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Residential segregation by educational status in Turkey, 2013: Examining the association with political preferences

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Abstract

No research has examined the association between political preferences and residential segregation by educational status. In Turkey, affective polarisation is very high and warrants an examination of whether political preferences are associated with educational residential segregation. This study uses data on Turkey from the 2013 Address-Population Based Registry, the 2011 Census of Population and Housing and voting archives maintained by the Supreme Election Council to examine residential segregation by educational status across the nation's 81 provinces. We find that the segregation between groups at the ends of the educational distribution is the highest. Those with college education are segregated at a moderate level from those with no schooling and a primary-school education. High-school graduates are moderately segregated from those with no schooling. Multivariate analyses reveal that political preferences are significantly associated with educational segregation. The implications of this spatial distancing are discussed for Turkey and other politically polarised societies.

KEYWORDS

education, political polarisation, residential segregation, Turkey

1 | INTRODUCTION

The residential segregation of socio-economic status groups has been a subject of longstanding interest to urban scholars because cities around the world continue to be divided (Musterd et al., 2017; Quillian & Lagrange, 2016; Reardon et al., 2018; Tammaru et al., 2015). Globalisation is a force that impacts inequalities in cities (Sassen, 1991), but urban scholars debate the role it plays in influencing the residential segregation of socio-economic groups (Maloutas & Fujita, 2012; van Kempen & Murie, 2009). Increasingly, scholars have suggested that global forces, alone, are not responsible for spatial polarisation in cities, and other factors like welfare and housing regimes as well as place-based historical, social and cultural factors should be considered (Maloutas & Fujita, 2012; Musterd et al., 2017; Musterd & Ostendorf, 1998; Tammaru et al., 2015; van Kempen & Murie, 2009).

The association between political preferences, which are reflective of the social and cultural fabric of societies, and segregation has

not been explicitly examined in the literature, but the significant increase in animosity between political parties or affective polarisation in countries like Turkey, the United States, Venezuela, Hungary and Poland necessitates an examination of this relationship (Iyengar et al., 2019; McCoy et al., 2018). In the United States, such animus has resulted in a geographic polarisation of people from opposing political parties (Bishop, 2009; Johnston et al., 2016; Kinsella et al., 2015; Walker, 2013), and this spatial polarisation has occurred while there has been an increase in residential segregation by socio-economic status (Massey et al., 2009; Reardon et al., 2018; Tammaru et al., 2020). In Turkey, although there are many political parties, "the lion's share of voter behavior appears to have been frozen into two mutually disagreeable and obstinate blocs" (Somer, 2019: 43), yet no research, to our knowledge, has examined political preferences in the context of segregation by socio-economic status.

The main goal of this study is to examine the association between voting behaviour and the residential segregation of educational groups at the province level in Turkey to gauge whether political

preferences are associated with the spatial separation of educational groups. The analysis will examine variation in segregation while accounting for other important factors, like whether the province has a global city and its economic structure. We seek to make three main contributions to the literature on socio-economic segregation. First, we examine the association between political preferences and residential segregation by educational status, which has been absent from the literature. Second, we focus specifically on the segregation of educational groups, which has received less attention than the literature on income segregation and has only been descriptive in nature (Domina, 2006; Hatz et al., 2015; Massey et al., 2009; Quillian & Lagrange, 2016; Shen & Xiao, 2020). Finally, we update the literature on segregation in Turkey, which relies on data from 2000 and earlier, focuses mostly on Istanbul and is descriptive in nature (Atac, 2014, 2015; Eraydin, 2008; Pinarcioglu & Isik, 2009).

2 | LITERATURE REVIEW

A significant body of comparative research examines residential segregation by socio-economic status, but it is largely descriptive in nature (e.g., Maloutas & Fujita, 2012; Musterd & Ostendorf, 1998; Tammaru et al., 2015, 2020; Sassen, 1991; van Kempen & Murie, 2009). Few studies have systematically documented the factors associated with the variation in socio-economic segregation across cities or other geographic areas (Bischoff & Reardon, 2014; Florida & Mellander, 2015; Quick & Revington, 2021; Quillian & Lagrange, 2016; Reardon & Bischoff, 2011; Reardon et al., 2018; Watson, 2009). Two sets of important factors are associated with city variation in socio-economic segregation within and between countries—economic factors, like globalisation, and institutional/policy factors (Quillian & Lagrange, 2016; Reardon et al., 2018; Sassen, 1991).

2.1 | Globalisation, institutional/policy factors and socio-economic residential segregation

Globalisation has been a key economic factor identified by scholars relating to residential segregation by socio-economic status (Maloutas & Fujita, 2012; Tammaru et al., 2015; van Kempen & Murie, 2009). According to Sassen's global city thesis (1991), economies with larger shares of manufacturing have lower levels of income segregation than those with higher levels of service industries because the income afforded by manufacturing jobs provides households with sufficient income to live anywhere (Bischoff & Reardon, 2014; Watson, 2009). Areas with higher levels of income inequality also have higher levels of segregation by socio-economic status (Musterd & Ostendorf, 1998; Quillian & Lagrange, 2016; Reardon & Bischoff, 2011; Tammaru et al., 2020). Income segregation is positively correlated with unemployment rates, especially if unemployment is very high among low-skilled workers (Watson, 2009).

Other research has found that structural- and institutional-level factors shape variation in residential segregation by socio-economic

status and can modify the impact of globalisation (Maloutas & Fujita, 2012; Musterd & Ostendorf, 1998; Tammaru et al., 2015; van Kempen & Murie, 2009). Income-based segregation is lower in countries with the presence of a stronger social safety net, particularly in Western European countries relative to the United States (Musterd et al., 2017; Musterd & Ostendorf, 1998; Tammaru et al., 2015; van Kempen & Murie, 2009). Welfare and housing benefits reduce the adverse economic impact faced by lower income groups from social polarisation and lower residential segregation by socio-economic status (Arbaci, 2007; Musterd et al., 2017; Tammaru et al., 2015; van der Wusten & Musterd, 1998).

In Turkey, there is significant variation across cities in terms of their connections to the global economy, with Istanbul and Ankara classified as global cities (Globalization and World Cities Research Network [GaWC], 2020) and other places like Adana, Denizli, Trabzon, Kayseri and Konya having economies that are more heavily dominated by manufacturing industries, which are likely to have lower levels of segregation (U.S. Department of State, 2014). In terms of income inequality, in 2011, the Gini coefficient was .404 for Turkey (Turkish Statistical Institute, 2013), which was a greater than the world average of .39 (The World Factbook, 2013–2014). At the same time, Turkey's welfare and housing regimes are not likely to offset the negative impact of globalisation on social and spatial stratification. Public assistance programmes play a small role in the provision of welfare by the Turkish government; municipalities, NGOs and charity and philanthropic groups have filled the void left by the lack of government assistance (Eder, 2010). The housing regime in Turkey is dominated by the private sector and has not provided social housing in the same manner found in Western European countries (Ozdemir, 2011; Sarioglu-Erdogdu, 2014).

Based upon the previous discussion, we develop the following hypothesis:

Hypothesis 1. Provinces in Turkey that are more globalised in their economies and/or that have greater levels of employment in agricultural and service industries will experience greater levels of residential segregation by educational status than provinces that are less globalised and/or that have greater levels of manufacturing or are dominated by employment in one industry.

2.2 | Political preferences and socio-economic residential segregation

We consider a third factor—political preferences—that has not been examined previously. We adopt the social structural sorting perspective as one framework to consider the association between political preferences and segregation by socio-economic status (Krysan & Crowder, 2017). Although its focus is on the mechanisms that perpetuate racial and ethnic residential segregation, the framework's three core principles may be applied to socio-economic segregation:

(i) residential preferences and mobility underlie segregation; (ii) the information people have about neighbourhoods within a given metropolis is central to shaping their preferences and mobility; and (iii) this information is highly subjective, often taking the form of cognitive maps, that develop from individuals' social networks; knowledge via work and school; and media depictions, among other factors (Krysan & Crowder, 2017). Segregation in the aggregate is a function of individuals' varying perceptions of neighbourhoods as desirable places to live and the preferences and mobility that relate to these perceptions. We also, however, consider that socio-economic segregation by educational status may result from structural forces like discrimination in the housing market that constrain the residential choices of individuals as well as from passive forces, like demographic forces (e.g., marital homogamy) that cause people to live separately in a less active manner, not by agency.

2.2.1 | Social structural sorting, residential preferences and educational segregation

Several studies focused on the United States have revealed an increase in the geographic polarisation of people from opposing political parties (e.g., Bishop, 2009; Johnston et al., 2016; Kinsella et al., 2015; Walker, 2013). In general, people want to live in neighbourhoods and communities with others who share the same political ideology and culture, and they spatially distance themselves from others from whom they are socially distanced (Motyl et al., 2014). Gimpel and Hui (2015: 132) find that the role of partisan preferences in the mobility process is at a more 'granular scale'. Partisanship is not the main determinant of where people choose to live. Safety, housing affordability and school quality rank much higher than partisanship, but once those primary factors are accounted for, people ultimately choose a place to live with others that share the same values and are culturally and politically compatible (Gimpel & Hui, 2015).

High levels of affective polarisation have become a cultural reality in Turkey in recent years (McCoy et al., 2018). Using a social distance measure that gauges people's comfort level with their child marrying a person from an opposing political party, data from a 2017 survey in Turkey reveal that 78.7% of respondents did not want their daughter to marry a person from their most distant political party; 68.4% of respondents did not want their children to play with children whose parents voted for the other party (Erdogan, 2018). In comparison, in the United States in 2010, 33% of Democrats and 50% of Republicans reported being upset if their child married someone of an opposing political party (Iyengar et al., 2019).

Whether this animus translates into actual distancing behaviour between groups is of great interest to scholars because of its potential impact on residential segregation and on the ability of differing groups to engage in collective action, which could undermine Turkey's democracy (McCoy et al., 2018). In 2017, 62% of the liberal, Republican People's Party (CHP) members identified the Justice and Development Party (AKP), the conservative party in power, as their

most distant political party, but the reverse was not true for AKP members or MHP members (i.e., Nationalist Movement Party), who instead felt most distant from the HDP party (i.e., People's Democratic Party) (Erdogan, 2018). Only 23% of AKP members and about 9% of MHP members identified CHP as their most distant party (Erdogan, 2018).

Given that CHP members feel most distant from AKP, it is likely that they will be more likely to distance themselves spatially from AKP members rather than the other way around. We expect that CHP members' desires to maintain social distance from AKP adherents will shape their residential preferences and mobility through the structural sorting process. There is evidence that political polarisation likely plays a role in separating households by neighbourhoods in urban Turkey according to their lifestyle, culture and education (Erkip, 2010; Kulkul, 2020). For example, Kulkul (2020) points out that suburbanization in Ankara is not only attributable to social class mobility but also to political preferences. Consistent with the main tenets of the social structural sorting perspective, there is a perception that neighbourhoods like "Cayyolu, Yasamkent, and Umitkoy are considered to be the dwellings of 'secular,' highly skilled, well-educated, upper-class middle-class families" (Kulkul, 2020: 117). In Tophane, an urban neighbourhood in Istanbul undergoing gentrification, it is likely that violent acts against residents displaying affection in public and drinking alcohol in local establishments by Islamists has exacerbated secularists' desires to maintain distance from them (Oz & Eder, 2018). Because of a link between religious and political party ideology, these incidents have likely further solidified CHP members' desires to live away from AKP followers.

How will these political preferences specifically relate to educational segregation? Consistent with the social structural sorting perspective, CHP followers want to live in places and among neighbours with similar lifestyles, which are dependent upon educational background, and this would particularly be true given the political polarisation in the society. Because individuals who align themselves with CHP tend to be more educated and secular than those who support AKP (Erdogan, 2018), we expect that CHP members will be more likely to want to reside in areas with neighbours and in neighbourhoods that have greater levels of education, thereby exacerbating educational segregation (Gidengil & Karakoc, 2016). Thus, we hypothesise:

Hypothesis 2a. In provinces that give more votes to the CHP party, CHP members' residential preferences and realisation of preferences to live in neighbourhoods with greater levels of educated people will aggregate into there being more educational segregation than in provinces where less votes are given to the CHP party.

A second way that political preferences could result in higher levels of education segregation in Turkey relates to the type of education that people in political parties value for their children and the types of schools available to provide that type of education. Members of the CHP have always been staunchly opposed to religious

education that has been provided by Imam Hatip schools (Akpınar, 2007). However, under the AKP's power in recent decades, there has been significant growth in these schools; just between 2012 and 2013, the number of schools increased from about 500 to nearly 2000 (Butler, 2018). One of President Erdogan's goals is to raise a 'pious generation' of youth with a religiously defined identity, and his AKP administration has poured billions of Turkish liras into increasing the number of Imam Hatip schools (Butler, 2018; Lukuslu, 2016). However, the performance of students from these schools has been well below those attending regular state high schools; only 18% of applicants from Imam Hatip schools ended up enrolling at 4-year universities, relative to 35% from regular state high schools and 45% from private high schools (Butler, 2018). Moreover, until the recent coup in Turkey in 2016, most of these Imam Hatip schools were in more politically conservative neighbourhoods.

Thus, it is likely that political party preference could be associated with educational segregation because of the differing preferences, by political party, to send their children to Imam Hatip schools, the differences in the locations of these schools, and by the fact that those attending the schools end up with lower levels of educational attainment. Our third hypothesis is as follows:

Hypothesis 2b. Votes to the CHP party at the province level will be associated with educational segregation via the aggregation of residential preferences for neighbourhoods without Imam Hatip schools. The educational outcomes of those who do not attend Imam Hatip schools will be greater than those who attend those schools, and in the aggregate, this will exacerbate educational segregation.

2.2.2 | Discrimination and educational segregation

At least one study of a prominent gated community in Istanbul, Turkey suggests that discrimination by gatekeepers in that community could be associated with educational segregation (Genis, 2007). Historically, gated communities in Turkey have been of a secular, Westernised character and only recently have Islamist gated communities emerged (Cavdar, 2016; Genis, 2007; Tanulku, 2012, 2016). In research on one of the original gated communities in Istanbul, Kemer Country, Genis (2007: 783) finds that respondents identify themselves as "urban, modern, Western and secular, clearly referring to the socio-cultural binaries and conflicts that have marked Turkish society in recent years." Although not explicitly stated, it is likely that political partisanship drives people, particularly CHP members, to live in this community and others like it because of CHP's preference for a secular lifestyle as compared with AKP followers' preferences for a more religious lifestyle (Erdogan, 2018). Genis (2007: 784) highlights the discriminatory mechanism that maintains the residential homogeneity in this community—"prospective residents have to undergo a strict application process that scrutinizes their occupational and educational background and their social and cultural capital in addition to their

income level ... in one instance, a family's application was turned down on the basis of their Islamist orientation and because their lifestyle would not be compatible with that of the community." This selective process is common in secular-based, Western-oriented gated communities (Tanulku, 2012, 2016).

No studies to our knowledge, however, examine the extent to which discriminatory forces, like those used in secular, gated communities, shape people's residential choices, relative to their residential preferences. It is likely that these discriminatory forces have a direct effect on educational segregation by constraining the residential choices of less educated people. Discrimination also likely has indirect effect on educational residential segregation by impacting the cognitive maps that people invoke when making decisions about where to live. However, in our analyses, it will be very difficult to examine this factor because we do not have data on gated communities.

Research on other gated communities in Turkey also finds that lifestyle and cultural factors, including religion, which is linked to political partisanship, attract people to certain communities (Alkan-Gokler, 2017; Bali, 2004; Cavdar, 2016; Ergun & Kulkul, 2019; Guzey, 2014; Kurtulus, 2011; Tanulku, 2016; Yonet & Yirmibesoglu, 2018). The emergence of non-secular, Islamist gated communities is more recent than the secular, Westernised communities and is largely due to the increasing fortunes of religious people and the governance by the AKP, which has reduced oppression against religious people in Turkish society (Cavdar, 2016; Hamsici & Neyran, 2019). Islamist gated communities that have emerged during the past 15–20 years take on an exclusive nature in terms of economics rather than by religion. We do not expect secular people to be shut out of such communities, but we also do not believe that secularists would move to such communities.

2.2.3 | Passive demographic forces and educational segregation

The final way political party preferences may be associated with educational segregation relates to political party differences in the value of women's educational attainment. In Turkey, religiosity is significantly associated with more patriarchal views regarding women's education (Engin & Pals, 2018). Because AKP followers are more likely to identify as religious people than CHP followers (Erdogan, 2018), those supporting the AKP would be less likely than CHP voters to value women's education. The CHP value on women's education likely means that CHP followers who are married will display homogamy in their educational attainment, which would result in higher levels of educational residential segregation. Smits (2003) finds that among those with high levels of education in Turkey, there is a very high level of marital educational homogamy. Because CHP followers have higher levels of education than AKP followers (Erdogan, 2018), their value on education, therefore, will result in more educational marital homogamy and thus more residential segregation by educational status. Thus, our final hypothesis is as follows:

Hypothesis 2c. Votes to the CHP party at the province level will be associated with educational segregation via the aggregation of marital homogamy in education that results from CHP followers' greater value on women's education. This is an example of how a passive demographic force can link CHP votes to educational segregation.

