargetSmart data. Each panel represents a different group of Census Tracts. Specifically, we split Census Tracts into four groups based on whether, between 2012 and 2020, Census Tracts saw an extreme increase vs. an extreme decrease in Exposure to Democrats (Panels A and C vs. Panels B and D) and on whether they were among the 10% of Census Tracts that most contributed to increasing vs. the 10% of Census Tracts that most contributed to decreasing the variance of the Exposure to Democrats (Panels A and B vs. Panels C and D).

G Changes in Geographic Partisan Segregation by Demographic Group

G.1 Changes by Gender, Age, and Race Groups

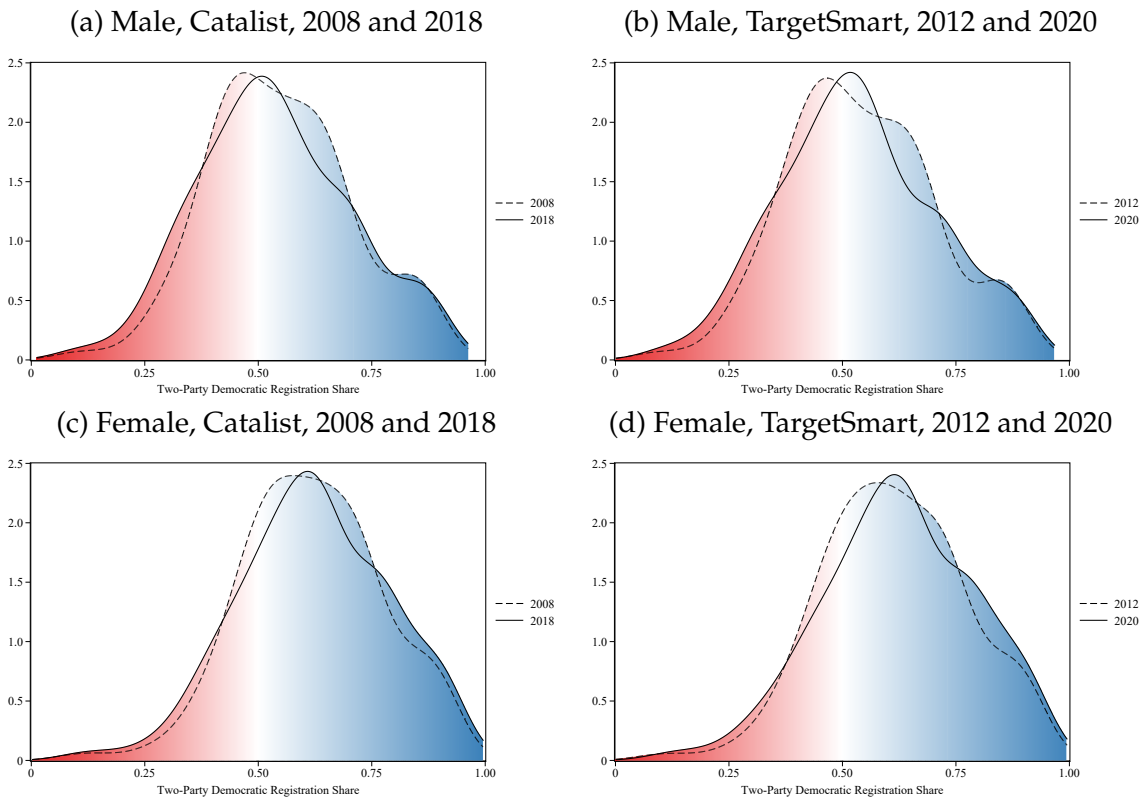
We analyze how geographic partisan segregation has evolved *within* groups of citizens. Specifically, we compute the Exposure to Democrats separately for women and men, for voters of different age quartiles, and for white, Black, Hispanic, and registrants of other races. For each demographic group, we plot the distribution of the Exposure to Democrats across counties and Census Tracts.

