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Cross-country differences in homeownership: A cultural phenomenon?

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Non-technical summary

Research Question

Homeownership rates differ persistently across countries, ranging from 44% in Switzerland to 83% in Spain. We test the hypothesis that cultural preferences are a driver of homeownership decisions. If cultural preferences influence homeownership decisions, they may help to explain the observed cross country differences in homeownership rates. To isolate the effect of cultural preferences regarding homeownership from the impact of institutions and economic factors, we investigate the homeownership decisions of second-generation immigrants in the United States for the period 1994 to 2017.

Contribution

We use several waves of data from the Current Population Survey (CPS) to analyse the homeownership decisions of second generation immigrants in the US. We apply an "epidemiological approach", which is new to the economic literature. This approach isolates the effects of cultural preferences from those of markets and institutions by studying the behaviour of immigrants from different cultural backgrounds in one host country. The cultural preferences of immigrants towards homeownership are captured by the average homeownership rate in the country of origin of the immigrant's father. This allows us to quantify the impact of cultural preferences on homeownership decisions in a more meaningful way than is possible using more traditional empirical techniques.

Results

On average, second-generation immigrants are as likely to own their main residence as native households. However, we find considerable variation within the United States across second-generation immigrant groups with different cultural backgrounds. We show that the aggregate homeownership rate in the immigrant father's country of origin has a significant and sizeable impact on the homeownership decisions of US-based second-generation immigrants. The impact of cultural preferences is particularly high for married second-generation immigrants sharing the same cultural background with their spouse – accounting for almost 40% of the variation in homeownership rates across second-generation immigrant groups within the United States. This is substantially larger than the equivalent cultural preference impact arising from singles or couples with different backgrounds. Overall, our results clearly indicate that cultural preferences substantially influence households' decisions on home ownership.

Nichttechnische Zusammenfassung

Fragestellung

Eigentümerraten variieren stark über einzelne Ländern. Sie reichen von 44% in der Schweiz bis 83% in Spanien. Im Zentrum dieser Arbeit steht die Frage ob kulturell bedingte Präferenzen die Entscheidungen von Haushalten beeinflussen, Wohnimmobilien zu erwerben. Wenn dem so ist, können diese Präferenzen dazu beitragen, die deutlichen Unterschiede hinsichtlich der Eigentümerraten in verschiedenen Ländern zu erklären. Um die Auswirkungen von kulturellen Präferenzen von institutionellen und ökonomischen Faktoren gesondert betrachten zu können, analysieren wir die Entscheidungen von Migranten der zweiten Generation in den USA Wohnimmobilien zu kaufen für die Jahre 1994 bis 2017.

Beitrag

Für unsere Analysen der Entscheidung von Migranten der zweiten Generation eine Wohnimmobilie zu erwerben, verwenden wir Daten aus mehreren Erhebungswellen des „Current Population Survey“ (CPS) für die USA. In unserer Arbeit kommt der sog. “epidemiological approach” zur Anwendung, ein in der ökonomischen Literatur selten zu findender Ansatz. Die Grundidee dieses Verfahrens ist es, den Effekt von kulturellen Präferenzen von Marktbedingungen und dem institutionellem Rahmen getrennt zu betrachten, indem das Verhalten von Migranten aus unterschiedlichen Ländern in einem spezifischen Land untersucht wird. Die kulturellen Präferenzen bilden wir durch die durchschnittliche Eigentümerrate im Herkunftsland der Väter der Migranten ab. Dies erlaubt es uns den Einfluss der kulturellen Präferenzen auf die Wohneigentumsentscheidungen genauer zu quantifizieren als existierende Studien.

Ergebnisse

Im Mittel unterscheidet sich die Wahrscheinlichkeit im Eigentum zu wohnen in den USA für Migranten der zweiten Generation nicht von der für einheimische Haushalte. Jedoch zeigen sich deutliche Unterschiede hinsichtlich der unterschiedlichen Migrantengruppen. Wir zeigen, dass diese Unterschiede zum Teil durch unser Maß für kulturelle Präferenzen, d.h. die Wohneigentümerrate im Herkunftsland des Vaters des Migranten der zweiten Generation, erklärt werden können. Für verheiratete Paare mit demselben kulturellen Hintergrund ist der Einfluss der kulturellen Präferenzen besonders stark. Für diese Gruppe von Haushalten kann fast 40% der Variation in den Eigentümerraten der Migranten der zweiten Generation in den USA durch kulturellen Hintergrund erklärt werden. Das ist deutlich mehr als bei Single Haushalten oder Haushalten mit unterschiedlichem kulturellen Hintergrund. Unsere Ergebnisse zeigen, dass kulturelle Präferenzen die Wohneigentumsentscheidungen von Haushalten beeinflussen können.

Deutsche Bundesbank Discussion Paper No 40/2019

Cross-Country Differences in Homeownership: A Cultural Phenomenon?

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Abstract

Cross-country differences in homeownership rates are large and persistent over time, with homeownership rates ranging from 40% in Switzerland to 80% in Spain. This paper investigates whether culture is a driving factor of the homeownership decision, and could thus explain part of the cross-country differences in homeownership rates. To isolate the effect of cultural preferences regarding homeownership from the impact of institutions and economic factors, we investigate the homeownership decisions of second-generation immigrants in the United States between 1994 and 2017. Our findings indicate that cultural preferences for homeownership are persistent, transmitted between generations, and substantially influence the rent-versus-buy decision.

Keywords: Housing decisions, second generation migrants, epidemological approach.
JEL Classifications: G40, R21, Z10.

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1 Introduction

Cross-country differences in homeownership rates are large and persistent over time. Homeownership rates vary from 40% in Switzerland to 80% in Spain. Despite the significant attention housing markets have received recently, few empirical studies explore the wide variation of homeownership rates across countries. The decision of whether to rent or buy is usually the most important financial choice a household makes in its lifetime. It is often assumed that households take a "user cost approach" – comparing the two options in an analytical manner with a view to optimize the expected financial outcome. Taking a different course, this paper investigates whether culture[1] is one of the driving factors of the homeownership decision, and could thus explain part of the cross-country differences in homeownership rates.

To isolate the effect of cultural preferences towards homeownership from the effects of institutions and economic factors, we employ the epidemiological approach. We investigate the homeownership decision of second-generation immigrant household heads in the United States using data from the Current Population Survey from 1994 to 2017. A second-generation immigrant is defined as an individual who was born in the United States, but whose parents were born abroad. All second-generation immigrants in our sample have therefore grown up with the same markets and institutions. However, they differ regarding their parents' country of origin and hence in their cultural heritage. If culture is persistent over time and is transmitted from generation to generation, then we would expect to find systematic differences in terms of cultural values, preferences, and beliefs across second-generation immigrant groups from different countries of origin. Hence, if we find a systematic difference in the rent-versus-buy decision of second-generation immigrant groups that correlates with the behavior in their country of ancestry, then we would argue that cultural preferences for homeownership can account for these behavioral differences.

We employ a quantitative proxy for cultural preferences towards homeownership. The preferences of second-generation immigrants are proxied using aggregate homeownership rates in the country of ancestry.[2] It is clear that aggregate homeown-

[1] According to Alesina and Giuliano (2015) culture tends to be defined in the scholarly literature as "*those customary beliefs and values that ethnic, religious, and social groups transmit fairly unchanged from generation to generation.*" We follow this definition.

[2] For the analysis to be meaningful, the proxy for cultural preferences should evolve slowly over time. Otherwise, the cultural preferences transmitted by the parents to the children would not be captured by past or future values. This is not a concern, as aggregate homeownership rates and especially cross-country differences are very persistent over time.

ership rates capture more than underlying preferences, as markets and institutions also shape aggregate homeownership rates. However, only the cultural component of aggregate homeownership rates in the parents' country of origin can be relevant and have explanatory power for the homeownership decision of a second-generation immigrant who lives in the United States and was born and raised there.

On average, second-generation immigrants are as likely to own their primary residence as native households. However, we document a considerable variation in homeownership rates across second-generation immigrant groups – defined by the country of origin of their fathers. In fact, the persistent cross-country differences in homeownership rates are replicated in the United States by the descendants of immigrants from those countries. To understand this positive relationship found at the macro-level, we investigate the homeownership decision on the micro-level, using second-generation immigrant household heads as our subjects of study.

We find that a second-generation immigrant with a father that emigrated from a high homeownership country is significantly more likely to be a homeowner in the United States than a second-generation immigrant with a father from a low homeownership country. It is important to ensure that our results are not driven by a systematic difference in second-generation immigrants depending on the country of ancestry. Therefore, we control for individual characteristics that are known to be important for the decision of whether to rent or buy. Specifically, we control for age, gender, race, marital status, number of children, educational attainment, employment status, income, savings, and parental income. Housing structures or housing costs might differ from location to location and over time. We control for these differences, regardless of their source, by including a vector of metropolitan area and year dummies.

The quantitative impact of cultural preferences on the homeownership decision is sizable for second-generation immigrant household heads. An increase in the homeownership rate in the country of origin of the immigrant's father by one standard deviation (across countries) is associated with a 0.5 percentage point increase in the probability that an average second-generation immigrant is a homeowner in the United States. This accounts for 5.3% of the variation in homeownership rates across second-generation immigrant groups within the United States. We expect the quantitative impact of the presented baseline estimate to be a lower bound for the general effect of culture on the homeownership decision. Several factors may miti-

gate the influence of the ancestor's cultural attitude towards homeownership: e.g., friendships of the second-generation immigrants with natives and other immigrant groups, a spouse of a different cultural background, and the markets and institutions in the United States.

To unravel these effects and thereby explore the impact of culture on the homeownership decision in a sharper way, we focus on second-generation immigrant household heads that are married to a spouse of the same cultural background, and compare their homeownership decision with those that are single, and those that are married to a spouse of a different cultural background. For a second-generation immigrant, it is likely that the spouse plays an important role in preserving beliefs and preferences (spouse effect). Besides, one can expect that individuals who feel strongly attached to their country of ancestry are also more likely to marry someone from this country (selection effect). Therefore the preferences, beliefs, and values of second-generation immigrants married to a spouse of the same cultural background might be the closest to those prevailing in the country of ancestry. Hence, this group might reflect the cultural preferences towards homeownership of the father's home country most accurately.

As expected, the impact of culture on the homeownership decision is largest for second-generation immigrant household heads that are married to a spouse of the same cultural background. For this subset, the impact of culture is three times larger compared to singles, and nine times larger compared to household heads that are married to a spouse of a different cultural background.[3] The effect is much larger compared to the baseline estimate; an increase in the homeownership rate in the country of origin of the immigrant's father by one standard deviation (across countries) is associated with a 3.7 percentage point increase in the probability that an average married second-generation immigrant (with a spouse of the same cultural background) is a homeowner in the United States. This accounts for 39% of the variation in the homeownership rate across second-generation immigrant groups within the United States. Finally, we present evidence for the hypothesis that the impact of the ancestor's culture vanishes over time. The effect of cultural preferences is larger for first-generation married couples with the same cultural background than

[3]For second-generation immigrant household heads that are married to a spouse of a different cultural background, their own culture is not statistically significant, and the quantitative impact becomes small. For single household heads, the effect of culture is significant and accounts for 8.4% of the variation in the homeownership rate across second-generation immigrant groups within the United States.

for second-generation couples with the same background.

In summary, this paper highlights a novel explanatory factor for the observed large and persistent cross-country differences in homeownership rates. Our findings indicate that cultural preferences for homeownership are persistent, transmitted between generations, and substantially influence the rent-versus-buy decision.

These results are also relevant for policymakers. Heterogeneity in homeownership behavior across countries has implications for financial stability. As Huber (2019) has shown the volatility of housing markets and the likelihood of housing bubbles is related to the homeownership rate in a country. Furthermore, different housing arrangements typically go hand in hand with different asset and debt structure and can thus influence the transmission of monetary policy.

The remainder of this paper is organized as follows. Section 2 reviews the related literature. Section 3 outlines our empirical strategy, and describes the data and sample selection. Section 4 presents the results. Section 5 shows the results for more homogeneous subgroups of second-generation immigrants and investigates cultural transmission. Section 6 discusses the robustness of our findings. Finally, Section 7 concludes. Appendix A provides a summary and descriptive statistics. Appendix B offers a wide range of robustness checks.

2 Related Literature

Although our paper combines ideas about culture and cross-country differences in homeownership in a novel way, it follows a large body of literature on related topics.

The first strand of related literature investigates empirically the transmission of cultural values, preferences, and beliefs, and examines the impact of culture on economic outcomes. Osili and Paulson (2008) study the investment behavior of first-generation U.S. immigrants and find that immigrants from countries with institutions that more effectively protect private property are more likely to own financial stocks in the United States. They conclude that the effect of home institutions is absorbed early in life and is persistent after emigrating. Using Italian data, Guiso et al. (2004) show that households' portfolio allocation is influenced by cultural factors. Kosse and Jansen (2013) study first- and second-generation immigrants in the Netherlands and find that culture affects choice of payment instruments.

Several papers apply the epidemiological approach to study the link between

cultural preference and individual's behavior.[4] This method isolates the effects of culture from those of markets and institutions by studying the individual behavior of immigrants from different cultural backgrounds in one host country, thus holding constant the institutional and economic environment. This approach mainly involves capturing cultural preferences of immigrants by an average value of a continuous variable assigned to the country of origin. The epidemiological approach to link the cultural background ("inherited" from the home country) to immigrants' behaviour has been applied in several domains, including the savings behavior of households (Fuchs-Schündeln et al. (2019), Carroll et al. (1999), Carroll et al. (1994)), fertility and female labor force decisions (Fernández and Fogli (2009), Alesina and Giuliano (2010), Fernández (2007), Fernández et al. (2004)), demand for social insurance (Eugster et al. (2011)), divorce behavior (Furtado et al. (2013)), trust (Algan and Cahuc (2010)), preferences for redistribution (Luttmer and Singhal (2011)) and food preferences (Atkin (2016)).

The epidemiological approach has also been used to analyze directly the relationship between housing decisions and culture. Giuliano (2007) paper is closely related to our research question. Her study evaluates why southern Europeans choose to stay longer at their parents' homes compared to young adults in the north of Europe by studying the behavior of second-generation immigrants in the United States. Giuliano (2007) finds that these behavioral differences between southern and northern Europeans are also evident for second-generation immigrants in the United States and cannot be explained by income differences or the like. Giuliano (2007) concludes that cultural preferences are the most relevant factor. Grevenbrock (2017) finds that these differences in co-residence patterns across countries partly drive differences in homeownership rates across European countries.

Haliassos et al. (2017) look at the role of culture for the homeownership decision using a different approach. They investigate the impact of culture on stock ownership, homeownership, and household debt, and document significant differences across cultural groups. Our work differs from theirs in two important ways. First, we examine the behavior of second-generation rather than first-generation immigrants to avoid any systematic selection concerns.[5] Second, Haliassos et al. (2017)

[4]In addition, the methodologies of natural experiments (e.g. ?? (Bot)) and laboratory experiments (e.g. Henrich et al. (2001)) have been used to provide evidence that culture matters. Fernández (2011) provides a detailed literature overview.

[5]Whether first or second-generation migrants are analyzed seems to be important. The literature on the homeownership gap between immigrants and natives in the United States (e.g., Borjas

do not reconcile the significant differences in the financial behavior of immigrants with the financial choices of households in the country of origin.

The main conclusion from this first strand of related literature is that values and preferences, summarized as culture, differ across countries, and that culture influences many economic outcomes. We contribute to and complement this strand of literature by showing that culture matters for the homeownership decision.

The second strand of related literature analyses the determinants of homeownership rates within or across countries. Although there is still little consensus on why homeownership rates differ so greatly across OECD countries, surprisingly few empirical cross-country analyses of homeownership determinants have been published so far – partly reflecting data limitations. The dataset of Chiuri and Jappelli (2003) consists of 14 OECD countries over a 30-year period. The authors find that down payment requirements on mortgage loans have a negative impact on homeownership for young households only. Georgarakos et al. (2010) find that homeownership rates in Europe do not correlate with the breadth of mortgage markets. This result aligns with that of Earley (2004), who finds for a sample of 15 European countries that the highest homeownership countries are among those with the lowest levels of mortgage-to-GDP ratios. Hilber (2007) analyzes homeownership rates in 15 European countries and finds that demographic factors are significant determinants of individual tenure choice. Homeownership is larger for married couples, and increases with age and number of children. However, Hilber (2007) shows that country differences in the socio-economic composition cannot explain cross-country differences in homeownership rates. This is in line with Davis (2012), who finds that homeownership rates are not correlated with cross-country standards of living. This finding is consistent with earlier cross-country studies, e.g. Oxley (1984) and the more recent study by Fisher and Jafee (2003), who find that income differences across countries have no explanatory power regarding homeownership rates. Grevenbrock (2017) finds that differences in homeownership rates are partly driven by differences in co-residence patterns across countries. Fisher and Jafee (2003) report that the percentage of a country's population living in urban areas has a significant and negative impact on aggregate homeownership rates. According to Hilber (2007), most

(2002), Kauppinen and Vilkama (2016)) typically investigates first- and not second-generation immigrants, and finds ownership gaps. Abdul-Razzak et al. (2015) show that for the homeownership probability, the immigrant status has no explanatory power for first-generation immigrants who have lived in the United States for 17 years or longer.

of the cross-country differences can be explained by landlord efficiency and the non-taxation of imputed rents.[6] Hilber and Turner (2014) find that the deductibility of mortgage interest can have positive or negative impacts on homeownership.[7] Andrews and Sanchez (2011) find that rental market regulations influence tenure choice. Higher rent controls and lower security of tenure are associated with a higher probability of homeownership.

The main conclusions from this strand of the literature is that there is a consensus on factors that cannot explain cross-country difference in homeownership rates – namely cross-country differences in income and the breadth of the mortgage market. On the other hand, the fundamental causes for the large and persistent differences across countries remain an open question. This paper contributes to this strand of literature by presenting evidence that part of the cross-country difference in homeownership rates can be explained by cultural preferences regarding homeownership.

3 Estimation Strategy and Data

3.1 Estimation Strategy

As discussed previously, this paper uses the epidemiological approach. To isolate the effect of culture from those of markets and institutions, we study the homeownership decision of second-generation immigrants in the United States. This approach has an advantage over cross-country studies in that all second-generation immigrants face the same markets and institutions since birth. However, they differ in terms of their country of ancestry and thus, in their cultural heritage. If culture persists over time and is transmitted across generations, we would anticipate systematic differences in terms of beliefs, cultural values, and preferences across second-generation immigrant groups from different countries of origin. Thus, systematic differences in the rent-versus-buy decision of second-generation immigrant groups that correlate with their behavior in their country of ancestry would point to cultural preferences for homeownership being responsible for such behavioral differences.

[6] Hilber (2007)'s finding that non-taxation of imputed rents can account for cross-country differences in homeownership rates ought to be approached with caution. In his sample, only two out of the fifteen countries have a taxation of imputed rents in place.

[7] This is in line with the results of Andrews and Sanchez (2011), who suggest that tax relief on mortgage-debt-financing has only a very small effect on aggregate homeownership rates and that the effect might even be negative if these tax reliefs are factored into real housing prices; see Andrews (2010), and therefore make homeownership less affordable for lower-income households; see Bourassa and Yin (2008).

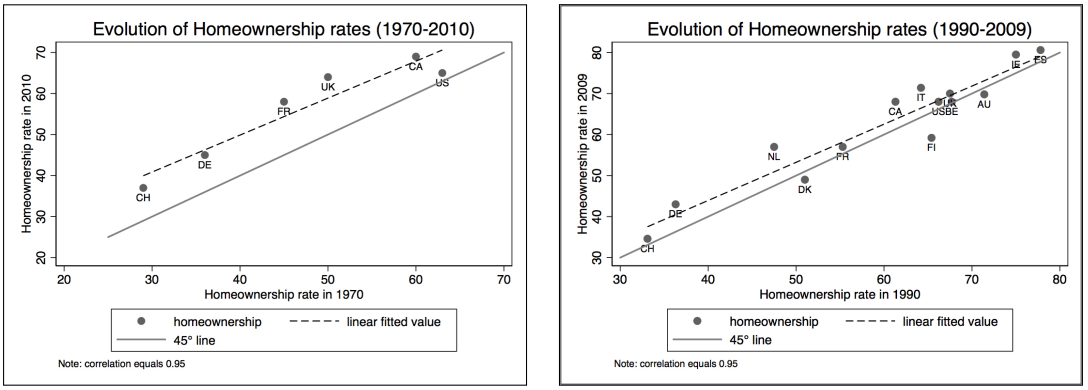
Using second-generation immigrants rather than first-generation immigrants is advantageous. The potential problem of systematic differences in the difficulty of assimilation to the United States (e.g., learning the language of the host country), as well as potential systematic differences concerning the reasons for emigration (e.g., some countries of origin might be at war), are both less prominent when studying second-generation immigrants.[8]

The epidemiological approach mainly involves capturing cultural preferences of immigrants by an average value of a continuous variable assigned to the country of origin. The outcome of the immigrants' choices' is regressed on the same outcome variable (average) prevailing in the country of origin. We use homeownership rates in the country of origin as our cultural proxy for cultural preference regarding homeownership. It is clear that aggregate homeownership rates not only capture preferences towards homeownership but are also shaped by the underlying markets and institutions. However, we argue that only the cultural component of homeownership rates prevailing in the country of origin can have explanatory power for the tenure decision of individuals born and raised in the United States. The optimal decade from which to take these numbers is not clear. One could argue that values for the cultural proxy from 1974 to 1997 would best reflect the culture of the country of origin, as this is the most likely time window in which the parents emigrated and took their cultural preferences with them. Nonetheless, as argued by Fernández and Fogli (2009), cultural values transmitted by parents are best reflected by what the counterparts of the individuals in the country of origin are doing during the same period, i.e. 1994-2017. Data limitations do not allow the use of homeownership rates from 1974 to 1997, as prior to 1990, homeownership rates exist for six countries only. Therefore, we use homeownership rates for the year 2011 as our cultural benchmark proxy.

For the analysis to be meaningful, the proxy for cultural preferences should evolve slowly over time. Otherwise, the cultural preferences transmitted by the parents to their children would not be captured by past or future values. Put differently, the homeownership rates across countries in 2011 need to be "representative" for the homeownership structure across countries for the whole observation period 1994-2017. Comparable homeownership rates over time and across countries are scarce, and we could not find time series or data points for year pairs for our full sample

[8]Section 6 discusses these differential selection concerns in more detail.

of countries (see Table A1). We therefore examine the evolution of cross-country differences in homeownership rates over time for a subsample of countries. Table (A2) shows the cross-country correlations of homeownership rates for selected year pairs. The correlations are large and positive.



(a) Evolution of Homeownership, 6 countries (b) Evolution of Homeownership, 18 countries

Figure 1: Evolution of Homeownership rates

For a sample of six OECD countries, Figure (1a) plots the initial observation of the homeownership rate (year 1970) against the last observation available (year 2010). The fitted line is above and nearly parallel to the 45 degree line. Hence, over the 40 years considered, homeownership rates rose proportionally in these OECD countries. Figure (1b) shows a similar picture with the difference that we reduce the time horizon to include more countries. The fitted line for 18 OECD countries observed between 1990 and 2009 is above and parallel to the 45 degree line. We conclude that homeownership rates rose proportionally in many OECD countries over time. Thus, the large cross-country differences in homeownership rates are constant, and very persistent over time.[9]

Throughout the paper, the analysis utilizes probit models to understand, at a micro level, the relationship between homeownership status of second-generation immigrants and their cultural preferences regarding homeownership, while controlling for other factors that are known to impact the tenure choice. Using the Current Population Survey, we estimate the following model:

$$HO_{imot} = \beta_0 + \beta_1' X_{i,t} + \beta_2 \tilde{Z}_o + F_m + F_t + \varepsilon_{imot} \tag{3.1}$$

[9]From 1970 to 2010, homeownership rates rose by 9.2 percentage points. For the year pairs 1990 and 2009, the homeownership rates rose by 2.53 percentage points.

HO_{imot} denotes the homeownership status of the second-generation immigrant i surveyed in year t, who resides in the metropolitan area m and whose father emigrated from the country of origin o. This indicator is equal to one if the individual is a homeowner and zero otherwise. $X_{i,t}$ denotes a vector of controls for individual i, which varies with the specification considered.[10] $\tilde{Z}_o$ is our variable of interest, the proxy for cultural preferences towards homeownership assigned to the parents' birthplace: the aggregate homeownership rate prevailing in 2011 in the country of origin of the immigrant's father.

In this paper, we focus on and emphasize demand-side explanations for the homeownership decision of second-generation immigrants. However, we also control for supply-side factors in the regression analysis. