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ORIGINAL PAPER

# Racial diversity, immigrants and the well-being of residents: evidence from US counties

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**Abstract** This paper presents empirical evidence that racial diversity and immigrant population at the local level tend to be associated with lower life satisfaction for Whites by matching individual data with the county-level population data during the period 2005–2010. The magnitudes I find suggest that a ten-percentage-point increase in the share of the non-White population (approximately one half of a standard deviation) is associated with 0.006 and 0.007 points reduction in life satisfaction on a four-point scale for White men and White women, respectively. For White men, this effect appears to be driven by the percentage of the population that is Black. I also find that a ten-percentage-point increase in the percentage of the immigrant population (approximately 2 standard deviations) is associated with 0.009 and 0.021 points reduction in life satisfaction for White men and White women, respectively. The percentage of the non-White population seems to reduce older Whites' life satisfaction more than that of younger Whites. Though the scale of the findings relating to the impact of local racial compositions and immigrant population is relatively modest, the findings may pose a challenge in the coming years as the percentage of the population that is non-White rises in the USA.

## 1 Introduction

The objective of this paper is to examine the association between racial compositions at the county-level in the USA and the well-being of residents. My hypothesis is simple

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and straightforward—if people like people of their own race more than they like people of other races, as assumed in Becker's (1957) theory on discrimination, then I would expect the utility (or disutility) to be reflected in people's evaluation of their own life. The evolutionary and social psychology literature has extensively documented that "human beings are genetically programmed to form in-group, out-group associations and to prefer members of what they perceive as their own group" (Alesina et al. 2001, p. 227), which suggests that increased interactions across racial lines may have well-being effects.

Previous research suggests that racial prejudice among Whites tends to increase with the percentage of the population that is non-White (Taylor 1998; Enos 2010; Stephens-Davidowitz 2014), and the "racial threat" theory (Key 1949) predicts that Whites, who tend to be the majority group in most areas in the USA, feel worse off as the population of non-Whites increases. Relatively little research has been conducted on how local racial diversity is associated with the well-being of the population in the USA. I also examine the link between the share of the immigrant population and life satisfaction of residents, as immigration is likely to affect local racial compositions given that the majority of foreign-born individuals are either from Asia or Latin America.

I believe that this is a timely topic. During his campaign for president in 2015 and 2016, the Republican presidential nominee Donald Trump, whose victory was described as "part of a global White backlash" (Beauchamp 2016), had called Mexican immigrants criminals and rapists (Lee 2015), criticized the "Black Lives Matter" movement (Sherfinski 2015), and called for a ban on Muslim immigration. His supporters were overwhelmingly White.[1] Coincidentally, there has been increased academic and public interest in how Whites are feeling status anxiety in the USA in recent years (e.g., Blake 2011; New York Times 2011; Norton and Sommers 2011; Mayrl and Saperstein 2013).[2] Some even speculate that racial status anxiety is contributing to rising mortality and drug and alcohol abuse among less educated Whites (e.g., Marshall 2015).[3] This study contributes to the literature by investigating who feels better off or worse off as a result of living in racially homogeneous and heterogeneous areas in the USA.

The magnitudes I find suggest that a ten-percentage-point increase in the share of the non-White population (approximately one half of a standard deviation) is associated with 0.006 and 0.007 points reduction in life satisfaction on a four-point scale for White men and White women, respectively. For White men, this effect appears to be driven mainly by the percentage of the population that is Black. I also find that a ten-percentage-point increase in the percentage of the immigrant population (approximately two standard deviations) is associated with 0.009 and 0.021 points reduction in life satisfaction for White men and White women, respectively. The percentage of the non-White population seems to reduce older Whites' life satisfaction more than that of younger Whites. Though the scale of the findings relating to the impact of local racial compositions and immigrant population is relatively modest, the findings may pose a

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[1] He was also supported by white nationalists, including members of the Ku Klux Klan (Milligan 2016).
[2] A referee pointed out that there are also two recent books on financially struggling Whites' despair and anxiety: *Hillbilly Elegy: A Memoir of a Family and Culture in Crisis* by Vance (2016) and *White Trash: The 400-Year Untold History of Class in America* by Isenberg (2016).
[3] The upward trend in the mortality of Whites was documented by Case and Deaton (2015).

challenge in the coming years as the percentage of the population that is non-White rises in the USA.

## 1.1 The literature review

Previous studies have found that racial heterogeneity is associated with various out-comes, including reduced social solidarity, social capital, altruism, and community cooperation (Putnam 2007), lower participation in social activities (Alesina and La Ferrara 2000), and lower social trust (Alesina and La Ferrara 2002; Putnam 2007; Schmid et al. 2014). Glaeser et al. (2000) document experimentally that people of different races are more likely to cheat one another. DiPasquale and Glaeser (1998) find that racial heterogeneity is a significant determinant of rioting, while poverty in the community is not. Finally, perhaps not surprisingly, racial heterogeneity seems to be an important factor in how local policies are determined. Alesina et al. (2004) show that people prefer to form racially homogeneous political jurisdictions in the USA. Alesina et al. (1999) find that racially heterogeneous areas tend to spend a smaller fraction of their budget on social services and productive public goods, and more on crime prevention in the USA. Alesina et al. (2001) argue that one reason the US redistributes income less than racially homogenous European countries is that the majority of Americans believe that redistribution favors racial minorities. Similarly, Gilens (1999) finds that White Americans who overestimate the percent of the poor population that is Black are less likely to support welfare and view Blacks as lazy and undeserving.

Given the empirical evidence, it is plausible that people might be less happy in racially fragmented areas, but well-being of Whites may be particularly affected by racial heterogeneity in the area of residence. Sociologists have suggested that members who hold positions of power are motivated to maintain their position of privilege and more likely to favor individuals who share their demographic characteristics (e.g., Reskin et al. 1999; Smith 2002). In aggregate, Whites are the majority group members and hold positions of power, while non-Whites are accustomed to being in small numbers in work environments and other social contexts throughout US society. Thus, if Whites feel that their status at the top of the American racial hierarchy is under threat by non-Whites, their racial status anxiety may lead to lower life satisfaction. Additionally, in the USA, many Whites seem to view non-Whites as a fiscal burden (Gilens 1999), which might make Whites feel less happy about the presence of non-Whites.

In his seminal work, Blalock (1967) argues that as the numerical size of a minority group begins to approach the size of the majority group, increased interactions across racial lines induce a sense of competition among the majority group, who will feel increasingly threatened and often engage in discriminatory acts to protect their re-sources and advantages. This view is called the "racial threat" hypothesis (Key 1949), which predicts racial animus tends to increase with the percentage of the population that is non-White. Empirical evidence seems to support the hypothesis.[4] Taylor (1998) finds that Whites' prejudice tends to increase with the local Black population share (though concentrations of local Asian American and Latino population do not engender

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[4] Though not an academic paper, Cohen (2016) finds a strong positive relationship between Donald Trump, whose supporters are overwhelmingly White, vote share and the share of Black population in the recent South Carolina Republican primary results, despite few Black Republican voters in these areas.

White antipathy toward these groups). Enos (2010) finds that White support for Obama has a negative relationship with the size of the Black population. Stephens-Davidowitz (2014), using Google search data, finds that racially charged search rate is higher in areas with higher proportions of Black residents.

Though the literature largely suggests that most people may prefer living in a racially homogeneous area, it is possible that living in a racially heterogeneous area leads to higher levels of cross-racial interactions, which in turn may lead to more understanding and less prejudice. One suggestive piece of evidence can be seen in people's opinions toward immigrants. *SurveyUSA*'s survey in 2005 revealed that people in states with more immigrants tend to have more favorable views toward immigration than people who live in areas with few immigrants (SurveyUSA 2005). Caplan (2006, 2016) argues that, when people directly observe many immigrants, they can easily see that most of them do hard, dirty jobs few Americans want, while people who rarely see an immigrant find it easy to scapegoat them for social and economic problems. In the UK, people in areas with many immigrants, such as Londoners, were more likely to prefer to remain in the European Union, though the country as a whole made the decision to leave the European Union.[5] Caplan (2014) also points out that, when the Swiss passed a referendum to restrict immigration from the EU, Swiss anti-immigration voting was highest in the places with the least immigrants.

Consistent with these statistics on people's attitudes toward immigrants and voting patterns, two studies find a positive link between immigration and residents' well-being.[6] Betz and Simpson (2013) find a positive correlation between immigration and subjective well-being in the 26 European countries,[7] and Akay et al. (2014) find that natives experience higher life satisfaction from living in areas with more immigrants in Germany. On a similar topic, Akay et al. (2017) find that ethnic diversity is also associated with higher life satisfaction in Germany. However, Longhi (2014) finds that White British people living in racially diverse areas tend to report lower levels of life satisfaction than those living in areas where diversity is low, while she finds little evidence that diversity affects life satisfaction of non-White British people and foreign-born people. Thus, evidence seems to be somewhat mixed among the existing studies on the link association between immigration/ethnic diversity and residents' well-being. This study, to my knowledge, is the first study to examine the association in the USA.

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[5] However, the Economist (2016) points out that people in areas that experienced a larger increase in immigration tended to favor "Brexit."

[6] Economists have extensively examined the effects on immigration on the labor market. The overall consensus is that increased number of low-skill immigrants over the past several decades has negatively affected the wages of low-skilled natives and has benefitted high-skilled natives in the USA (e.g., Borjas and Katz 2007), thought the negative effect is rather small. Borjas (2003) finds that the wages of competing workers were lowered by 3 to 4% for every 10% increase in immigrant supply. Beyond their effects on the local economy, immigrants may contribute to create communities with more vibrant culture. Caplan (2012) points out that California and New York, which have the largest foreign-born population in the country, are America's top two cultural centers, and immigrants improve local cuisine. He also states that most Americans probably "care more about food than literature and museums."

[7] They use data from these 26 countries: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Israel, Italy, Luxembourg, Netherlands, Norway, Poland, Portugal, Russia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, and the UK.

## 1.2 Data and methodology

The dataset I use is the Behavioral Risk Factor Surveillance System Survey (BRFSS), which is a household-level repeated cross-sectional survey collected throughout the USA by the U.S. Government's National Center for Chronic Disease Prevention and Health. The measure of life satisfaction is the response, on a four-point scale ranging from "Very satisfied" to "Very dissatisfied" to the question, "In general, how satisfied are you with your life?" The life satisfaction question has been asked since 2005, except in 2011 and 2012. But due to the changes in weighting methodology and the addition of the cell phone sampling frame, the BRFSS 2011–2015 are not comparable to the BRFSS 2005–2010.[8] Thus, I use 2005, 2006, 2007, 2008, 2009, and 2010. Among those who answered the life satisfaction question during the period 2005–2010, 46.2% of the sample reported "Very satisfied" and 48.3% reported "Satisfied." Only 4.5 and 1.0% of the sample reported "Dissatisfied" and "Very dissatisfied," respectively.

Subjective well-being (SWB), such as self-reported happiness and life satisfaction, has been extensively used by economists despite justifiable concerns that people's moods at the time of the survey can bias their subjective well-being.[9] Recent notable studies include Stevenson and Wolfers (2009) who recorded a declining female happiness over time, Sacks et al. (2010) who showed a robust relationship between subjective well-being and income, and Oswald and Wu (2010) who demonstrated that there is a close match between US life satisfaction scores and objective well-being indicators.[10]

I restrict my analyses to those between 18 and 85 years old, not residing in unincorporated US territories, and exclude respondents who refused or were unsure of their response, or whose response is missing, for any of the variables included in my analyses. I match people who were surveyed in a particular county and year with the population statistics, which is obtained from the U.S. Census Bureau.[11] Data on the foreign-born population is also obtained from the U.S. Census Bureau, but unfortunately the only data available at the county-level is the 2005–2009 American Community Survey, which provides the average share of foreign-born population over the 5-year period of time.[12] In this paper I define foreign-born population as immigrant population, as the foreign-born population includes anyone who was not a US citizen at birth, that is, those who are US citizens by naturalization or not US citizens. As control variables, yearly county-level median income is also obtained from the U.S. Census

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[8] Also, during the period 2013–2015, fewer than 50,000 people were asked about their life satisfaction. Furthermore, county of residence is not available in the BRFSS 2013–2015, and this makes it impossible for me to match county-level variables with respondents.

[9] While psychologists tend to make a distinction between happiness and life satisfaction, economists tend to use the terms interchangeably (Graham et al. 2004). I also adopt the convention of most scholars in economics in treating life satisfaction and happiness as synonymous.

Not surprisingly, answers to happiness and life satisfaction questions are closely correlated (Graham 2009).

[10] Stevenson and Wolfers (2009) use the American General Social Surveys, Sacks et al. (2010) use the Gallup World Poll, and Oswald and Wu (2010) use the BRFSS.

[11] "Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010". https://www2.census.gov/programs-surveys/popest/datasets/2000-2010/intercensal/county/

[12] ACS 5-year estimates are based on data collected between January 2005 and December 2009 (during calendar years 2005, 2006, 2007, 2008 and 2009). USA Counties Data File Downloads "Population—Total and Selected Characteristics": https://www.census.gov/support/USACdataDownloads.html#POP

Data file link: http://www2.census.gov/prod2/statcomp/usac/excel/POP02.xls

Bureau,[13] and yearly unemployment rates from the Bureau of Labor Statistics.[14] Table 8 in the appendix shows summary statistics for the county-level variables.[15]

Figures 1, 2, 3, 4, and 5 show the distributions of non-White, Black, Hispanic, Asian, and immigrant populations, respectively, at the county level in the USA. Figure 1 reveals that non-Whites tend to live on the Pacific Coast, the East Coast, East South Central, South Atlantic, and southern Border States.[16] Figure 2 shows that Black population are concentrated in the South. Figure 3 shows that Hispanic population are concentrated in southern Border States. Figure 4 shows that Asian population heavily concentrate in California and New York as well as other states on the West Coast and East Coast.[17] Figure 5 shows that immigrants tend to live in California, New York, the southern part of Florida, border counties in Texas, Arizona, and New Mexico as well as large cities such as Chicago, Seattle, and Las Vegas.

Table 1 shows summary statistics for the BRFSS 2005–2010 respondents by race and gender. It shows that Whites in the sample on average live in counties where more than 75% of the population is White. Blacks, Hispanics, and Asians are more likely than others to live in counties where the own-race population share is larger. That is, we observe residential racial segregation. The county-level variables also reveal differences in local area characteristics across racial groups. Whites tend to live in areas with a smaller population size. Even though both Asians and Hispanics tend to live in areas with a large population size, the median household income is about $10,000 higher and unemployment rate one-percentage-point lower in the areas Asians tend to live than in the areas Hispanics tend to live, on average. Finally, Blacks on average are more likely to live in counties where median income is much lower and unemployment higher than are Whites, Hispanics, and Asians.

My empirical strategy involves using reported satisfaction with life as a proxy measure for individual utility and regressing life satisfaction on county-level racial compositions/immigrant population and an extensive collection of covariates and indicator variables (e.g., month and year dummies and state fixed effects). The idea for the empirical test is captured in the following three regression equations:

$$LS_{ict} = \alpha_1 \%OwnRace_{ct} + \beta X_{ict} + \gamma Z_{ct} + \theta_s + \delta_t + \varepsilon_{ict} \tag{1}$$

$$LS_{ict} = \sum_{j=2}^{5} \alpha_j \%OtherRace_{jct} + \beta X_{ict} + \gamma Z_{ct} + \theta_s + \delta_t + \varepsilon_{ict} \tag{2}$$

$$LS_{ict} = \alpha_6 \%Immigrant_c + \beta X_{ict} + \gamma Z_{ct} + \theta_s + \delta_t + \varepsilon_{ict} \tag{3}$$

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[13] http://www.census.gov/did/www/saipe/data/statecounty/data/index.html

[14] http://www.bls.gov/lau/#cntyaa

[15] The average number of respondents per county is 673.

[16] Readers may wonder why there are several counties with large non-White population in Montana, South Dakota, and North Dakota. This is due to their large shares of Native American population. For example, more than 60% of the residents in Big Horn County, Glacier County, and Roosevelt County in Montana consist of Native Americans. In South Dakota, Oglala Lakota County's Native American population is more than 90%, and Bennett County, Corson County, Dewey County, Todd County, and Ziebach County, all have a large Native American population that exceeds 60%.

[17] One notable exception is Fort Bend County in Texas, which has the highest percentage of Asians in the Southern United States—the 2005–2010 average is 14.6%.
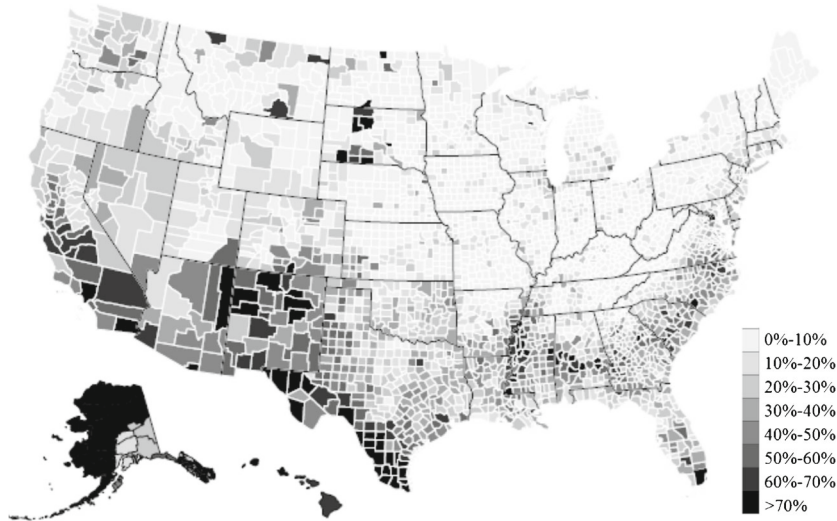
Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