SI Figures S23 and S24 display the distributions of the male and female Exposure to Democrats across geographic units, weighted by sex-specific counts of registrants in each unit. Figure S23 shows the county distributions (using the Catalist data on the left, and the TargetSmart data on the right) while Figure S24 shows the Census Tract distributions. The figures demonstrate that partisan segregation has been increasing over time for both men and women. The weighted standard deviation in the Catalist data increased by 1.3 percentage points for men and 1.2 percentage points for women at the county level (compared to 1.1 and 1.0 percentage points, respectively, in the TargetSmart data), and by 0.9 percentage points for both men and women at the Census Tract level in the TargetSmart data.

SI Figures S25 and S26 show the weighted distributions by age quartile. We observe a widening of the distributions within age groups, although the shape and center of the distributions vary by age quartile. For young voters (i.e., Q1), there is a particularly pronounced leftward shift in the Democratic shoulder of the distributions at both the county and Census Tract levels over time. For older voters (i.e., Q2, Q3, and Q4), the increase in geographic partisan segregation has been driven primarily by growing counts of Republican registrants.

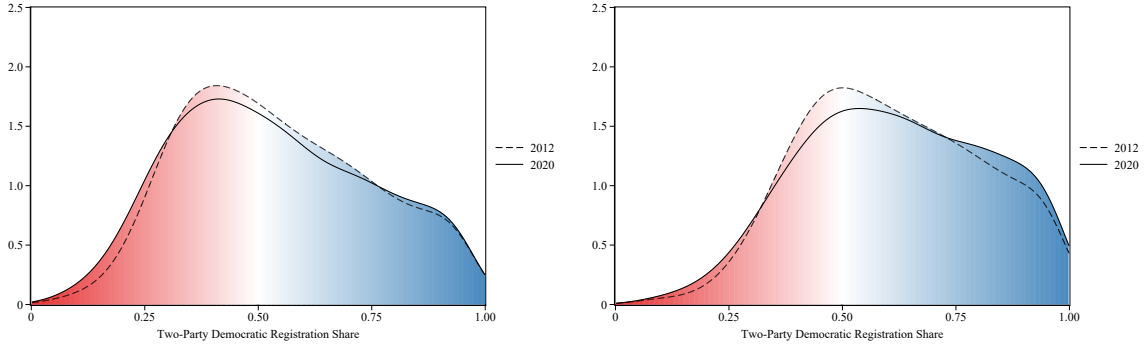
Figure 4 in the main paper displays race-specific distributions of Exposure to Democrats in counties, using the Catalist data, and in Census Tracts, using the TargetS-

Figure S23: Distributions of County-Level Exposure to Democrats by Gender, Catalist and TargetSmart Data



Notes: The figure plots kernel density estimates of the gender-specific county-level Exposure to Democrats. Panels A and B focus on registered male voters while Panels C and D focus on registered female voters. Panels are either based on 2008 and 2018 Catalist data or 2012 and 2020 TargetSmart data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

Figure S24: Distributions of Census Tract-Level Exposure to Democrats by Gender, TargetSmart Data



Notes: The figure plots kernel density estimates of the gender-specific Census Tract-level Exposure to Democrats. Panels A and B focus on registered male and female voters, respectively. Both panels are based on 2012 and 2020 TargetSmart data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

mart data. Corresponding county-level plots based on the TargetSmart data are shown in SI Figure S27.

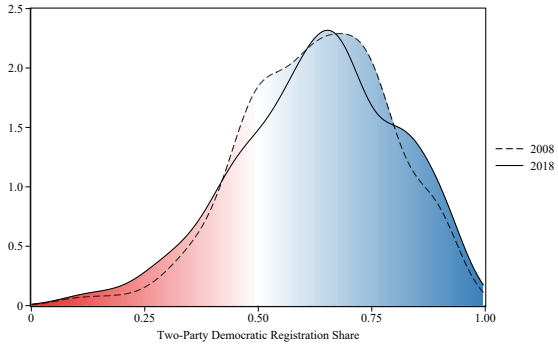
G.2 Demographic Groups' Contribution to Factors Driving Changes in Exposure to Democrats

Similarly as in Table 2 in the main paper, we present demographic groups' contribution to factors driving changes in Exposure to Democrats but using TargetSmart instead of Catalist data. SI Tables S23 and S24 display results at the county and Census Tract levels, respectively, which are consistent with those in Table 2.