3 | DATA AND METHODS

3.1 | Data

The data for this study come from four sources and are mainly focused at the province level of analysis, which include 81 provinces in Turkey. The first source is the 2013 Address-Based Population Registry System (ABPRS) maintained by the Turkish Statistical Institute. Since 2006, on an annual basis, the ABPRS collects a limited set of data on all households, on their age, sex, marital status, education, literacy and migration (Canpolat & Gok, 2020). These data are available at the province level on the Turkish Statistical Institute's website. By special request, we were able to obtain these data at the mahalle or neighbourhood level within each of the provinces to calculate indices of dissimilarity to gauge the residential segregation of educational groups within neighbourhoods within provinces. Data for our independent variables come from three other sources—2011 voting data from archives maintained by Turkey's Supreme Election Council (Supreme Election Council, 2019), the GaWC classification of global cities (GaWC, 2020), and the 2011 Turkish Census of Population and Housing (hereafter referred to as 'Turkish census data').

3.2 | Variables

Using data from the 2013 ABPRS, we measure residential segregation, our main dependent variable, using the well-known index of dissimilarity or 'D-score' (Massey & Denton, 1993). The index of dissimilarity measures the evenness of two groups across neighbourhoods within a geographic space. The neighbourhoods that we consider for the calculation of segregation are for central districts or metropolitan municipalities within each of the provinces—hereafter referred to as 'main urban districts', which are the most populous in the province and contain the main administrative units for the province (Ministry of Interior [Mol], 2020).

Districts are subunits that fit contiguously within provinces. More specifically, in 51 of the provinces that have populations of 750,000 or less, we use neighbourhoods within the central district to calculate our educational D-scores because only one district is defined as the main administrative centre in these provinces. In the 30 provinces with a population that is greater than 750,000, we use neighbourhoods within metropolitan municipalities to calculate our D-scores (Türkiye Belediyeler Birliği [TTB], 2020; Yetkin, 2020). These more populous provinces contain multiple districts that comprise the

main centres of the provinces' administrative activities. For the 41,292 mahalles in our analytical dataset, the average population is 974. At the province level, the average population in our analytical dataset is 496,598. The total population in all of the 41,292 mahalles in our analytical dataset, across all provinces, is about 40.2 million.

The index of dissimilarity is the most commonly used measure of residential segregation found in the literature (Massey & Denton, 1993). To calculate indices of dissimilarity, we use five educational groupings that are created from the 2013 ABPRS data on the population aged 25 years and older: (i) no schooling; (ii) primary school; (iii) middle school or vocational school at the same level; (iv) high school or vocational school at the same level; and (v) higher education (i.e., at least a college degree). These categories are consistent with those used by the Turkish Statistical Institute, which releases official reports about the population's educational attainment (e.g., Turkish Statistical Institute, 2019). Using these data for neighbourhoods within the main urban districts or metropolitan municipalities within each of the 81 provinces, we calculate all unique, pairwise indices of dissimilarity for these groups, resulting in 10 D-scores for each province.

The D-score ranges from 0, indicating no segregation, to 1, indicating complete segregation. It may be interpreted as the proportion of either group that would have to move in order to achieve a fully integrated residential distribution. In general, dissimilarity indices that are over .60 are considered to indicate 'high' levels of segregation; indices between .30 and .60 indicate 'moderate' segregation; and less than .30 indicate 'low' segregation (Massey & Denton, 1993).

In order to understand whether political preferences influence variation in residential segregation by educational status, we create a measure for each province of the percentage of votes given to CHP in the 2011 general election, using data from Turkey's Supreme Election Council (Supreme Election Council, 2019). The number of voters captured in this data across Turkey is about 42.9 million, which is about 83% of the population aged 18 and older, most of whom are eligible to vote. We use the percentage of votes given to CHP because it indicates opposition to the political regime that was in power in 2011 and provides a sense of the nature of political polarisation within each province. As a sensitivity analysis, we also run models with the percentage of votes given to AKP, the main party in power. Standard measures of political polarisation that have been used in other research, like 'feeling thermometers' and social distance questions (e.g., Iyengar et al., 2019), are unavailable at the province level within Turkey.

With regard to economic factors, we create an indicator variable if the province contains the 'global cities' of Istanbul and Ankara based upon the GaWC classification list of global cities (GaWC, 2020). Using 2011 Turkish Census data and to control for variation in the nature of the economy across provinces, we use a dummy variable to gauge whether the industrial structure is comprised primarily of employment in agriculture and service industries versus employment in mixes of other industries (i.e., predominantly service; service and manufacturing; and agriculture, service, and manufacturing).¹ To be classified as an 'agriculture-service' economy, at least 40% of males

must be employed in agriculture, and 40% must be employed in service. These economies are likely to be much more segregated by education level than those with manufacturing employment or predominated by one industry, like service, because they contain workers in agriculture that require the lowest levels of education and in service industries that require more education, especially those in financial and health-care industries.

Consistent with other research on segregation by socio-economic status (Bischoff & Reardon, 2014; Florida & Mellander, 2015; Reardon & Bischoff, 2011; Watson, 2009), we also include the following control variables, at the province level from the 2011 Turkish census data, in our multivariate analyses: (ii) the unemployment rate; (iii) percentage of the population by level of educational attainment; (iii) log of the total population (we use the log because the variable for total population has a skewed distribution); and (iv) the percentage of the population that is 65 years old or older. Previous research on the United States has shown that areas with greater shares of population with at least a college education are more segregated by income than those with a greater percentage of population with a high-school degree or less (Florida & Mellander, 2015; Watson, 2009).

Provinces with larger population sizes will have higher levels of educational segregation than those with smaller population sizes because in more populated provinces, there will be more opportunities for educational sorting to occur than in smaller areas (Bischoff & Reardon, 2014; Florida & Mellander, 2015; Watson, 2009). Thus, in areas with larger populations, there will be a greater number of residential areas within which to settle, thereby giving people of similar educational backgrounds more opportunities to cluster together than would be present in an area with smaller populations and a smaller number of residential areas. Segregation will likely be lower in provinces with greater shares of population aged 65 and older, in contrast to what is found in the United States (Watson, 2009). Unlike Western societies, Turkey has a younger demographic age distribution and those who are older tend to co-reside with their family members, which would likely decrease segregation by educational level (Hacettepe Institute of Population Studies, 2019; Koc et al., 2010).

3.3 | Analyses

We report descriptive statistics for the average dissimilarity scores by educational grouping and for our key independent and control variables. Then, we present multivariate analyses to examine the factors associated with the variation in residential segregation by educational status. We use ordinary least squares (OLS) regression analyses, consistent with previous research (Bischoff & Reardon, 2014; Watson, 2009). Our main objective is to determine whether there is an association between political preferences and the residential segregation of educational groups. Although we use data on political preferences that precede the data on educational segregation in terms of the time when the data were collected, our analysis is limited by the fact that we cannot establish a causal link between political

preferences and educational segregation. However, there is value in establishing whether a significant association exists between these two factors because the political polarisation in societies like Turkey may be associated with outcomes like educational separation, which could have a negative impact on the future strength of the country's democracy.

4 | RESULTS

How are educational groups segregated across neighbourhoods by provinces in Turkey? Table 1 reports average D-scores for each province, weighted by the province's population size.² Column 1 presents D-scores for those with no schooling compared with the other educational groups. The average level of segregation between those with no schooling and a primary-school education is quite low at .14, with a standard deviation of .06. For this D-score, the minimum value is .08, and the maximum is .34. As educational level increases, segregation from those with no schooling increases. The average level of segregation between those with no schooling and a middle-school education is .27. The average D-scores between those with no schooling and those with a high-school degree or at least a college degree are .33 and .49 respectively, falling into the moderate segregation range. With respect to the latter, on average, 49% of people with no schooling or at least a college degree would have to move within neighbourhoods of the main urban districts of a province to achieve an even residential distribution. The minimum and maximum values for segregation between those with no schooling and at least a college degree are .17 and .76, respectively, with the latter falling into the high range of segregation.

To explore the significant variation in the latter D-scores, Figure 1 shows a map of the distribution of the D-scores between those with no schooling and those with at least a college degree by province in Turkey. These maps were produced by classifying D-scores into five equal categories, which are shown in the legend on the map. The darkest red category shows provinces with the highest level of segregation between those with no schooling and those with at least a college degree, which include Edirne, Balikesir, Manisa, Aydin, Mugla, Nigde, Adana, Kahramanmaraş, Gaziantep, Sanliurfa, Mardin, Ardahan and Bartın. Segregation between those with no schooling and those with at least a college degree is also above average in the second darkest red category, ranging from .55 to .59. Provinces falling into this category include Kırklareli, Tekirdag, Kutahya, Afyonkarahisar, Burdur, Mersin, Aksaray, Nevşehir, Diyarbakır, Mus, Bitlis, Agri, Iğdır, Kars and Amasya.