**Fig. 1** Percent of non-White population by county, 2005–2010. Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

where $LS_{ict}$ is life satisfaction for the individual $i$ in county $c$ in year $t$. $\%OwnRace_{ct}$ is the share of own-race population in the county of residence. $\%OtherRace_{jct}$ is the share of race group $j$ other than the respondent's own group. For example, for Whites, county-level population shares for Blacks, Hispanics, Asians, and "other" race (American Indian, Alaska Native, Native Hawaiian and Other Pacific Islander, and multiracial) are included in the regression. $\%Immigrant_c$ is the share of the foreign-born population in the county of residence. $X_{ict}$ is demographic and socioeconomic controls
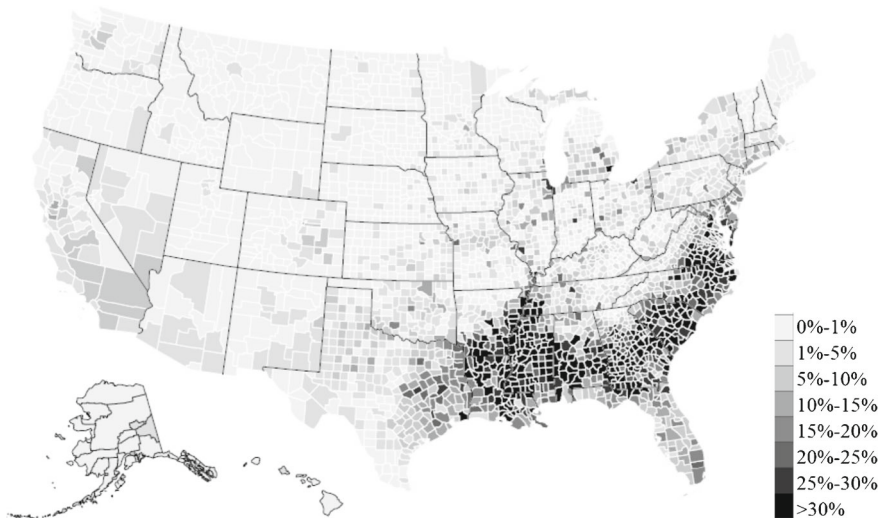


Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

**Fig. 2** Percent of Black population by county, 2005–2010. Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

**Fig. 3** Percent of Hispanic population by county, 2005–2010. Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

(age, marital status, number of children in household, education, and employment status) as well as month of interview. $Z_{ct}$ is county-level controls (log median income, unemployment, and log county population).

Finally, $\theta_s$ and $\delta_t$ are state fixed effects and year dummies, respectively. I use a state fixed model, rather than a county fixed model, for Eqs. (1) and (2), because it is inconceivable that local racial compositions vary substantially over a short period of time at the county-level. Since fixed effects absorb all factors that do not change over
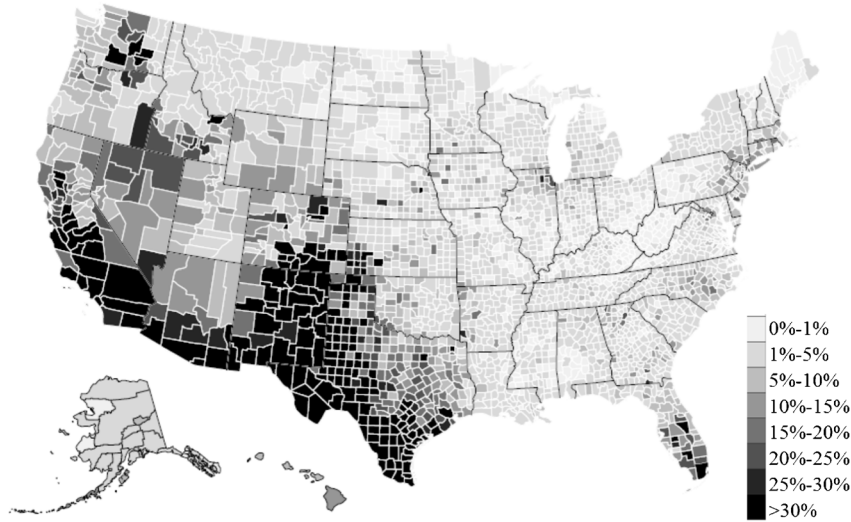


Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010

**Fig. 4** Percent of Asian population by county, 2005–2010. Source: Intercensal Estimates of the Resident Population for Counties: April 1, 2000 to July 1, 2010
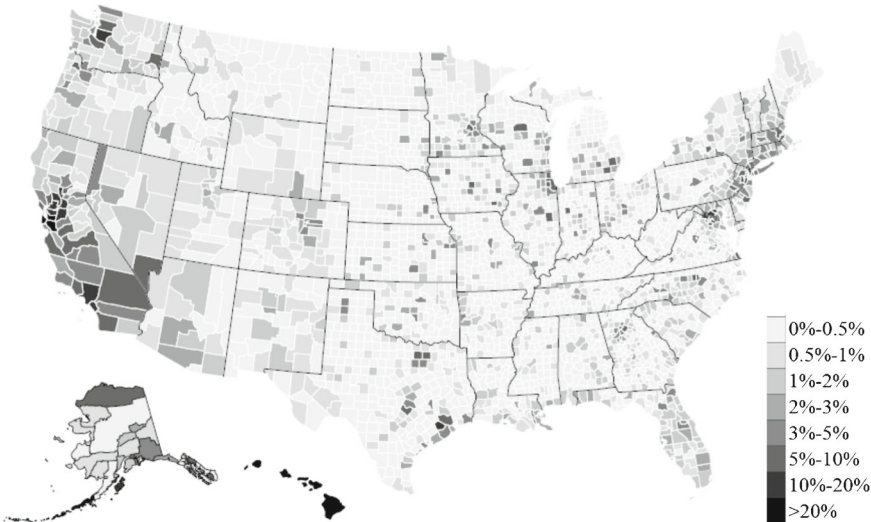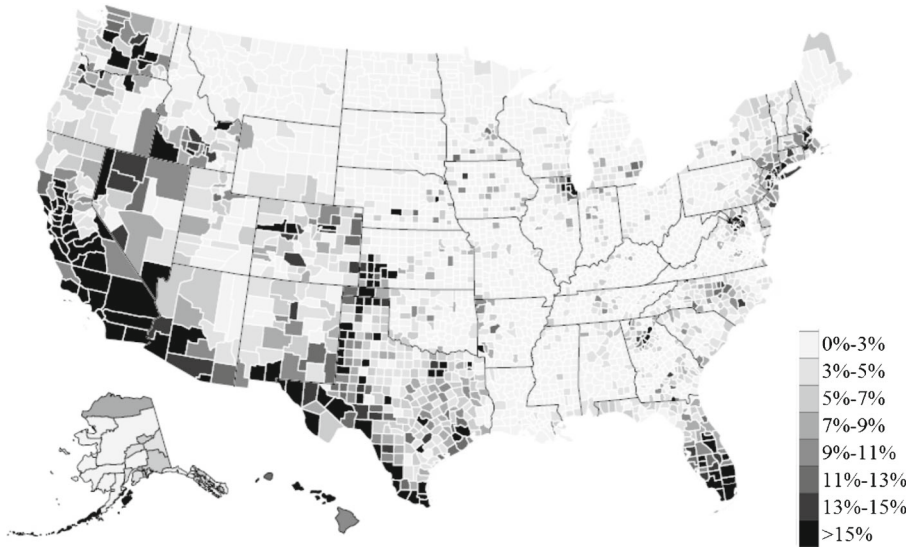
Source: The 2005-2009 American Community Survey 5-year estimates

**Fig. 5** Percent of foreign-born population by county, 2005–2009. Source: The 2005–2009 American Community Survey 5-year estimates

time, identifying the effect of local racial compositions would be difficult with county fixed effects. Therefore, coefficients of interest are identified from variation in racial compositions across counties within a state over time for Eqs. (1) and (2). For Eq. (3), coefficients of interest are identified from variation in immigrant population across counties within a state, as the immigration variable does not vary over time.

Despite the wide range of controls included in the regressions above, there still remains the possibility of nonrandom selection. If people who strongly prefer to live in proximity to people of the same race are more likely to move to, or stay in, racially homogenous areas, the association would not be necessarily causal due to selection bias. Therefore, it is important to keep in mind that this nonrandom selection of people into different areas may bias the results.

## 2 Results

Table 2 shows the results for men. Though life satisfaction is measured on an ordinal scale and is discontinuous, I use a linear model for ease of interpretation, but similar results are obtained from ordered probit or logit models. The BRFSS-provided weights are used to adjust for sampling and nonresponse, and standard errors are clustered at the county-level. In order not to overload the table, I report the coefficients on personal characteristics and county-level controls in Table 9 the appendix.[18] Columns (1)–(4) show when the share of own-race population is used, and columns (5)–(8) show when the shares of race groups other than one's own race group are used. For White men, a

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[18] I also ran the regressions with age squared. This made very little difference to the results.

**Table 1** Summary statistics

| | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | White | Black | Hispanic | Asian | All | White | Black | Hispanic | Asian |
| % White | 72.5% | 75.5% | 56.4% | 54.9% | 49.1% | 71.8% | 75.6% | 55.2% | 53.4% | 48.6% |
| % Black | 10.0% | 8.8% | 28.3% | 8.2% | 8.3% | 10.9% | 8.9% | 30.2% | 8.3% | 7.7% |
| % Hispanic | 10.7% | 9.5% | 9.7% | 28.3% | 13.6% | 10.8% | 9.4% | 9.4% | 29.9% | 13.2% |
| % Asian | 3.4% | 3.0% | 3.2% | 4.6% | 17.7% | 3.3% | 2.9% | 3.0% | 4.6% | 18.2% |
| % Other | 3.4% | 3.2% | 2.3% | 4.1% | 11.4% | 3.3% | 3.2% | 2.2% | 3.9% | 12.3% |
| % Immigrants | 8.5% | 7.8% | 9.3% | 15.2% | 16.6% | 8.5% | 7.7% | 9.0% | 15.7% | 16.0% |
| County median household income | $50,314 | $50,375 | $47,126 | $49,575 | $60,336 | $49,784 | $50,028 | $46,181 | $49,159 | $59,738 |
| County unemployment rate | 6.5 | 6.4 | 7.3 | 6.8 | 5.9 | 6.5 | 6.4 | 7.4 | 6.9 | 5.8 |
| County population | 475,459 | 418,864 | 657,257 | 912,387 | 971,194 | 479,582 | 414,251 | 672,992 | 920,431 | 935,303 |
| Life satisfaction | 3.4 | 3.4 | 3.3 | 3.4 | 3.4 | 3.4 | 3.4 | 3.3 | 3.3 | 3.4 |
| Household income | $68,437 | $71,084 | $49,519 | $48,119 | $78,911 | $59,084 | $62,150 | $40,642 | $42,405 | $73,028 |
| Age | 53.2 | 54.1 | 51.0 | 45.4 | 48.3 | 53.2 | 54.3 | 49.9 | 45.3 | 48.7 |
| High school dropout | 0.08 | 0.06 | 0.15 | 0.27 | 0.03 | 0.08 | 0.06 | 0.13 | 0.25 | 0.04 |
| High school graduate | 0.52 | 0.52 | 0.61 | 0.52 | 0.33 | 0.57 | 0.57 | 0.61 | 0.54 | 0.37 |
| College graduate | 0.40 | 0.42 | 0.24 | 0.21 | 0.64 | 0.35 | 0.37 | 0.26 | 0.21 | 0.59 |
| Married | 0.65 | 0.66 | 0.46 | 0.61 | 0.71 | 0.53 | 0.56 | 0.28 | 0.51 | 0.67 |
| Divorced | 0.13 | 0.13 | 0.17 | 0.10 | 0.06 | 0.16 | 0.16 | 0.20 | 0.14 | 0.09 |
| Separated | 0.02 | 0.01 | 0.06 | 0.03 | 0.01 | 0.02 | 0.02 | 0.07 | 0.06 | 0.01 |
| Widowed | 0.05 | 0.05 | 0.06 | 0.03 | 0.03 | 0.15 | 0.16 | 0.15 | 0.09 | 0.09 |
| Unmarried couple | 0.02 | 0.02 | 0.03 | 0.07 | 0.01 | 0.02 | 0.02 | 0.02 | 0.05 | 0.01 |
| Never married | 0.13 | 0.12 | 0.23 | 0.17 | 0.19 | 0.11 | 0.08 | 0.29 | 0.14 | 0.13 |
| Children in household | 0.57 | 0.53 | 0.60 | 1.02 | 0.75 | 0.64 | 0.58 | 0.82 | 1.18 | 0.80 |

**Table 1** (continued)

| | Men | | | | | Women | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | All | White | Black | Hispanic | Asian | All | White | Black | Hispanic | Asian |
| Employed | 0.50 | 0.50 | 0.48 | 0.60 | 0.63 | 0.46 | 0.46 | 0.49 | 0.47 | 0.53 |
| Self-employed | 0.12 | 0.13 | 0.07 | 0.09 | 0.10 | 0.07 | 0.07 | 0.04 | 0.06 | 0.06 |
| Unemployed | 0.05 | 0.04 | 0.09 | 0.07 | 0.05 | 0.04 | 0.04 | 0.08 | 0.08 | 0.04 |
| Homemaker | 0.00 | 0.00 | 0.00 | 0.01 | 0.00 | 0.11 | 0.12 | 0.05 | 0.18 | 0.12 |
| Student | 0.01 | 0.01 | 0.02 | 0.02 | 0.04 | 0.02 | 0.01 | 0.03 | 0.03 | 0.04 |
| Retired | 0.26 | 0.27 | 0.23 | 0.13 | 0.17 | 0.23 | 0.25 | 0.19 | 0.11 | 0.18 |
| Unable to work | 0.05 | 0.05 | 0.11 | 0.07 | 0.02 | 0.06 | 0.06 | 0.12 | 0.08 | 0.02 |
| Number of observation | 632,602 | 540,084 | 41,572 | 38,218 | 12,728 | 946,270 | 781,671 | 87,862 | 60,296 | 16,441 |

**Table 2** Ordinary least squares life satisfaction equation: men

| | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) White | (2) Black | (3) Hispanic | (4) Asian | (5) White | (6) Black | (7) Hispanic | (8) Asian | (9) White | (10) Black | (11) Hispanic | (12) Asian |
| % Own-race | 0.062** (0.016) | 0.008 (0.049) | 0.066 (0.044) | −0.288* (0.136) | | | | | | | | |
| % White | | | | | | −0.009 (0.050) | −0.062 (0.047) | 0.226 (0.136) | | | | |
| % Black | | | | | −0.070** (0.022) | | −0.102 (0.077) | 0.085 (0.185) | | | | |
| % Hispanic | | | | | −0.032 (0.024) | −0.001 (0.085) | | 0.327 (0.187) | | | | |
| % Asian | | | | | −0.135 (0.072) | −0.030 (0.246) | −0.083 (0.135) | | | | | |
| % Other | | | | | −0.058 (0.054) | −0.114 (0.154) | 0.047 (0.099) | 0.097 (0.519) | | | | |
| % Immigrants | | | | | | | | | −0.092* (0.040) | −0.112 (0.107) | 0.030 (0.081) | −0.178 (0.139) |
| Observations | 540,084 | 41,572 | 38,218 | 12,728 | 540,084 | 41,572 | 38,218 | 12,728 | 540,084 | 41,572 | 38,218 | 12,728 |
| Adj. R-squared | 0.122 | 0.099 | 0.068 | 0.088 | 0.123 | 0.099 | 0.068 | 0.088 | 0.122 | 0.099 | 0.068 | 0.087 |

All regressions include interview month and year dummies and state dummies. Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

**p < 0.01; *p < 0.05

ten-percentage-point decrease in the White population (approximately one-half of a standard deviation) is associated with a 0.006 points decrease on a four-point scale in life satisfaction. This seems to come mainly from the effect of the Black population, as shown in column (5); a ten-percentage-point increase in the Black population (approximately two thirds of a standard deviation) is associated with 0.007 points decrease in life satisfaction for White men. Paradoxically, Asian men's life satisfaction decreases with the share of the Asian population. A one-percentage-point increase in the Asian population (more than 2 standard deviations) is associated with approximately 0.003 points *reduction* in their life satisfaction, as shown in column (4). Perhaps, Asian men living in areas where there are many Asians, such as the Bay Area, are often expected to be successful more than men of other races, and the pressure to succeed contributes to lower life satisfaction. Of course, this is highly speculative and beyond the scope of this study. Finally, columns (9)–(12) show the results when the share of the immigrant population is used. A ten-percentage-point increase in the share of the immigrant population (approximately 2 standard deviations) is associated with a 0.009 points decrease in life satisfaction for White men (column 9).

Table 3 shows the results for women. The coefficients on personal characteristics and county-level controls are reported in the appendix, in Table 10. For White women, a ten-percentage-point decrease in the county-level White population is associated with 0.007 points decrease in life satisfaction, and a ten-percentage-point increase in the Black, Hispanic, and Asian population in the county of residence is associated with a reduction in life satisfaction of 0.004 points, 0.008 points, and 0.018 points on a four-point scale, respectively.[19] A ten-percentage-point increase in the share of the immigrant population (approximately two standard deviations) is associated with 0.021 points reduction in White women's life satisfaction[20] and 0.035 points reduction in Asian women's life satisfaction. Black women's life satisfaction and Hispanic women's life satisfaction do not seem to be affected by the racial compositions or immigrant population of the county of residence. Overall, these results show that, for both White men and women, life satisfaction is negatively correlated with the population that is non-White and immigrants.

Next, I partition the sample across one's educational attainment (high school dropout, high school graduate, college graduate) and age (<35, 35–50, 50<). Panel A in Table 4 shows the results for men with different levels of education when the explanatory variable is the share of the own-race population. White male high school graduates and college graduates are happier if they live in areas with higher percentages of the White population, and their life satisfaction seems to decrease with the share of the Black population, as shown in panel B. White college graduates in areas with a large Asian population and a large immigrant population are also less happy, perhaps because they experience more competition in the labor market with Asians, who also tend to be college graduates. Similarly, perhaps for the same reason, Black college graduates are

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[19] A ten-percentage-point increase in Asian population is highly unlikely, as shown in Table 1, as on average they were about 1% of a county population during 2005–2010.
[20] The magnitude of the coefficient on immigrants for White women is twice as large as that for White men, but the difference is not statistically significant.

**Table 3** Ordinary least squares life satisfaction equation: women

| | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) White | (2) Black | (3) Hispanic | (4) Asian | (5) White | (6) Black | (7) Hispanic | (8) Asian | (9) White | (10) Black | (11) Hispanic | (12) Asian |
| % Own-race | 0.068** (0.016) | 0.065 (0.035) | 0.035 (0.037) | −0.073 (0.138) | | | | | | | | |
| % White | | | | | | −0.060 (0.035) | −0.012 (0.042) | 0.117 (0.137) | | | | |
| % Black | | | | | −0.035* (0.018) | | −0.081 (0.063) | −0.026 (0.195) | | | | |
| % Hispanic | | | | | −0.084** (0.026) | −0.067 (0.067) | | −0.095 (0.157) | | | | |
| % Asian | | | | | −0.181* (0.072) | 0.166 (0.106) | −0.138 (0.107) | | | | | |
| % Other | | | | | −0.017 (0.047) | 0.029 (0.104) | −0.072 (0.082) | −0.065 (0.330) | | | | |
| % Immigrants | | | | | | | | | −0.206** (0.034) | 0.096 (0.056) | −0.066 (0.072) | −0.350* (0.145) |
| Observations | 781,671 | 87,862 | 60,296 | 16,441 | 781,671 | 87,862 | 60,296 | 16,441 | 781,671 | 87,862 | 60,296 | 16,441 |
| Adj. R-squared | 0.125 | 0.078 | 0.073 | 0.073 | 0.125 | 0.078 | 0.073 | 0.073 | 0.125 | 0.078 | 0.073 | 0.074 |

All regressions include interview month and year dummies and state dummies. Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

$**p < 0.01$; $*p < 0.05$

**Table 4** Ordinary least squares life satisfaction equation: men by education

| | Men: high school dropout | | | | Men: high school graduate | | | | Men: college graduate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian |
| **Panel A: Eq. (1)** | | | | | | | | | | | | |
| % Own-race | 0.011 | 0.271 | 0.114 | −0.269 | 0.054** | −0.074 | 0.055 | −0.451 | 0.073** | 0.085 | 0.060 | −0.110 |
| | (0.064) | (0.143) | (0.096) | (0.667) | (0.020) | (0.059) | (0.060) | (0.292) | (0.022) | (0.068) | (0.081) | (0.174) |
| **Panel B: Eq. (2)** | | | | | | | | | | | | |
| % White | | −0.189 | −0.164 | 1.651 | | 0.063 | −0.032 | 0.209 | | −0.091 | −0.020 | 0.109 |
| | | (0.152) | (0.107) | (0.952) | | (0.060) | (0.067) | (0.289) | | (0.070) | (0.092) | (0.179) |
| % Black | 0.021 | | −0.026 | 3.085 | −0.061* | | −0.153 | 0.047 | −0.094** | | −0.135 | 0.021 |
| | (0.076) | | (0.151) | (1.652) | (0.030) | | (0.100) | (0.381) | (0.029) | | (0.174) | (0.237) |
| % Hispanic | −0.068 | −0.629** | | 0.173 | −0.026 | 0.145 | | 0.886*** | −0.026 | −0.080 | | 0.093 |
| | (0.126) | (0.241) | | (0.954) | (0.035) | (0.122) | | (0.331) | (0.029) | (0.105) | | (0.209) |
| % Asian | 0.016 | 0.494 | −0.139 | | −0.111 | 0.208 | 0.096 | | −0.161* | −0.610** | −0.446 | |
| | (0.368) | (0.850) | (0.212) | | (0.097) | (0.350) | (0.244) | | (0.071) | (0.205) | (0.231) | |
| % Other | −0.014 | −0.286 | 0.243 | −5.755 | −0.106 | −0.146 | −0.056 | 0.039 | 0.009 | 0.014 | 0.047 | 0.514 |
| | (0.163) | (0.330) | (0.187) | (3.157) | (0.084) | (0.193) | (0.123) | (0.926) | (0.063) | (0.384) | (0.262) | (0.581) |
| **Panel C: Eq. (3)** | | | | | | | | | | | | |
| % Immigrants | −0.135 | −0.440 | 0.091 | −1.186 | −0.060 | −0.001 | 0.063 | 0.089 | −0.112* | −0.264* | −0.100 | −0.178 |
| | (0.162) | (0.243) | (0.179) | (0.960) | (0.052) | (0.168) | (0.105) | (0.323) | (0.044) | (0.112) | (0.117) | (0.133) |
| Observations | 33,091 | 6114 | 10,448 | 391 | 280,354 | 25,289 | 19,880 | 4237 | 226,639 | 10,169 | 7890 | 8100 |

Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

**$p < 0.01$; *$p < 0.05$

less satisfied with their life in areas with a large Asian population (panel B) and a large immigrant population (panel C).

   Among high school dropouts, Black men's life satisfaction seems to decrease as the share of the Hispanic population increases. This may be due to the perceptions of the negative labor market effects of Hispanic immigrants, as found in Borjas (2003), among low-skill Black workers. However, in panel C, the effect of the immigrant population is not statistically significant for Black high school dropouts. Perhaps, Black high school dropouts *perceive* that a large Hispanic population has negative effects on their labor market outcomes even in areas where the Hispanic population may consist of mostly native-born Hispanics.[21] It is somewhat surprising that a higher share of the immigrant population is associated with lower life satisfaction for college-educated Whites, but not other Whites, as it seems to contradict with the finding that more educated people tend to have favorable views toward immigration in Europe (Card et al. 2005).[22]

   Table 5 shows the results for men for three age categories. The percentage of the population that is White seems to increase life satisfaction for White men aged 35–50 and those aged over 50 (panel A), and both groups are negatively affected by the share of the Black population in the county of residence (panel B). Those aged over 50 also seem to feel worse off as the share of the Hispanic population and Asian population increase. Finally, the share of immigrant population is associated with lower life satisfaction for White and Black men age over 50 (panel C). These results are consistent with the finding that younger people tend to have favorable views toward immigration (Card et al. 2005).

   Turning to examining women's life satisfaction, panel A in Table 6 shows that, regardless of education levels, White women in areas with a higher share of the White population tend to be more satisfied with their life, with the association being higher for high school dropouts. Panel C shows similar results when the share of the immigrant population is used as the explanatory variable. However, when the non-own-race population are used (panel B), White high school graduates are affected by the shares of the Black and Hispanic population, while White college graduates are affected by the Hispanic and Asian population. Black female high school graduates are less happy if they live in areas with a higher share of the White population, and Black female college graduates are happier if they live in areas with a higher share of the Asian population. Asian high school graduates are less satisfied with their life in areas with many immigrants.

   Finally, panel A in Table 7 shows that White women aged 35–50 and those aged over 50 are more satisfied with their life if they live in a higher share of the White population. Panel B shows that life satisfaction of young White

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[21] According to *Attitudes Toward Immigration: In Black and White* by Pew Research Center in 2006, Blacks are also more likely than Whites to feel that immigrants take jobs away from American citizens (34 vs. 25%), rather than take jobs that Americans do not want (Doherty 2006).

[22] The finding that White college graduates are no more tolerant toward immigrants than less educated Whites may be counter-intuitive to some readers, but after the US presidential election in 2016, national exit poll revealed that Trump had won Whites with a college degree 49 to 45% (Tyson and Maniam 2016).

**Table 5** Ordinary least squares life satisfaction equation: men by age

| | Men: (age <35) | | | | Men: (age 35–50) | | | | Men: (age >50) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian |
| **Panel A: Eq. (1)** | | | | | | | | | | | | |
| % Own-race | −0.039 | 0.058 | 0.069 | −0.249 | 0.079** | −0.022 | 0.055 | −0.193 | 0.106*** | −0.006 | 0.080 | −0.355 |
| | (0.040) | (0.099) | (0.079) | (0.224) | (0.027) | (0.068) | (0.072) | (0.185) | (0.019) | (0.062) | (0.090) | (0.229) |
| **Panel B: Eq. (2)** | | | | | | | | | | | | |
| % White | | −0.118 | −0.029 | 0.265 | | 0.023 | −0.094 | 0.175 | | 0.052 | −0.096 | 0.221 |
| | | (0.096) | (0.088) | (0.229) | | (0.068) | (0.084) | (0.188) | | (0.065) | (0.097) | (0.257) |
| % Black | −0.009 | | −0.239 | 0.161 | −0.087* | | 0.063 | 0.104 | −0.097*** | | −0.047 | −0.114 |
| | (0.056) | | (0.136) | (0.338) | (0.035) | | (0.117) | (0.221) | (0.025) | | (0.136) | (0.386) |
| % Hispanic | 0.071 | 0.220 | | 0.143 | −0.053 | 0.003 | | 0.138 | −0.079* | −0.157 | | 0.410 |
| | (0.067) | (0.168) | | (0.323) | (0.044) | (0.133) | | (0.241) | (0.031) | (0.095) | | (0.266) |
| % Asian | 0.221 | −0.329 | 0.082 | | −0.158 | −0.208 | −0.102 | | −0.287*** | 0.170 | −0.309 | |
| | (0.187) | (0.423) | (0.214) | | (0.115) | (0.319) | (0.246) | | (0.088) | (0.273) | (0.199) | |
| % Other | −0.154 | 0.076 | −0.019 | 0.678 | −0.017 | −0.106 | 0.028 | −0.330 | −0.032 | −0.278 | 0.195 | −0.189 |
| | (0.139) | (0.410) | (0.153) | (0.929) | (0.071) | (0.207) | (0.159) | (0.828) | (0.041) | (0.182) | (0.170) | (0.708) |
| **Panel C: Eq. (3)** | | | | | | | | | | | | |
| % Immigrants | 0.144 | 0.140 | 0.035 | −0.151 | −0.083 | −0.244 | −0.059 | −0.241 | −0.237*** | −0.229* | 0.245 | −0.311 |
| | (0.094) | (0.214) | (0.143) | (0.243) | (0.061) | (0.159) | (0.112) | (0.197) | (0.043) | (0.092) | (0.141) | (0.248) |
| Observations | 64,082 | 6674 | 10,589 | 2543 | 153,651 | 13,239 | 14,118 | 4907 | 322,351 | 21,659 | 13,511 | 5278 |

Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

**$p < 0.01$; *$p < 0.05$

**Table 6** Ordinary least squares life satisfaction equation: women by education

| | Women: high school dropout | | | | Women: high school graduate | | | | Women: college graduate | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian |
| Panel A: Eq. (1) | | | | | | | | | | | | |
| % Own-race | 0.145** | 0.180 | −0.014 | 0.363 | 0.060** | 0.095* | 0.020 | −0.083 | 0.066** | −0.023 | 0.090 | −0.159 |
| | (0.051) | (0.101) | (0.067) | (0.566) | (0.020) | (0.044) | (0.052) | (0.186) | (0.022) | (0.060) | (0.069) | (0.185) |
| Panel B: Eq. (2) | | | | | | | | | | | | |
| % White | | −0.134 | 0.073 | 0.290 | | −0.098* | 0.003 | 0.186 | | 0.035 | −0.112 | 0.115 |
| | | (0.105) | (0.073) | (0.764) | | (0.044) | (0.062) | (0.208) | | (0.059) | (0.074) | (0.193) |
| % Black | −0.124 | | −0.174 | 0.492 | −0.052* | | −0.038 | 0.105 | 0.003 | | −0.022 | −0.129 |
| | (0.068) | | (0.140) | (1.242) | (0.024) | | (0.082) | (0.273) | (0.026) | | (0.126) | (0.259) |
| % Hispanic | −0.138 | −0.284 | | −0.995 | −0.069* | −0.075 | | −0.118 | −0.096** | −0.013 | | 0.103 |
| | (0.090) | (0.148) | | (0.746) | (0.035) | (0.071) | | (0.240) | (0.033) | (0.115) | | (0.201) |
| % Asian | −0.467 | 0.339 | −0.114 | | −0.088 | −0.055 | −0.206 | | −0.223** | 0.423* | 0.067 | |
| | (0.276) | (0.553) | (0.209) | | (0.097) | (0.205) | (0.177) | | (0.071) | (0.194) | (0.256) | |
| % Other | 0.065 | −0.060 | 0.175 | 0.351 | 0.003 | −0.077 | −0.117 | −0.555 | −0.074 | 0.367 | −0.235 | 0.151 |
| | (0.120) | (0.279) | (0.186) | (2.582) | (0.056) | (0.126) | (0.115) | (0.495) | (0.050) | (0.472) | (0.183) | (0.358) |
| Panel C: Eq. (3) | | | | | | | | | | | | |
| % Immigrants | −0.395** | 0.087 | −0.127 | −0.349 | −0.171** | 0.057 | −0.105 | −0.583* | −0.220** | 0.082 | 0.099 | −0.208 |
| | (0.142) | (0.219) | (0.116) | (0.637) | (0.050) | (0.080) | (0.103) | (0.244) | (0.039) | (0.111) | (0.104) | (0.185) |
| Observations | 45,885 | 11,589 | 15,370 | 689 | 447,571 | 53,718 | 32,329 | 6085 | 288,215 | 22,555 | 12,597 | 9667 |

Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

$**p < 0.01$; $*p < 0.05$

**Table 7** Ordinary least squares life satisfaction equation: women by age

| Variables | Women: (age <35) | | | | Women: (age 35–50) | | | | Women: (age >50) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian |
| **Panel A: Eq. (1)** | | | | | | | | | | | | |
| % Own-race | 0.145** (0.051) | 0.180 (0.101) | -0.014 (0.067) | 0.363 (0.566) | 0.060** (0.020) | 0.095* (0.044) | 0.020 (0.052) | -0.083 (0.186) | 0.066** (0.022) | -0.023 (0.060) | 0.090 (0.069) | -0.159 (0.185) |
| **Panel B: Eq. (2)** | | | | | | | | | | | | |
| % White | | -0.045 (0.076) | -0.072 (0.087) | 0.204 (0.270) | | -0.076 (0.057) | -0.011 (0.062) | 0.208 (0.221) | | -0.039 (0.044) | 0.063 (0.067) | -0.063 (0.233) |
| % Black | 0.021 (0.047) | | -0.052 (0.112) | 0.242 (0.361) | -0.044 (0.029) | | -0.180 (0.107) | -0.224 (0.308) | -0.080** (0.019) | | 0.005 (0.093) | -0.257 (0.315) |
| % Hispanic | -0.127* (0.054) | 0.043 (0.098) | | -0.161 (0.331) | -0.075 (0.044) | -0.140 (0.100) | | 0.171 (0.269) | -0.080** (0.026) | -0.079 (0.093) | | -0.185 (0.225) |
| % Asian | 0.065 (0.168) | 0.304 (0.276) | -0.062 (0.200) | -0.360** (0.076) | -0.111 (0.219) | -0.164 (0.230) | -0.172* (0.087) | 0.357 (0.226) | -0.303 (0.171) | 0.131 (0.147) | 0.240* (0.115) | |
| % Other | -0.088 (0.098) | -0.119 (0.213) | -0.260* (0.127) | 1.352 (0.987) | 0.094 (0.072) | 0.054 (0.202) | -0.124 (0.106) | -0.440 (0.356) | -0.041 (0.038) | | | -0.655 (0.766) |
| **Panel C: Eq. (3)** | | | | | | | | | | | | |
| % Immigrants | -0.124 (0.095) | 0.234* (0.110) | 0.082 (0.145) | -0.573** (0.209) | -0.249** (0.051) | -0.129 (0.121) | -0.101 (0.103) | -0.339 (0.239) | -0.228** (0.040) | 0.189 (0.101) | -0.219** (0.084) | -0.107 (0.296) |
| Observations | 96,731 | 17,033 | 16,900 | 3435 | 221,575 | 28,022 | 22,472 | 6135 | 463,365 | 42,807 | 20,924 | 6871 |

Robust standard errors clustered at the county-level are shown in parentheses. All regressions include interview month and year dummies and state dummies, in addition to personal characteristics and county-level controls shown in Table 1

**p < 0.01; *p < 0.05

women (<35) decreases with a share of the Hispanic population, that of White women aged 35–50 decreases with a share of the Asian population, and that of White women aged over 50 decreases with shares of the Black, Hispanic, and Asian population. Panel C reveals that the immigrant population seem to decrease life satisfaction for White women aged 35–50 and aged over 50, young Asian women, and older Hispanic women, while life satisfaction of young Black women tends to increase with a share of the immigrant population for reasons that are not well understood.

Overall, the results demonstrate that the local racial composition/immigrant population effects differ for Whites and non-Whites. The results are mixed for non-Whites, but Whites tend to feel worse off when (1) the share of White population declines, and (2) the share of immigrants increases.

## 3 Conclusions

The main purpose of this paper is to examine if one's life satisfaction is associated with the racial compositions and immigration population in the county of residence. I find that a larger percentage of the population that is non-White lowers Whites' life satisfaction. The finding is consistent with the view that Whites feel heightened status anxiety as they are not accustomed to the notion that they are in smaller numbers. Younger Whites seem to have favorable views toward racial minorities and immigrants, as I find that older Whites are less happy in racially diverse areas than their counterparts in more racially homogenous areas. Somewhat surprisingly, own-race preference increases with education for White men, and there is little evidence that White male high school dropouts in racially diverse areas feel worse off.

One caveat must be stated. As mentioned above, nonrandom selection of people into areas with different racial compositions and immigrant population makes the coefficients difficult to interpret as the causal effect. People may tend to move to, or stay in, areas where they can find more own-race residents, and the decision to stay or move may be correlated with one's life satisfaction. However, the results found in this study are not inconceivable, given that the previous studies find that racial heterogeneity is associated with various negative outcomes such as trust. Also, the findings are in line with the study by Longhi (2014), who finds a negative well-being effect of racial diversity for Whites in the UK. Furthermore, the findings are in line with the recent US presidential election, of which racial issues, namely white backlash against multiculturalism, were a constant feature.

The author acknowledges that the magnitudes found are relatively small compared to other personal characteristics such as marital status and employment status. For example, the coefficients on divorce are approximately 0.21 for men and 0.18 for women, and the coefficients on unemployment are approximately 0.22 for men and 0.23 for women. I find that a ten-percentage-point decrease in the White population (approximately one half of a standard deviation) is associated with a 0.006–7 points decrease on a four-point scale in life satisfaction for Whites, while a ten-percentage-point increase in the percentage

of the immigrant population (approximately 2 standard deviations) is associated with 0.009–0.021 points reduction in life satisfaction for Whites.

Nevertheless, the results found in this study are in sharp contrast with those of Betz and Simpson (2013), who find that immigrants tend to increase well-being of residents in Europe, and those of Akay et al. (2014) and Akay et al. (2017), who find that immigrants and racial diversity tend to be associated with higher subjective well-being in Germany. It may be dispiriting to some readers and policymakers in the USA, where the percentage of non-White population is expected to increase, to learn that, though seemingly trivial in magnitude, negative well-being effects of racial diversity and immigration are found in this study. As the current demographic trend indicates that White people will no longer make up a majority of Americans by 2043,[23] the findings of this study may pose a challenge in the coming years for Whites and policymakers in the USA.

# Appendix

**Table 8**   Summary statistics for countries

|  | Countries in the BRFSS | | | | All counties | | | |
|---|---|---|---|---|---|---|---|---|
|  | Mean | SD | Min | Max | Mean | SD | Min | Max |
| % White | 0.787 | 0.186 | 0.029 | 0.988 | 0.799 | 0.194 | 0.021 | 0.996 |
| % Black | 0.094 | 0.139 | 0.000 | 0.821 | 0.088 | 0.144 | 0.000 | 0.859 |
| % Hispanic | 0.076 | 0.118 | 0.004 | 0.956 | 0.073 | 0.127 | 0.000 | 0.975 |
| % Asian | 0.013 | 0.026 | 0.000 | 0.442 | 0.010 | 0.023 | 0.000 | 0.457 |
| % Other | 0.030 | 0.065 | 0.001 | 0.867 | 0.030 | 0.076 | 0.000 | 0.882 |
| % Immigrants | 0.045 | 0.055 | 0.000 | 0.494 | 0.042 | 0.055 | 0.000 | 0.631 |
| Median household income | $43,966 | $11,363 | $21,213 | $111,582 | $39,626 | $10,621 | $15,025 | $119,075 |
| Unemployment rate | 7.4 | 3.2 | 2.0 | 22.6 | 6.0 | 2.7 | 1.3 | 28.8 |
| Population | 126,714 | 350,897 | 1449 | 9,735,147 | 94,319 | 303,661 | 55 | 9,830,420 |
| Number of counties | 2347 | | | | 3134 | | | |

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[23] United States Census Bureau. "U.S. Census Bureau Projections Show a Slower Growing, Older, More Diverse Nation a Half Century from Now". https://www.census.gov/newsroom/releases/archives/population/cb12-243.html

**Table 9** Coefficients of control variables from ordinary least squares life satisfaction equation: men

| | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) White | (2) Black | (3) Hispanic | (4) Asian | (5) White | (6) Black | (7) Hispanic | (8) Asian | (9) White | (10) Black | (11) Hispanic | (12) Asian |
| Log median county income | -0.032** (0.011) | -0.074 (0.042) | 0.046 (0.040) | 0.028 (0.057) | -0.027* (0.012) | -0.072 (0.047) | 0.043 (0.041) | 0.014 (0.066) | -0.018 (0.011) | -0.077* (0.039) | 0.023 (0.036) | -0.003 (0.054) |
| County unemployment rate | -0.002 (0.001) | -0.005 (0.005) | 0.003 (0.003) | 0.002 (0.009) | -0.002 (0.001) | -0.005 (0.005) | 0.003 (0.003) | 0.002 (0.009) | -0.002 (0.001) | -0.005 (0.005) | 0.004 (0.003) | 0.003 (0.009) |
| Log population | -0.010** (0.002) | -0.006 (0.006) | -0.003 (0.005) | -0.014 (0.010) | -0.010** (0.002) | -0.006 (0.007) | -0.001 (0.006) | -0.016 (0.015) | -0.012** (0.002) | -0.001 (0.006) | -0.002 (0.006) | -0.008 (0.013) |
| Log household income | 0.136** (0.003) | 0.109** (0.009) | 0.068** (0.008) | 0.078** (0.017) | 0.136** (0.003) | 0.109** (0.009) | 0.068** (0.008) | 0.078** (0.017) | 0.135** (0.003) | 0.109** (0.009) | 0.068** (0.008) | 0.079** (0.017) |
| Age/10 | -0.005** (0.002) | 0.014** (0.005) | -0.006 (0.005) | 0.007 (0.009) | -0.005** (0.002) | 0.014** (0.005) | -0.006 (0.005) | 0.007 (0.009) | -0.005** (0.002) | 0.014** (0.005) | -0.006 (0.005) | 0.007 (0.009) |
| High school graduate | 0.035** (0.008) | 0.025 (0.020) | 0.010 (0.011) | 0.030 (0.059) | 0.035** (0.008) | 0.025 (0.020) | 0.010 (0.012) | 0.030 (0.059) | 0.035** (0.008) | 0.026 (0.020) | 0.010 (0.012) | 0.032 (0.060) |
| College graduate | 0.107** (0.008) | 0.071** (0.025) | 0.081** (0.017) | 0.070 (0.061) | 0.108** (0.008) | 0.071** (0.025) | 0.081** (0.018) | 0.070 (0.060) | 0.107** (0.008) | 0.072** (0.025) | 0.082** (0.017) | 0.071 (0.061) |
| Divorced | -0.206** (0.005) | -0.117** (0.019) | -0.175** (0.026) | -0.190* (0.079) | -0.206** (0.005) | -0.117** (0.019) | -0.174** (0.026) | -0.190* (0.079) | -0.206** (0.005) | -0.117** (0.019) | -0.175** (0.026) | -0.189* (0.079) |
| Separated | -0.341** (0.018) | -0.213** (0.029) | -0.214** (0.033) | -0.321** (0.119) | -0.341** (0.018) | -0.213** (0.029) | -0.213** (0.033) | -0.322** (0.119) | -0.341** (0.018) | -0.213** (0.029) | -0.214** (0.033) | -0.320** (0.120) |
| Widowed | -0.163** (0.008) | -0.068** (0.026) | -0.095 (0.053) | -0.136 (0.107) | -0.163** (0.008) | -0.068** (0.026) | -0.095 (0.053) | -0.135 (0.106) | -0.163** (0.008) | -0.068** (0.026) | -0.095 (0.053) | -0.137 (0.107) |
| Unmarried couple | -0.135** (0.012) | -0.095* (0.044) | -0.111** (0.018) | -0.057 (0.084) | -0.135** (0.012) | -0.095* (0.044) | -0.110** (0.018) | -0.058 (0.084) | -0.135** (0.012) | -0.096* (0.044) | -0.111** (0.018) | -0.054 (0.083) |
| Never married | | | | | | | | | | | | |

**Table 9** (continued)

| | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) White | (2) Black | (3) Hispanic | (4) Asian | (5) White | (6) Black | (7) Hispanic | (8) Asian | (9) White | (10) Black | (11) Hispanic | (12) Asian |
| | -0.171** | -0.100** | -0.167** | -0.166** | -0.171** | -0.100** | -0.167** | -0.166** | -0.171** | -0.100** | -0.167** | -0.166** |
| | (0.006) | (0.020) | (0.016) | (0.035) | (0.006) | (0.020) | (0.016) | (0.035) | (0.006) | (0.020) | (0.016) | (0.035) |
| Children in household | 0.002 | -0.012 | 0.002 | 0.003 | 0.002 | -0.012 | 0.002 | 0.004 | 0.002 | -0.012 | 0.002 | 0.003 |
| | (0.002) | (0.006) | (0.006) | (0.010) | (0.002) | (0.006) | (0.006) | (0.010) | (0.002) | (0.006) | (0.006) | (0.010) |
| Self-employed | 0.015** | -0.026 | -0.023 | -0.009 | 0.015** | -0.026 | -0.023 | -0.008 | 0.016** | -0.026 | -0.023 | -0.008 |
| | (0.005) | (0.021) | (0.020) | (0.027) | (0.005) | (0.021) | (0.020) | (0.027) | (0.005) | (0.021) | (0.020) | (0.027) |
| Unemployed | -0.220** | -0.186** | -0.187** | -0.165** | -0.220** | -0.185** | -0.187** | -0.165** | -0.220** | -0.185** | -0.187** | -0.166** |
| | (0.009) | (0.024) | (0.024) | (0.043) | (0.009) | (0.024) | (0.024) | (0.043) | (0.009) | (0.024) | (0.024) | (0.043) |
| Homemaker | -0.099** | 0.041 | 0.005 | 0.067 | -0.099** | 0.041 | 0.004 | 0.071 | -0.099** | 0.041 | 0.005 | 0.065 |
| | (0.031) | (0.112) | (0.078) | (0.150) | (0.031) | (0.112) | (0.078) | (0.150) | (0.031) | (0.112) | (0.078) | (0.151) |
| Student | 0.141** | 0.026 | 0.083 | 0.137** | 0.141** | 0.026 | 0.083 | 0.137** | 0.141** | 0.027 | 0.083 | 0.136** |
| | (0.013) | (0.036) | (0.044) | (0.043) | (0.013) | (0.036) | (0.044) | (0.043) | (0.013) | (0.036) | (0.044) | (0.043) |
| Retired | 0.124** | 0.073** | 0.045* | 0.019 | 0.124** | 0.073** | 0.045* | 0.020 | 0.124** | 0.071** | 0.045* | 0.020 |
| | (0.005) | (0.022) | (0.023) | (0.045) | (0.005) | (0.021) | (0.022) | (0.045) | (0.005) | (0.022) | (0.022) | (0.044) |
| Unable to work | -0.371** | -0.246** | -0.298** | -0.370** | -0.371** | -0.246** | -0.298** | -0.369** | -0.371** | -0.247** | -0.297** | -0.370** |
| | (0.009) | (0.027) | (0.029) | (0.089) | (0.009) | (0.026) | (0.029) | (0.088) | (0.009) | (0.027) | (0.029) | (0.090) |
| Observations | 540,084 | 41,572 | 38,218 | 12,728 | 540,084 | 41,572 | 38,218 | 12,728 | 540,084 | 41,572 | 38,2181 | 2728 |
| Adj. R-squared | 0.122 | 0.099 | 0.068 | 0.088 | 0.123 | 0.099 | 0.068 | 0.088 | 0.122 | 0.099 | 0.068 | 0.087 |

All regressions include interview month and year dummies and state dummies. Robust standard errors clustered at the county-level are shown in parentheses. Each column corresponds to the same column in Table 2

**$p < 0.01$; *$p < 0.05$

**Table 10** Coefficients of control variables from ordinary least squares life satisfaction equation: women

| | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
| | (1) White | (2) Black | (3) Hispanic | (4) Asian | (5) White | (6) Black | (7) Hispanic | (8) Asian | (9) White | (10) Black | (11) Hispanic | (12) Asian |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Log median county income | -0.033** (0.009) | 0.015 (0.026) | -0.024 (0.033) | -0.021 (0.062) | -0.024* (0.010) | 0.002 (0.027) | -0.028 (0.039) | -0.065 (0.073) | -0.016 (0.009) | -0.004 (0.022) | -0.043 (0.028) | -0.015 (0.057) |
| County unemployment rate | -0.001 (0.001) | 0.003 (0.003) | -0.005* (0.002) | 0.014 (0.008) | -0.001 (0.001) | 0.003 (0.003) | -0.005* (0.002) | 0.017* (0.008) | -0.002 (0.001) | 0.003 (0.003) | -0.004 (0.002) | 0.013 (0.008) |
| Log population | -0.006** (0.002) | -0.007 (0.004) | -0.006 (0.004) | -0.010 (0.007) | -0.006** (0.002) | -0.009 (0.005) | -0.002 (0.004) | 0.004 (0.011) | -0.005** (0.002) | -0.009 (0.004) | -0.001 (0.004) | 0.005 (0.009) |
| Log household income | 0.139** (0.003) | 0.098** (0.006) | 0.093** (0.009) | 0.096** (0.012) | 0.139** (0.003) | 0.098** (0.006) | 0.092** (0.009) | 0.096** (0.012) | 0.139** (0.003) | 0.098** (0.006) | 0.092** (0.009) | 0.095** (0.012) |
| Age/10 | 0.003 (0.001) | 0.024** (0.004) | -0.004 (0.005) | 0.000 (0.009) | 0.003 (0.001) | 0.024** (0.004) | -0.004 (0.005) | 0.000 (0.009) | 0.003 (0.001) | 0.024** (0.005) | -0.003 (0.005) | 0.000 (0.009) |
| High school graduate | 0.035** (0.006) | 0.003 (0.013) | 0.032** (0.010) | 0.105* (0.044) | 0.035** (0.006) | 0.003 (0.013) | 0.032** (0.010) | 0.107* (0.044) | 0.035** (0.006) | 0.003 (0.013) | 0.031** (0.010) | 0.103* (0.045) |
| College graduate | 0.112** (0.007) | 0.063** (0.017) | 0.114** (0.014) | 0.183** (0.043) | 0.112** (0.007) | 0.063** (0.017) | 0.115** (0.014) | 0.184** (0.043) | 0.112** (0.007) | 0.063** (0.017) | 0.115** (0.014) | 0.180** (0.044) |
| Divorced | -0.181** (0.004) | -0.092** (0.010) | -0.126** (0.023) | -0.158** (0.030) | -0.181** (0.004) | -0.092** (0.010) | -0.125** (0.023) | -0.157** (0.030) | -0.181** (0.004) | -0.091** (0.010) | -0.126** (0.023) | -0.156** (0.030) |
| Separated | -0.318** (0.013) | -0.148** (0.019) | -0.144** (0.025) | -0.161 (0.101) | -0.318** (0.013) | -0.148** (0.019) | -0.143** (0.025) | -0.159 (0.100) | -0.319** (0.013) | -0.147** (0.019) | -0.143** (0.025) | -0.163 (0.100) |
| Widowed | -0.092** (0.004) | -0.017 (0.013) | -0.065** (0.022) | -0.011 (0.040) | -0.092** (0.004) | -0.017 (0.013) | -0.065** (0.022) | -0.011 (0.039) | -0.092** (0.004) | -0.017 (0.013) | -0.065** (0.022) | -0.012 (0.039) |
| Unmarried couple | -0.116** (0.009) | -0.129** (0.029) | -0.090** (0.020) | -0.209 (0.110) | -0.116** (0.009) | -0.130** (0.028) | -0.089** (0.020) | -0.207 (0.109) | -0.116** (0.009) | -0.129** (0.029) | -0.090** (0.020) | -0.208 (0.110) |
| Never married | | | | | | | | | | | | |

**Table 10** (continued)

|  | Equation (1) | | | | Equation (2) | | | | Equation (3) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
|  | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian | White | Black | Hispanic | Asian |
|  | -0.129** | -0.071** | -0.093** | -0.096** | -0.129** | -0.071** | -0.092** | -0.095** | -0.129** | -0.070** | -0.093** | -0.095** |
|  | (0.006) | (0.012) | (0.019) | (0.033) | (0.006) | (0.012) | (0.019) | (0.033) | (0.006) | (0.012) | (0.019) | (0.033) |
| Children in household | -0.002 | -0.015** | -0.005 | -0.002 | -0.002 | -0.015** | -0.005 | -0.002 | -0.002 | -0.015** | -0.005 | -0.002 |
|  | (0.001) | (0.004) | (0.005) | (0.009) | (0.001) | (0.004) | (0.005) | (0.009) | (0.001) | (0.004) | (0.005) | (0.009) |
| Self-employed | 0.028** | -0.002 | 0.007 | 0.055 | 0.028** | -0.002 | 0.006 | 0.054 | 0.028** | -0.002 | 0.007 | 0.053 |
|  | (0.005) | (0.026) | (0.023) | (0.029) | (0.005) | (0.026) | (0.023) | (0.029) | (0.005) | (0.026) | (0.023) | (0.029) |
| Unemployed | -0.227** | -0.163** | -0.119** | -0.214** | -0.227** | -0.163** | -0.119** | -0.213** | -0.226** | -0.164** | -0.120** | -0.212** |
|  | (0.008) | (0.016) | (0.021) | (0.043) | (0.008) | (0.016) | (0.021) | (0.043) | (0.008) | (0.016) | (0.021) | (0.043) |
| Homemaker | 0.053** | 0.052** | 0.040** | 0.001 | 0.053** | 0.052** | 0.040** | 0.000 | 0.053** | 0.052** | 0.039** | -0.001 |
|  | (0.004) | (0.019) | (0.013) | (0.024) | (0.004) | (0.019) | (0.013) | (0.024) | (0.004) | (0.019) | (0.013) | (0.023) |
| Student | 0.102** | 0.077** | -0.003 | 0.026 | 0.103** | 0.077** | -0.002 | 0.024 | 0.103** | 0.076** | -0.003 | 0.024 |
|  | (0.013) | (0.022) | (0.027) | (0.062) | (0.013) | (0.022) | (0.027) | (0.062) | (0.013) | (0.022) | (0.027) | (0.062) |
| Retired | 0.094** | 0.042** | 0.064 | 0.058* | 0.094** | 0.042** | 0.064 | 0.058* | 0.094** | 0.042** | 0.063 | 0.058* |
|  | (0.004) | (0.015) | (0.036) | (0.028) | (0.004) | (0.015) | (0.036) | (0.027) | (0.004) | (0.015) | (0.036) | (0.027) |
| Unable to work | -0.392** | -0.222** | -0.257** | -0.193 | -0.392** | -0.221** | -0.257** | -0.192 | -0.392** | -0.221** | -0.258** | -0.192 |
|  | (0.008) | (0.019) | (0.024) | (0.107) | (0.008) | (0.019) | (0.024) | (0.107) | (0.008) | (0.019) | (0.024) | (0.108) |
| Observations | 781,671 | 87,862 | 60,296 | 16,441 | 781,671 | 87,862 | 60,296 | 16,441 | 781,671 | 87,862 | 60,296 | 16,441 |
| Adj. R-squared | 0.125 | 0.078 | 0.073 | 0.073 | 0.125 | 0.078 | 0.073 | 0.073 | 0.125 | 0.078 | 0.073 | 0.074 |

All regressions include interview month and year dummies and state dummies. Robust standard errors clustered at the county-level are shown in parentheses. Each column corresponds to the same column in Table 3

**p < 0.01; *p < 0.05

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