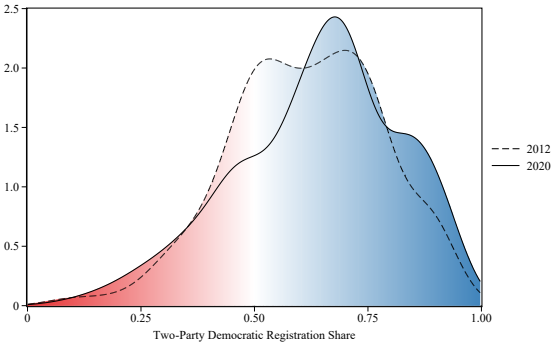
In Democratic-leaning areas, generational change is primarily driven by younger Democratic voters rather than the older population. Female voters, Hispanics, and individuals of other races (e.g., Asians and individuals with mixed races) particularly contribute to generational change in Democratic-leaning places, increasing the Exposure to Democrats at both the county and Census Tract levels. In Republican-leaning areas, Democratic voters who switch to the Republican party are more likely to be middle-aged or older males, predominantly in the second, third, and fourth quartiles of the age distribution. These voters are also mostly white, both at the county and Census Tract levels. Black voters, on the other hand, tend to resist the trend, as they remain slightly more inclined to become Democrats or Independents over the period.

Figure S25: Distributions of County-Level Exposure to Democrats by Age Quartile, Catalist and TargetSmart Data

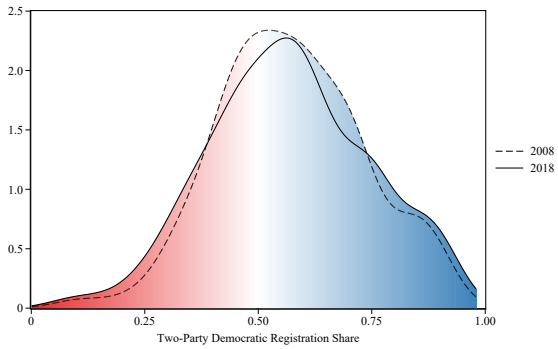
(a) Age Q1, Catalist, 2008 and 2018



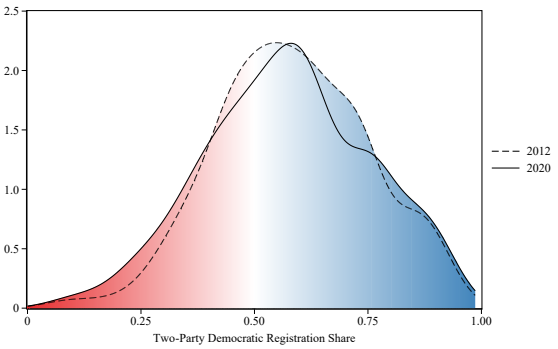
(b) Age Q1, TargetSmart, 2012 and 2020



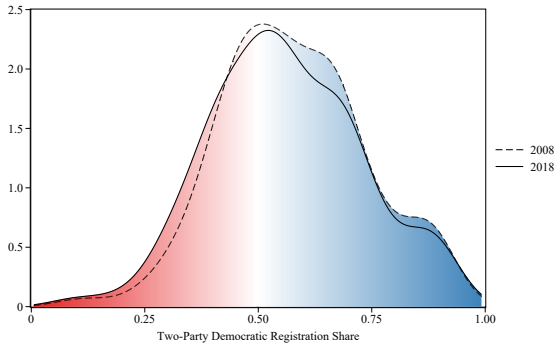
(c) Age Q2, Catalist, 2008 and 2018



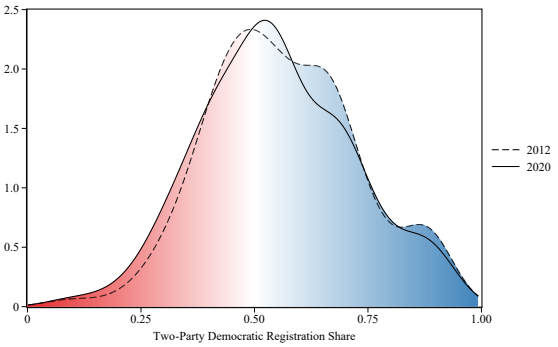
(d) Age Q2, TargetSmart, 2012 and 2020



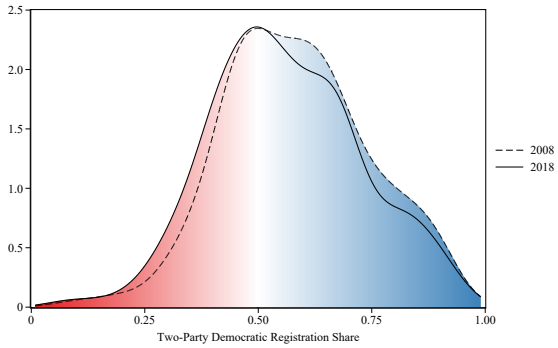
(e) Age Q3, Catalist, 2008 and 2018



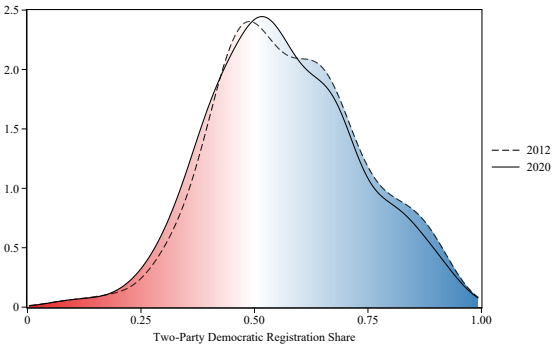
(f) Age Q3, TargetSmart, 2012 and 2020



(g) Age Q4, Catalist, 2008 and 2018

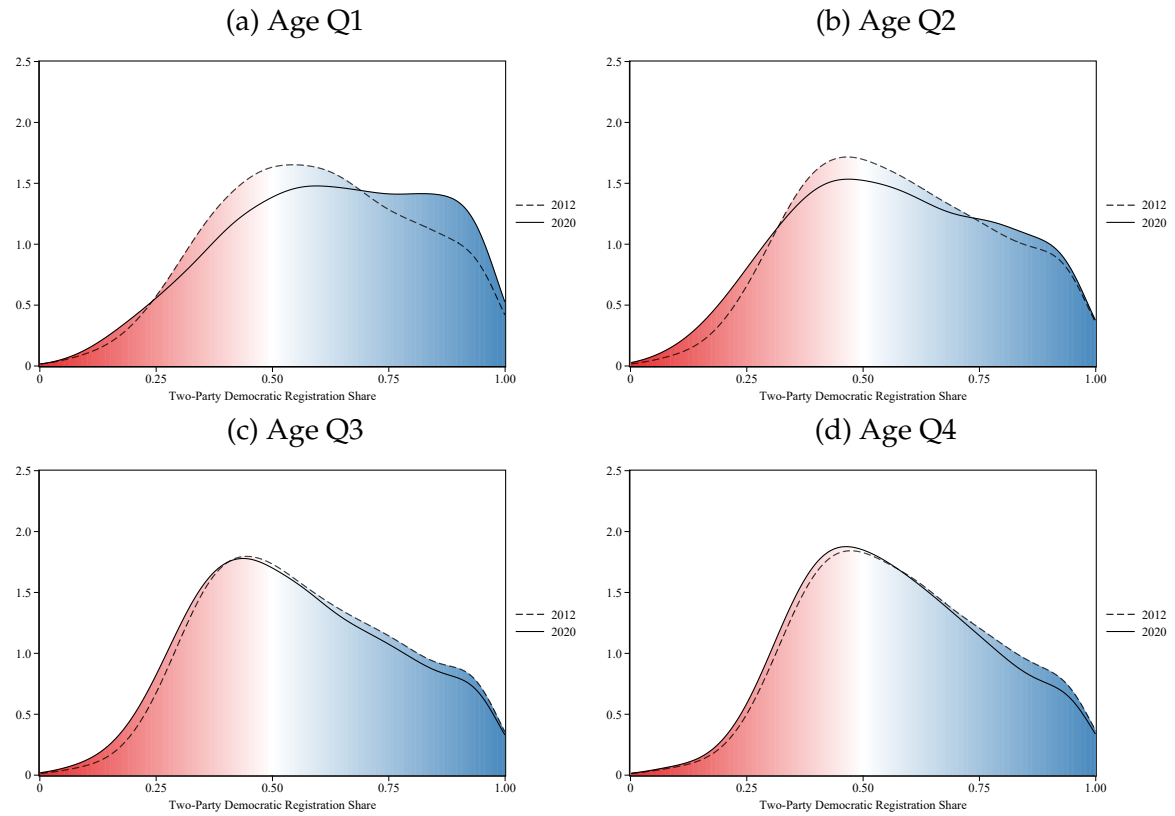


(h) Age Q4, TargetSmart, 2012 and 2020



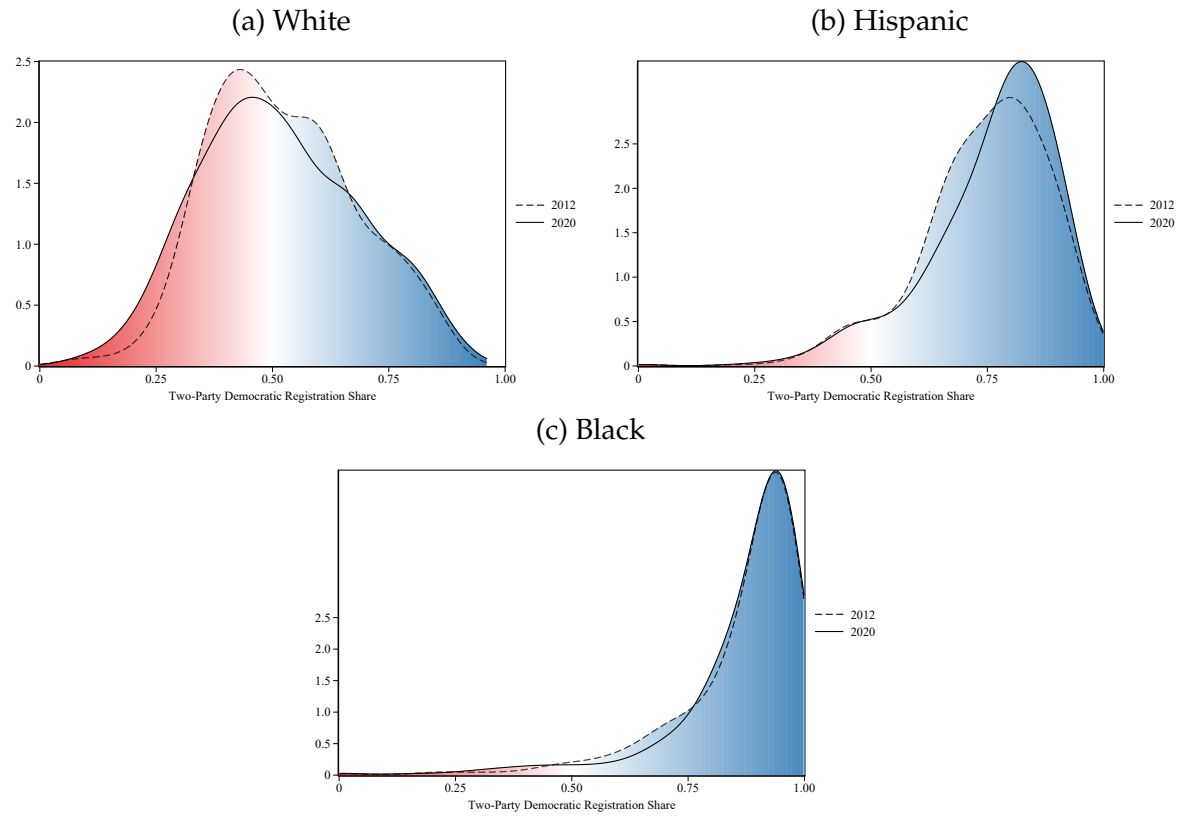
Notes: The figure plots kernel density estimates of the age quartile-specific county-level Exposure to Democrats. The left panels are based on 2008 and 2018 Catalist data while the right panels are based on 2012 and 2020 TargetSmart data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

Figure S26: Distributions of Census Tract-Level Exposure to Democrats by Age Quartile, TargetSmart Data, 2012 and 2020



Notes: The figure plots kernel density estimates of the age quartile-specific Census Tract-level Exposure to Democrats. All panels are based on 2012 and 2020 TargetSmart data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

Figure S27: Distributions of County-Level Exposure to Democrats by Race, TargetSmart Data, 2012 and 2020



Notes: The figure plots kernel density estimates of the race-specific county-level Exposure to Democrats. All panels are based on 2012 and 2020 TargetSmart data. All kernel density estimates use a Gaussian kernel with bandwidth of 0.05, weighting by counts of voters in a given sample/year.

Table S23: Demographic Groups' Contribution to Factors Driving Changes in Exposure to Democrats, Counties – TargetSmart Data

	More Democratic						More Republican					
		Factors						Factors				
	% Voters (1)	Mobility (2)	Gen. Change (3)	Adult Enter/ Exit Electorate (4)	Switch Dem./ Rep. (5)	Switch Ind./ Dem. or Rep. (6)	% Voters (7)	Mobility (8)	Gen. Change (9)	Adult Enter/ Exit Electorate (10)	Switch Dem./ Rep. (11)	Switch Ind./ Dem. or Rep. (12)
		Panel A. Overall Contribution						Panel A. Overall Contribution				
		19.2	39.4	32.7	-1.5	10.1		12.1	14.3	33.6	33.7	6.3
		Panel B. By Age Quartile						Panel B. By Age Quartile				
Aged 18-27 (Q1)	20.6	13.8	45.0	10.8	29.9	5.7	17.8	1.3	10.0	7.7	4.3	0.7
Aged 28-42 (Q2)	25.4	2.1	-2.4	10.4	-13.2	1.9	23.5	4.2	1.6	11.6	10.1	2.6
Aged 43-57 (Q3)	26.1	2.3	-2.7	5.7	-7.1	1.8	26.5	4.5	1.2	9.4	11.2	1.9
Aged 58+ (Q4)	28.0	1.1	-0.4	5.8	-11.2	0.7	32.2	2.2	1.4	4.9	8.0	1.1
		Panel C. By Sex						Panel C. By Sex				
Male	46.3	10.3	12.2	15.5	-1.9	4.8	46.5	7.3	12.1	18.7	17.6	3.7
Female	53.7	8.9	27.2	17.2	0.4	5.4	53.5	4.8	2.2	14.9	16.1	2.6
		Panel D. By Race						Panel D. By Race				
Black	9.4	0.8	1.7	-0.2	-2.0	0.5	7.9	0.2	0.1	2.7	-0.1	-0.2
Hispanic	11.4	0.2	11.1	4.1	0.2	1.7	5.7	1.7	11.7	-5.5	7.3	1.5
White	71.9	11.2	4.8	6.9	1.4	3.7	83.4	5.8	-11.3	23.8	18.1	4.4
Other race	7.2	6.9	21.9	22.0	-1.1	4.2	3.0	4.4	13.7	12.6	8.4	0.6

Notes: The table is based on the TargetSmart data. Panel A reports the share of the change in Exposure to Democrats attributable to each decomposition factor, separately for counties that became more Democratic (columns 1-6) or more Republican (columns 7-12) between 2012 and 2020. Each cell in Panels B, C, and D shows how much a given demographic group (in rows) contributed to a given factor's share of the decomposition (in columns). Vertical sums within panels add up to a given factor's overall contribution reported in Panel A. For example, Democrats changing their party affiliation to Republican or vice versa explain 33.7% of the change in Exposure to Democrats in counties that became more Republican; 4.3, 10.1, 11.2, and 8.0 percentage points of this 33.7% are due, respectively, to voters aged 18-27, 28-42, 43-57, and 58+ (i.e., 4.3% + 10.1% + 11.2% + 8.0% = 33.7%, net of rounding error).

Table S24: Demographic Groups' Contribution to Factors Driving Changes in Exposure to Democrats, Census Tracts – TargetSmart Data

	More Democratic						More Republican					
		Factors						Factors				
	% Voters	Mobility	Gen. Change	Adult Enter/ Exit Electorate	Switch Dem./ Rep.	Switch Ind./ Dem. or Rep.	% Voters	Mobility	Gen. Change	Adult Enter/ Exit Electorate	Switch Dem./ Rep.	Switch Ind./ Dem. or Rep.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		Panel A. Overall Contribution						Panel A. Overall Contribution				
		22.6	39.5	31.3	0.4	6.2		23.3	15.2	33.7	23.2	4.6
		Panel B. By Age Quartile						Panel B. By Age Quartile				
Aged 18-27 (Q1)	20.5	16.6	42.6	10.0	0.6	2.5	18.1	5.2	11.1	7.7	2.0	0.2
Aged 28-42 (Q2)	25.2	2.5	-1.6	10.2	-0.1	1.3	23.6	8.2	1.5	11.7	6.4	1.7
Aged 43-57 (Q3)	26.2	2.4	-1.8	5.3	0.05	1.6	26.5	6.5	1.2	9.0	8.5	1.6
Aged 58+ (Q4)	28.2	1.1	0.4	5.8	-0.2	0.7	31.8	3.4	1.4	5.3	6.4	1.1
		Panel C. By Sex						Panel C. By Sex				
Male	46.3	11.3	13.9	14.9	-0.9	3.0	46.4	13.2	12.0	18.5	12.0	2.6
Female	53.7	11.3	25.7	16.4	1.3	3.2	53.6	10.2	3.2	15.2	11.2	2.0
		Panel D. By Race						Panel D. By Race				
Black	8.2	2.3	2.1	0.5	0.2	0.3	9.5	0.6	56.7	1.8	-0.03	-0.04
Hispanic	11.3	2.5	12.1	7.2	0.1	1.0	6.2	7.3	-624.1	6.2	4.0	0.6
White	73.3	10.4	5.3	6.7	-0.01	2.2	81.1	8.8	1991.2	15.8	13.7	3.0
Other race	7.3	7.4	20.1	17.0	0.1	2.6	3.2	6.6	-1408.6	9.9	5.5	1.0

Notes: The table is based on the TargetSmart data. Panel A reports the share of the change in Exposure to Democrats attributable to each decomposition factor, separately for Census Tracts that became more Democratic (columns 1-6) or more Republican (columns 7-12) between 2012 and 2020. Each cell in Panels B, C, and D shows how much a given demographic group (in rows) contributed to a given factor's share of the decomposition (in columns). Vertical sums within panels add up to a given factor's overall contribution reported in Panel A. For example, Democrats changing their party affiliation to Republican or vice versa explain 23.2% of the change in Exposure to Democrats in Census Tracts that became more Republican; 2.0, 6.4, 8.5, and 6.4 percentage points of this 23.2% are due to, respectively, voters aged 18-27, 28-42, 43-57, and 58+ (2.0% + 6.4% + 8.5% + 6.4% = 23.2%, net of rounding error).

References

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