In Table 1, the second set of results in Column 2 shows average D-scores between those with a primary-school education and in other educational groups. The results reveal that average segregation is in the low range, at .19 and .26, between those with a primary-school education and with a middle- and high-school education, respectively. However, those with at least a college education are moderately segregated from those with a primary-school education, exhibiting an average D-score of .44. The standard deviation for this D-score is .07,

TABLE 1 Average D-scores by educational status in main urban districts across provinces

In Turkey, weighted by population size				
Groups	No school (1)	Primary school (2)	Middle school (3)	High school (4)
No school	—			
Primary school	0.14 (0.06; 0.08, 0.34)	—		
Middle school	0.27 (0.09; 0.10, 0.61)	0.19 (0.06; 0.06, 0.57)	—	
High school	0.33 (0.09; 0.14, 0.55)	0.26 (0.05; 0.13, 0.51)	0.11 (0.02; 0.05, 0.26)	—
College or more	0.49 (0.09; 0.17, 0.76)	0.44 (0.07; 0.19, 0.72)	0.30 (0.06; 0.07, 0.46)	0.21 (0.04; 0.09, 0.29)

Note: Standard deviation, min and max values are in parentheses, respectively.

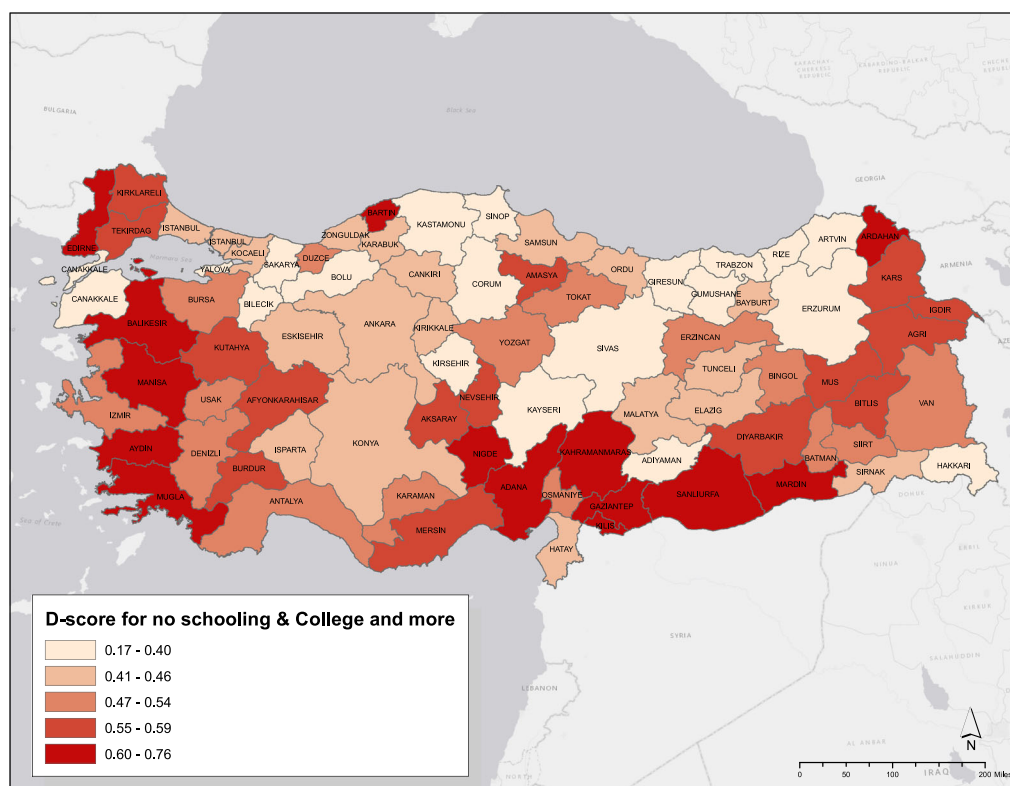


FIGURE 1 Residential segregation of those with no schooling and at least a college degree by province in Turkey, 2013

and the minimum and maximum values are .19 and .72, respectively, with the latter falling into the high range of segregation.

Because the variation in the latter D-scores is significant, we map them in Figure 2. These maps were produced by classifying D-scores into five equal categories, which are shown in the legend on the map. Similar to Figure 1, the darkest two red categories reveal areas with above-average segregation between those with primary schooling and those with at least a college degree. Many of the same provinces that were in the highest categories in Figure 1 are also in the two darkest

red categories in Figure 2, including Edirne, Kırklareli, Balıkesir, Aydın, Muğla, Burdur, Afyonkarahisar, Aksaray, Nevşehir, Niğde, Mersin, Adana, Karahamammaras, Gaziantep, Sanliurfa, Mardin, Diyarbakir, Batman, Siirt, Agri, Iğdir, Kars, Ardahan, Amasya and Bartın. Other provinces that fall into the two highest categories of segregation between those with primary-schooling and those with at least a college degree that were not in these categories in Figure 1 are Usak, Duzce and Ankara.

The final results in Table 1, in Columns 3 and 4, reveal that at the upper end of the educational distribution, the average D-scores

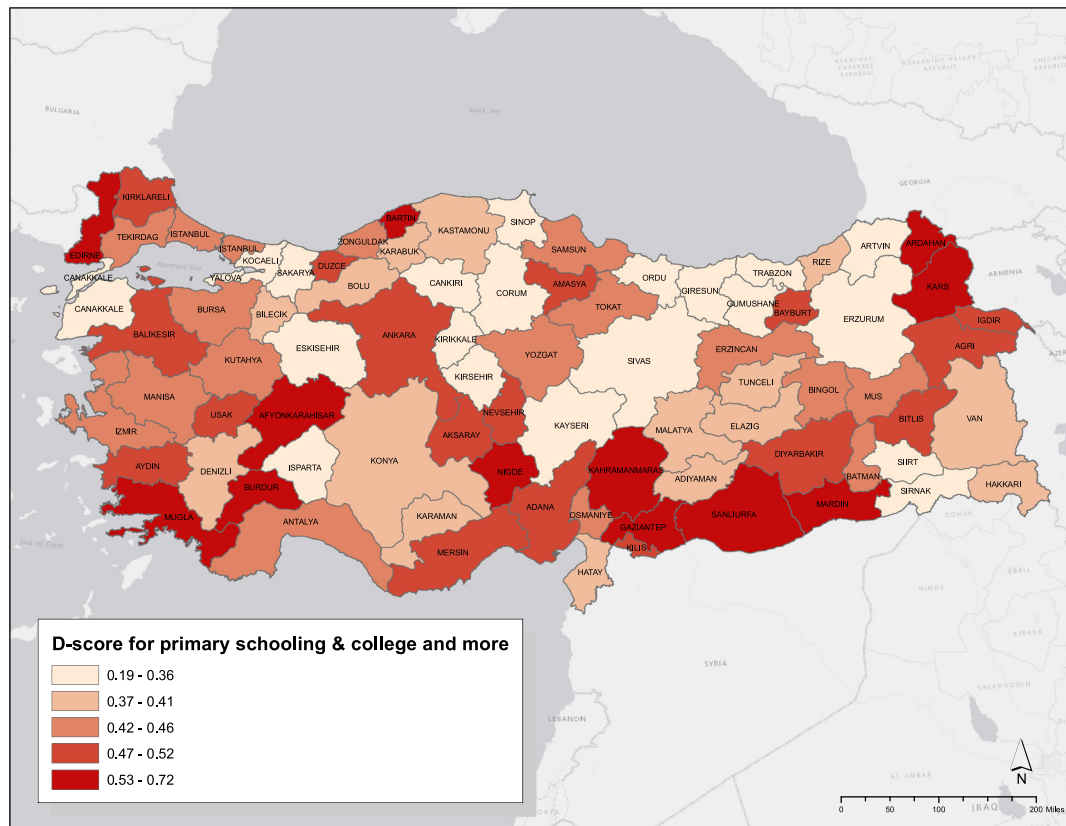


FIGURE 2 Residential segregation of those with primary schooling and at least a college degree by province in Turkey, 2013

Variables	Mean	Standard deviation	Min	Max
Percentage of votes to CHP	20.92	13.58	0.90	57.50
Global cities	0.02	0.16	0.00	1.00
Proportion with service-agriculture	0.11	0.32	0.00	1.00
Unemployment rate	7.77	2.41	3.46	15.28
Percent of population with				
No schooling	18.18	4.10	9.47	27.39
Primary school	39.46	5.92	27.32	50.12
Middle school	17.97	2.03	13.94	24.19
High school	15.89	3.13	9.91	23.21
College or more	10.59	2.77	6.60	23.91
Log of total population	13.21	0.95	11.23	16.47
Percent of the population ≤ 65	9.00	3.16	2.82	16.70

TABLE 2 Socio-economic and demographic characteristics of provinces

between those with a high-school education and those with (i) a middle-school education or (ii) those with at least a college education are in the low range. The average D-score between those with a middle-school education and those with at least a college education (Column 3) falls at the lowest end of the moderate category.

The residential segregation of educational groups is likely related to the political preferences and socio-economic and demographic characteristics of the populations in provinces. Table 2 reports descriptive statistics on these variables. On average, about 21% of the

population voted for CHP across provinces, with the minimum value being .9% and the maximum value being 57.5%. Clearly there is variation across provinces in voting behaviour. As we mentioned above, we define two out of the 81 provinces, Istanbul and Ankara, as being global because they contain the global cities Istanbul and Ankara. With respect to the characterisation of the industrial structure of provinces, we find that the proportion of provinces characterised as being dominated by agriculture and service is .11. The average unemployment rate across provinces is 7.77% and ranges from 3.46% to 15.28%.

When we examine the population by educational attainment of the population, on average, just over 18% of the population has no schooling; about 39% have a primary-school education; nearly 18% have a middle school education; about 16% have a high-school education; and nearly 11% have at least a college degree. Across provinces, however, there is a significant range in the minimum and maximum values of these educational attainment variables. With respect to the average log of the total population, it is 13.21 across provinces. Finally, the average percentage of the population that is 65 years old or older is 9%, with a minimum value of 2.82% and a maximum value of 16.7%. Turkey's population is younger, as found in other data sources (Hacettepe Institute of Population Studies, 2019).

How do political preferences relate to educational segregation at the province level? Table 3 reports the results of our multivariate models examining the factors associated with the variation in residential segregation between educational status groups. The table reports coefficients and standard errors from four OLS regression models. We focus our analyses specifically on analysing variation in segregation among the four pairwise groups that exhibited high average segregation scores in Table 1. Each model examines variation in one set of D-scores at a time. Model 1 examines the variation in 81 D-scores for the provinces that measure segregation between those with no schooling and those with a high-school degree. Models 2–4 examine variation in the 81 D-scores for provinces, respectively, that measure segregation between those with (i) no schooling and those with at least a college degree; (ii) primary-school education and with a high-school degree; and (iii) primary-school education and those with at least a college degree.

Turning to our key independent variable across the models, the percentage of votes to CHP, we find that it is positively and significantly associated with all the segregation scores in Models 1–4, consistent with our hypothesis that more spatial separation will be

present between educational groupings in provinces with greater shares of population that voted for CHP. As shown in Model 1, a one-unit increase in the percentage of votes to CHP increases the segregation between those with no schooling and those with a high-school education by .004 units, controlling for other factors. Thus, a 10-unit or 10-percentage point increase in the percentage voting for CHP would result in a .04 unit increase in segregation between these groups. A similar magnitude in the association between the percentage of votes to CHP and segregation is also exhibited in Models 2–4. Controlling for other factors, 10-unit increase in the percentage of votes to CHP would result in about a .04 increase in segregation between those with at least a college degree and those with no schooling, a .03 increase in segregation between those with primary schooling and those with a high-school education and a .03 increase in segregation between those with a primary-school education and at least a college degree, respectively.

Table A1 reports results from models that include the percentage of votes to AKP, the main party in power in Turkey, to compare to the results in Table 3 that use the percentage of votes to CHP. Across all models, the coefficient for the percentage of votes to AKP is negative and statistically significant, controlling for other factors. When there is a majority of support for AKP, there is less segregation by educational level in a given province. This is also consistent with our hypothesis because as discussed above, AKP members are less likely to socially distance themselves from others, especially when they are in the majority.

Turning back to our main results in Table 3, the association between global cities and segregation is not statistically significant in any models.³ This finding is contrary to Sassen's (1991) hypothesis that globalisation should be associated with greater levels of segregation. However, it is consistent with more recent work that does not necessarily find a link (e.g., Maloutas & Fujita, 2012).

TABLE 3 Multiple regression models for segregation by educational status

Variables	No school - high school (1)	No school - college or more (2)	Primary school - high school (3)	Primary school - college or more (4)
Percentage of votes to CHP	0.004*** (0.001)	0.004** (0.001)	0.003*** (0.001)	0.003*** (0.001)
Global cities	−0.102 (0.063)	0.012 (0.092)	0.023 (0.047)	0.108 (0.077)
Proportion with agriculture and service	0.039 (0.028)	0.056 (0.036)	0.025 (0.021)	0.039 (0.030)
Unemployment rate	−0.007 (0.005)	−0.01 (0.006)	−0.007* (0.003)	−0.001* (0.005)
Percentage of population with high-school degree	−0.013*** (0.003)		−0.012*** (0.002)	
Percentage of population with college degree or more		−0.017** (0.006)		−0.016** (0.005)
Log of total population	−0.003 (0.012)	0.016 (0.016)	−0.019* (0.009)	0.001 (0.013)
Percentage of 65 and older	−0.019*** (0.004)	−0.021*** (0.006)	−0.012*** (0.003)	−0.015** (0.005)
Intercept	0.732*** (0.178)	0.629** (0.232)	0.817*** (0.133)	0.719*** (0.193)
Observations	81	81	81	81
Adjusted R ²	0.368	0.28	0.370	0.225
F statistic df = 7; 73	7.658***	5.444***	7.718***	4.315***

Note: Standard errors are in parentheses.

*** $p < .001$. ** $p < .01$. * $p < .05$.

With respect to our control variables, the industrial structure variable gauging whether the economy is predominated by agriculture and service is positively associated with segregation by educational level as we expected, but the coefficient is not statistically significant in all of the models. The unemployment rate is negatively and significantly related to segregation by educational level in Models 3 and 4. Controlling for other factors, Model 3 reveals that a one-unit increase in unemployment results in a .007 unit decrease in segregation. The unemployment rate coefficient in Model 4 has a slightly smaller, negative coefficient. These results are consistent with the expectation from previous research, suggesting that workers at all levels are affected by unemployment (Bischoff & Reardon, 2014). It may also indicate that provinces with greater levels of unemployment may have lower housing costs, which would facilitate the ability of educational groups to live wherever they wanted and lower segregation.

Turning to the educational control variables in the models, we include the percentage with a high-school education in the Models 1 and 3 that examine D-scores, relative to those with a high-school education, and we include the percentage with at least a college degree in Models 2 and 4, that examine D-scores, relative to those with at least a college education. We did not include the percentage with no schooling or a primary-school education because those variables are highly correlated with our other control variables (see Table A2). Models 1–4 show that these higher levels of education are negatively and significantly associated with educational segregation. In Model 1, for example, a one-unit increase in the percentage of those with a high-school education is associated with a .013 decrease in segregation between those with no schooling and those with a high-school education, controlling for other factors. Taken together, the results suggest that when there are greater shares of more educated populations in provinces, these groups will display less distance from the less educated, resulting in lower levels of education segregation.

The log of the total population is not significantly associated with educational segregation in all Models 1, 2 and 4 in Table 3, but in Model 3, there is a negative and significant association. In all four models, there is a negative and significant relationship between the percentage of the population over the age of 65 and educational segregation. For example, Column 1 of Table 3 shows that a one-unit increase in the percentage of the population that is aged 65 and older is associated with a .019 decrease in segregation between those with no schooling and a high-school education, controlling for other factors. The magnitude of the association is similar across the other three models.

As far as the explanatory power of our models, the bottom of Table 3 reveals that our adjusted R^2 statistics range from .225 to .37. Our models explain nearly one quarter to just over one third of the variation in educational segregation across provinces in Turkey. Due to data limitations, we cannot include any indicator of the number of gated communities within the provinces nor can we control for the population density or suburbanization level. It is likely that our omission of some key variables reduces the explanatory power of our models.

5 | DISCUSSION AND CONCLUSIONS

The primary goal of this paper was to examine the association between voting behaviour and residential segregation of educational groups across provinces in Turkey. Our study is the first, to our knowledge, to examine this association, which is important because of current, high levels of affective polarisation in countries like Turkey, the United States and others (Iyengar et al., 2019; McCoy et al., 2018). Our key finding is that voting behaviour has a significant association with residential segregation by educational status, even after accounting for other important factors related to such segregation, like being located in a province with a global city.

Our study makes three contributions to the literature on residential segregation by socio-economic status. First, we document the significance of a correlate of segregation that has been ignored by previous research. The literature examining residential segregation by socio-economic status points to the importance of examining social and cultural factors (Maloutas & Fujita, 2012; Musterd et al., 2017; Tammaru et al., 2015). Our research suggests that people's political preferences are an important part of the social and cultural fabric of societies that shape residential segregation. Although the present study cannot uncover the mechanisms by which this occurs, it is likely that the social distancing of groups on the basis of political beliefs and values plays a crucial role. In Turkey, we find that the percentage of votes to CHP in the 2011 general election is positively and significantly associated with the residential segregation between disparate educational groupings 2 years later in 2013. Although our results reveal just an association, the fact that voting behaviour in 2011 affects educational segregation; 2 years later, it is suggestive of an underlying process linking political preferences to the aggregation of distinctive residential choices of individuals by educational status. Our results suggest that CHP voters' social distance from AKP followers is likely translating into spatial distance in the form of the separation of educational groups. This finding echoes the recent work that suggests that perceptions of neighbourhoods as desirable places to live are related to people's political preferences, values and social class (Kulkul, 2020).

The spatial distancing of CHP and AKP followers likely impacts educational segregation in three ways. CHP followers are more educated and seek to live in places with more educated neighbours and also seek to send their children to regular state schools, which are located in different areas than Imam Hatip schools—religious schools and preferred by AKP followers—and have better educational outcomes than students attending Imam Hatip schools (Akpınar, 2007; Butler, 2018; Gidengil & Karakoc, 2016; Lukuslu, 2016). Theoretically, these two potential mechanisms linking political party preferences to educational residential segregation are consistent with tenets of the social structural sorting perspective, which maintains that the mobility process that underlies segregation is shaped by the perceptions that people have about and residential preferences for certain neighbourhoods (Krysan & Crowder, 2017).

However, it is likely that the link between political preferences and educational segregation is not entirely based upon the active

decisions of individuals. It is also likely that educational segregation relates to passive demographic forces. Married spouses that are CHP followers are more likely to have equally high educational levels via the process of marital homogamy than married spouses that are AKP followers because of CHP adherents' less patriarchal attitudes towards women's education (Smits, 2003). These party differences are likely to be associated with higher levels of educational segregation. Segregation could also relate to discriminatory, structural forces that constrain the housing choices of some educational groups, but because we do not have data on gated communities, it is difficult to examine this factor.

Our second contribution was to systematically examine variation in residential segregation by educational status, which has received limited attention and has only been descriptive in nature (Domina, 2006; Hatz et al., 2015; Massey et al., 2009; Shen & Xiao, 2020). Our findings suggest that perhaps the correlates of segregation by educational status differ from those related to segregation by income. For example, global cities and the nature of the economy in terms of industrial structure may be more important in relating to income—rather than educational-based segregation. We find that the unemployment rate and percentage of the population over the age of 65 are both negatively associated with educational segregation, which is not the case in other research predicting income-based segregation (Bischoff & Reardon, 2014; Watson, 2009). The latter finding, however, is consistent with other research in Turkey that finds that 64% of the elderly live with their adult children (Koc et al., 2010).

Our final contribution was to provide an update about the nature of segregation by socio-economic status in Turkey. The existing literature relies exclusively on data from 2000 or earlier and does not consider all of the provinces in Turkey (Atac, 2014, 2015; Eraydin, 2008; Pinarcioglu & Isik, 2009). We find that those at the opposite ends of the educational attainment distribution are more segregated from one another than those who are closer to one another in terms of their educational attainment. The highest levels of segregation are between those with at least a college degree and (i) those with no schooling and (ii) with a primary-school education. The average levels of these types of segregation fall into the moderate range, which is consistent with previous research using 2000 data only for Istanbul (Atac, 2014, 2015; Eraydin, 2008; Pinarcioglu & Isik, 2009). Thus, it appears that little change in educational segregation has occurred over time, despite the fact that a larger share of the population is attaining higher levels of education (Turkish Statistical Institute, 2019). Our study also finds that significant variation exists in educational segregation, with some provinces exhibiting levels in the high range (e.g., Adana).

Future studies on residential segregation in Turkey and in other politically polarised societies, like the United States, would profit by conducting research building upon these contributions that could overcome some of the limitations of our study. Studies that focus on individuals and uncover how individual movers, by political party, use neighbourhood perceptions or cognitive maps to make decisions about where to live would be useful. For example, it would be

interesting to know how individuals affiliated with the CHP party perceive of neighbourhoods in a province where greater shares of votes are given to the CHP party as compared to provinces with less votes given to the CHP party. In the former province type, it is likely that individual CHP members would have a cognitive map of neighbourhoods where they would be most likely to move and those neighbourhoods would likely have greater levels of educational attainment.

Our study was limited by the aggregate nature of our data and by the fact that we could only examine an association between political party preferences and educational segregation and not make a causal link. Future research that explicitly links people's mobility to their social distance from voters in opposing parties would be of great value. Because socio-economic segregation is increasing in countries around the world, more work is needed to clarify the correlates of income-based versus educational-based residential segregation (Massey et al., 2009; Reardon et al., 2018; Tammaru et al., 2020). In Turkey, research should continue to monitor the levels of educational segregation, particularly as the percentage of the population with at least a college degree more than doubled between 2008 and 2019 from 8.3% to 18% and continues to increase (Turkish Statistical Institute, 2019).

The findings in our study have significant implications for the well-being of Turks and others in politically polarised societies and speak to the broader literature on political polarisation, educational outcomes, and health disparities. The social distance between specific political parties appears to be translating into spatial distance, which undermines the ability of these groups to engage in collective action and maintain their collective identity (McCoy et al., 2018). Ultimately, the cleavages borne from such social and spatial distancing threaten democracy and could jeopardise the health of citizens in such countries, as lower levels of democracy are associated with poorer health outcomes (Franco et al., 2004; Wang et al., 2019). Moreover, the segregation of disparate educational groups will likely limit the educational trajectories of future generations, particularly those in less-educated groups that are isolated from more educated groups (Chetty et al., 2014), which also have implications for the health and well-being of these groups (Bor et al., 2017).

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DATA AVAILABILITY STATEMENT

The residential segregation data that support the findings of this study are available from the Turkish Statistical Institute. Restrictions apply to the availability of these data, which were used under license for this study. Data are only available from the Turkish Statistical Institute with their permission (https://www.tuik.gov.tr/Kurumsal/Mikro_Veri). The other data that were used to create the independent variables are

available from the Turkish Statistical Institute (<https://www.tuik.gov.tr/>) and from the Supreme Election Council (<https://www.ysk.gov.tr/tr/12-haziran-2011-xxiv-donem-milletvekili-genel-secimi/4929>).

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ENDNOTES

- ¹ The 2011 Turkish census data are at the province level and cover the total population in each province.
- ² Comparing D-scores across provinces has its limitations because provinces have different population structures. Their population densities, green spaces and social organisation differ. In the calculation of the average D-scores across provinces, we weight each province's D-score by its population size to standardise the D-scores across these areas. This method does not eliminate all the differences across provinces, but it is one used by researchers comparing D-scores across metropolitan areas, which also differ in their population structures (e.g., Domina, 2006; Massey & Denton, 1993).
- ³ The results for the global city indicator and other control variables are, for the most part, similar in nature in Table A2, where we use the percentage of votes to AKP instead of the percentage of votes to CHP. For brevity, we do not discuss the results for the control variables here.

REFERENCES

- Alkan-Gokler, L. (2017). Gated communities in Ankara: Are they a tool of social segregation? *International Journal of Housing Markets and Analysis*, 10(5), 687–702. <https://doi.org/10.1108/IJHMA-03-2017-0032>
- Arbaci, S. (2007). Ethnic segregation, housing systems, and welfare regimes in Europe. *European Journal of Housing Policy*, 7(4), 401–433. <https://doi.org/10.1080/14616710701650443>
- Atac, E. (2014). Reading Turkish Urbanisation through Socio-Economic Residential Segregation in 15 Cities. Doctoral Dissertation. Ankara, Turkey: Middle East Technical University.
- Atac, E. (2015). Turkish cities in the bigger picture: The distribution of 'socio-economic status' through the cities. *Gazi University Journal of Science Part B: Art, Humanities, Design and Planning*, 3(4), 55–68.
- Bali, R. N. (2004). *Tarz-i Hayat'tan life Style'a Yeni Seckinler, Yeni Mekanlar, Yeni Yasam- Lar* (6th ed.). Istanbul: İletisim Yayınları.
- Bischoff, K., & Reardon, S. F. (2014). Residential segregation by income, 1970–2009. In J. Logan (Ed.), *Diversity and disparities: America enters a new century*. New York, NY: Russell Sage Foundation.
- Bishop, B. (2009). *The big sort: Why the clustering of like-minded America is tearing us apart*. Boston: Houghton Mifflin.
- Bor, J., Cohen, G. H., & Galea, P. (2017). Population health in an era of rising income inequality. *The Lancet*, 389, 1475–1490. [https://doi.org/10.1016/S0140-6736\(17\)30571-8](https://doi.org/10.1016/S0140-6736(17)30571-8)
- Canpolat, S. B., & Gok, M. G. (2020). Census methodology in Turkey: Transformation from traditional to register-based administrative data. *Statistical Journal of the IAOS*, 36, 177–185. <https://doi.org/10.3233/SJI-190561>
- Cavdar, A. (2016). Building, marketing, and living in an Islamic gated community: Novel configurations of class and religion in Istanbul. *International Journal of Urban and Regional Research*, 40(3), 507–523. <https://doi.org/10.1111/1468-2427.12364>
- Chetty, R., Hendren, N., Kline, P., & Saez, E. (2014). Where is the land of opportunity? The geography of intergenerational mobility in the United States. *The Quarterly Journal of Economics*, 129(4), 1553–1623. <https://doi.org/10.1093/qje/qju022>
- Domina, T. (2006). Brain drain and brain gain: Rising educational segregation in the United States, 1940–2000. *City and Community*, 5(4), 387–407. <https://doi.org/10.1111/j.1540-6040.2006.00190.x>
- Eder, M. (2010). Retreating state? Political economy of welfare regime change in Turkey. *Middle East Law and Governance*, 2, 152–184. <https://doi.org/10.1163/187633710X500739>
- Engin, C., & Pals, H. (2018). Patriarchal attitudes in Turkey 1990–2011: The influence of religion and political conservatism. *Social Politics*, 25(3), 383–409. <https://doi.org/10.1093/sp/jxx021>
- Eraydin, A. (2008). The impact of globalisation on different social groups: Competitiveness, social cohesion, and spatial segregation in Istanbul. *Urban Studies*, 45(8), 1663–1691. <https://doi.org/10.1177/0042098008091496>
- Erdogan, E. (2018). *Dimensions of Polarization in Turkey*, 2017. Istanbul Bilgi University, Center for Migration Research. Accessed via https://goc.bilgi.edu.tr/media/uploads/2018/02/06/dimensions-of-polarizationppt_Tz7XeBg.pdf
- Ergun, A., & Kulkul, C. (2019). Defining semi-public space: A case study in the gated communities of Yasamkent, Ankara. *Turkish Studies*, 20(5), 776–793. <https://doi.org/10.1080/14683849.2018.1556565>
- Erkip, F. (2010). Community and neighborhood relations in Ankara: An urban-suburban contrast. *Cities*, 27, 96–102. <https://doi.org/10.1016/j.cities.2009.10.003>
- Florida, R., Mellander, C. (2015). Segregated city: The geography of economic segregation in America's metros. Toronto, CA: Martin Prosperity Institute, University of Toronto. Retrieved July 7, 2020 (<http://martinprosperity.org/media/Segregated%20City.pdf>).
- Franco, A., Alvarez-Dardet, C., & Ruiz, M. T. (2004). Effect of democracy on health: Ecological study. *BMJ*, 329, 1421–1424. <https://doi.org/10.1136/bmj.329.7480.1421>
- Genis, S. (2007). Producing elite localities: The rise of gated communities in Istanbul. *Urban Studies*, 44(4), 771–798. <https://doi.org/10.1080/00420980601185684>
- Gidengil, E., & Karakoc, E. (2016). Which matters more in the electoral success of Islamist (successor) parties – Religion or performance? The Turkish case. *Party Politics*, 22(3), 325–338. <https://doi.org/10.1177/1354068814549341>
- Gimpel, J. G., & Hui, I. S. (2015). Seeking politically compatible neighbors? The role of neighborhood partisan composition in residential sorting. *Political Geography*, 48, 130–142. <https://doi.org/10.1016/j.polgeo.2014.11.003>
- Globalization and World Cities Research Network (GaWC). (2020). The world according to GaWC: Classification of cities, 2012. Leicester-shire, UK: Loughborough University. Retrieved May 30, 2020 (<http://www.lboro.ac.uk/gawc/world2012t.html>).
- Guzey, O. (2014). Neoliberal urbanism restructuring the City of Ankara: Gated communities as a new life style in a suburban settlement. *Cities*, 36, 93–106. <https://doi.org/10.1016/j.cities.2013.10.005>
- Hacettepe Institute of Population Studies. (2019). 2018 Turkey demographic and health survey. Hacettepe Institute of Population Studies, T.R. Presidency of Turkey Directorate of Strategy and Budget and TUBITAK, Ankara, Turkey.
- Hamsici, M., Neyran, E. (2019). A news on İstanbul seçimi - Başakşehir: 'Beyaz muhafazakârlar' ve siyaset [Istanbul election - Başakşehir: 'White conservatives' and politics] *BBC Türkçe*, 21 June 2019. Retrieved from <https://www.bbc.com/turkce/haberler-turkiye-48716768> [Accessed on 25 May 2021].
- Hatz, G., Kohlbacher, J., & Reeger, U. (2015). Socio-economic segregation in Vienna: A social-oriented approach to urban planning and housing. In T. Tamaru, S. Marcinczak, M. van Ham, & S. Musterd (Eds.), *Socio-economic segregation in European capital cities: East meets west*. London: Routledge.
- Iyengar, S., Lelkes, Y., Levendusky, M., Malhotra, N., & Westwood, S. J. (2019). The origins and consequences of affective polarization in the

- United States. *Annual Review of Political Science*, 22, 129–146. <https://doi.org/10.1146/annurev-polisci-051117-073034>
- Johnston, R., Manley, D., & Jones, K. (2016). Spatial polarization of presidential voting in the United States, 1992–2012: The ‘big sort’ revisited. *Annals of the American Association of Geographers*, 106(5), 1047–1062. <https://doi.org/10.1080/24694452.2016.1191991>
- Kinsella, C., McTague, C., & Raleigh, K. N. (2015). Unmasking geographic polarization and clustering: A micro-scalar analysis of partisan voting behavior. *Applied Geography*, 62, 404–419. <https://doi.org/10.1016/j.apgeog.2015.04.022>
- Koc, I., Ozgoren, A., Sirin, H. (2010). Türkiye’de Yaşlıların Yaşam Kalitesi ve Aile Yapısının Yaşlıların Yaşam Kalitesine Etkisi [Quality of life among elderly and the impact of family structure on the quality of life of elderly], TNSA-2008 İleri Analiz Çalışması, Türkiye’de Doğurganlık, Üreme Sağlığı ve Yaşlılık (Chapter 7) [TDHS-2008 Further Analysis Study: Fertility, Reproductive Health and Aging (Chapter 7)], 231–286.
- Krysan, M., & Crowder, K. (2017). *Cycle of segregation: Social processes and residential stratification*. New York, NY: Russell Sage Foundation. <https://doi.org/10.7758/9781610448697>
- Kulkul, C. (2020). Public space and social polarization: A case study of the new wave of Turkish migrants with a comparative analysis of Berlin, Istanbul, & Ankara. *The Journal of Public Space*, 5(1), 111–128.
- Kurtulus, H. (2011). Gated communities as a representation of new upper and middle classes in Istanbul. *Siyasal Bilgiler Fakültesi Dergisi*, 44, 49–65.
- Maloutas, T., & Fujita, K. (Eds.) (2012). *Residential segregation in comparative perspective: Making sense of contextual diversity*. VT: Ashgate Publishing Company.
- Massey, D. S., & Denton, N. A. (1993). *American apartheid: Segregation and the making of the underclass*. Cambridge, MA: Harvard University Press.
- Massey, D. S., Rothwell, J., & Domina, T. (2009). The changing bases of segregation in the United States. *The Annals of the American Academy of Political and Social Science*, 626, 74–90. <https://doi.org/10.1177/0002716209343558>
- McCoy, J., Rahman, T., & Somer, M. (2018). Polarization and the global crisis of democracy: Common patterns, dynamics, and pernicious consequences for democratic polities. *American Behavioral Scientist*, 62(1), 16–42. <https://doi.org/10.1177/0002764218759576>
- Ministry of Interior (Mol). (2020). Türkiye Mülki İdare Bölümleri Envanteri [Inventory for Civil Administrative Divisions of Turkey] Retrieved July 24, 2020 <https://www.e-icisleri.gov.tr/Anasayfa/MulkidariBolumleri.aspx>
- Motyl, M., Iyer, R., Oishi, S., Trawalter, S., & Nosek, B. A. (2014). How ideological migration geographically segregates groups. *Journal of Experimental Social Psychology*, 51, 1–14. <https://doi.org/10.1016/j.jesp.2013.10.010>
- Musterd, S., Marcinczak, S., van Ham, M., & Tammaru, T. (2017). Socioeconomic segregation in European capital cities. Increasing separation between poor and rich. *Urban Geography*, 38(7), 1062–1083. <https://doi.org/10.1080/02723638.2016.1228371>
- Musterd, S., & Ostendorf, W. (Eds.) (1998). *Urban segregation and the welfare state*. London: Routledge.
- Oz, O., & Eder, M. (2018). Problem Spaces’ and struggles over the right to the city: Challenges of living differentially in a gentrifying neighborhood in Istanbul. *International Journal of Urban and Regional Research*, 42(6), 1030–1047. <https://doi.org/10.1111/1468-2427.12656>
- Ozdemir, D. (2011). The role of the public sector in the provision of housing supply in Turkey, 1950–2009. *International Journal of Urban and Regional Research*, 35(6), 1099–1117. <https://doi.org/10.1111/j.1468-2427.2010.00974.x>
- Pinarcioglu, M. M., & Isik, O. (2009). Segregation in Istanbul: Patterns and processes. *Journal of Economic and Social Geography (TESG)*, 100(4), 469–484.
- Quick, M., & Revington, N. (2021). Exploring the global and local patterns of income segregation in Toronto, Canada: A multilevel modeling approach. *Urban Analytics and City Science*, 1–17. <https://doi.org/10.1177/23998083211021419>
- Quillian, L., & Lagrange, H. (2016). Socioeconomic segregation in large cities in France and the United States. *Demography*, 53(4), 1051–1084. <https://doi.org/10.1007/s13524-016-0491-9>
- Reardon, S. F., & Bischoff, K. (2011). Income inequality and income segregation. *American Journal of Sociology*, 116, 1092–1153. <https://doi.org/10.1086/657114>
- Reardon, S. F., Bischoff, K., Owens, A., & Townsend, J. B. (2018). Has income segregation really increased? Bias and Bias correction in sample-based segregation estimates. *Demography*, 55, 2129–2160. <https://doi.org/10.1007/s13524-018-0721-4>
- Sarioglu-Erdogdu, G. P. (2014). Housing development and policy change: What has changed in Turkey in the last decade in the owner-occupied and rented sectors? *Journal of Housing and the Built Environment*, 29, 155–175. <https://doi.org/10.1007/s10901-013-9368-z>
- Sassen, S. (1991). *The Global City*. Princeton, NJ: Princeton University Press.
- Shen, J., & Xiao, Y. (2020). Emerging divided cities in China: Socioeconomic segregation in Shanghai, 2000–2010. *Urban Studies*, 57(6), 1338–1356. <https://doi.org/10.1177/0042098019834233>
- Somer, M. (2019). Turkey: The slippery slope from reformist to revolutionary polarization and democratic breakdown. *Annals of the American Academy of Political and Social Science*, 681, 42–61. <https://doi.org/10.1177/0002716218818056>
- Supreme Election Council. (2019). Retrieved from <http://ysk.gov.tr/tr/12-haziran-2011-xxiv-donem-milletvekili-genel-secimi/4929>
- Tammaru, T., Marcinczak, S., Aunap, R., van Ham, M., & Janssen, H. (2020). Relationship between income inequality and residential segregation of socioeconomic groups. *Regional Studies*, 54(4), 450–461. <https://doi.org/10.1080/00343404.2018.1540035>
- Tammaru, T., Marcinczak, S., van Ham, M., & Musterd, S. (2015). *Socioeconomic segregation in European capital cities: East meets west*. London: Routledge. <https://doi.org/10.4324/9781315758879>
- Tanulku, B. (2012). Gated communities: From “self-sufficient towns” to “active urban agents”. *Geoforum*, 43, 518–528. <https://doi.org/10.1016/j.geoforum.2011.11.006>
- Tanulku, B. (2016). Gated communities as spatial manifestations of moral differentiation and competition: An example from Istanbul, Turkey. *Journal of Cultural Geography*, 33(3), 310–338. <https://doi.org/10.1080/08873631.2016.1143642>
- The World Factbook. (2013–2014). Washington, DC: Central Intelligence Agency, 2013. Retrieved August 17, 2020 (<https://www.cia.gov/library/publications/download/download-2013/index.html>).
- Turkish Statistical Institute. (2013). Tables from “Statistics by Theme” – Gini Coefficient by Equivalised Household Disposable Income. Retrieved July 17, 2013 (<http://www.turkstat.gov.tr>). Source: Income and Living Conditions Survey, 2006–2011.
- Turkish Statistical Institute. (2019). Tables from “Statistics by Theme” – Distribution of Population by the Level of Education Completed, 2008–2019. Retrieved July 10, 2020 (<http://www.turkstat.gov.tr>). Source: TurkStat, National Education Statistics Database, 2008–2019.
- Türkiye Belediyeler Birliği (TTB) [Union of Municipalities of Turkey]. (2020). Genel istatistikler [general statistics]. Retrieved July 24, 2020 <https://www.tbb.gov.tr/belediyelerimiz/istatistikler/genel-istatistikler/>
- U.S. Department of State. (2014). Department of State: 2014 investment climate Statement – Turkey. Washington, DC. Retrieved August 17, 2020 (<https://2009-2017.state.gov/documents/organization/229296.pdf>).
- van der Wusten, H., & Musterd, S. (1998). Welfare state effects on inequality and segregation: Concluding remarks. In S. Musterd & W. Ostendorf (Eds.), *Urban segregation and the welfare state*. London: Routledge.

- van Kempen, R., & Murie, A. (2009). The new Divided City: Changing patterns in European cities. *Tijdschrift voor Economische en Sociale Geografie*, 100(4), 377–398. <https://doi.org/10.1111/j.1467-9663.2009.00548.x>
- Walker, K. (2013). Political segregation of the Metropolis: Spatial sorting by partisan voting in metropolitan Minneapolis-St. Paul. *City & Community*, 12(1), 35–55. <https://doi.org/10.1111/cico.12003>
- Wang, Y., Mechkova, V., & Andersson, F. (2019). Does democracy enhance health? New empirical evidence 1900–2012. *Political Research Quarterly*, 72(3), 554–569. <https://doi.org/10.1177/1065912918798506>
- Watson, T. (2009). Inequality and the measurement of residential segregation by income. *Review of Income and Wealth*, 55(3), 820–844. <https://doi.org/10.1111/j.1475-4991.2009.00346.x>
- Yetkin, O. (2020). Türkiye'de Büyükşehir Belediyelerinin Yapısı ve Geleceği [the structure and future of metropolitan municipality in Turkey]. *Akademik Düşünce Dergisi [Journal of Academic Thought]*, 1, 4–16.

- Yonet, N. A., & Yirmibesoglu, F. (2018). Why people prefer to live in gated communities in Istanbul? *Current Urban Studies*, 6, 180–195. <https://doi.org/10.4236/cus.2018.61010>

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APPENDIX A.

TABLE A1 Multiple regression models for segregation by educational status (with percentage of votes to AKP)

Variables	No school - high school (1)	No school - college or more (2)	Primary school - high school (3)	Primary school - college or more (4)
Percentage of votes to AKP	−0.003*** (0.001)	−0.003** (0.001)	−0.002** (0.001)	−0.002* (0.001)
Global cities	−0.113 (0.065)	−0.019 (0.095)	0.015 (0.049)	0.082 (0.079)
Proportion with agriculture and service	0.020 (0.029)	0.035 (0.037)	0.013 (0.022)	0.022 (0.031)
Unemployment rate	−0.011* (0.005)	−0.013* (0.006)	−0.009* (0.004)	−0.012* (0.005)
Percentage of population with high-school degree	−0.010** (0.003)		−0.010*** (0.003)	
Percentage of population with college degree or more		−0.013* (0.006)		−0.012* (0.005)
Log of total population	0.015 (0.011)	0.033 (0.016)	−0.007 (0.009)	0.014 (0.014)
Percentage of 65 and older	−0.009* (0.004)	−0.010 (0.005)	−0.005 (0.003)	−0.007 (0.004)
Intercept	0.604** (0.178)	0.509* (0.237)	0.713*** (0.136)	0.618** (0.198)
Observations	81	81	81	81
Adjusted R ²	0.321	0.216	0.299	0.153
F statistic df = 7; 73	6.397***	4.141***	5.880***	3.061**

Note: Standard errors are in parentheses

***p < .001. **p < .01. *p < .05.

TABLE A2 Correlations between variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)
(1) % Votes to CHP	1														
(2) Global cities	0.12	1													
(3) Proportion with service-agriculture	-0.18	-0.06	1												
(4) Log of total population	0.14	0.46***	-0.14	1											
(5) % No school	-0.44***	-0.31**	0.25*	-0.56***	1										
(6) % Primary school	0.38***	-0.21	0.01	-0.1	-0.26*	1									
(7) % Middle school	0.02	0.04	-0.22	-0.01	-0.39***	-0.08	1								
(8) % High school	0.41***	0.32**	-0.26*	0.26*	-0.56***	-0.26*	0.34**	1							
(9) % College or more	0.48***	0.6***	-0.19	0.5***	-0.61***	-0.11	0.03	0.74***	1						
(10) Unemployment rate	-0.21*	0	-0.15	0.15	0.11	-0.72***	0.01	0.17	0	1					
(11) % Age 65+	0.49***	-0.13	-0.04	-0.38***	0.1	0.62***	-0.06	0.08	0.11	-0.57***	1				
(12) D: No school - high school	0.04	-0.19	0.21	0.04	0.01	0.13	-0.06	-0.39***	-0.31**	-0.04	-0.27*	1			
(13) D: No school - college or more	0.04	-0.05	0.18	0.16	-0.07	0.06	0.02	-0.29**	-0.2	0.02	-0.33**	0.92***	1		
(14) D: Primary school - no school	0.02	-0.12	0.25*	-0.15	0.03	0.29**	-0.06	-0.48***	-0.37***	-0.18	-0.11	0.79***	0.74***	1	
(15) D: Primary school - college or more	0.05	0.02	0.18	0.07	-0.1	0.16	0.04	-0.3**	-0.2	-0.07	-0.23*	0.77***	0.9***	0.86***	1

*** $p < .001$. ** $p < .01$. * $p < .05$.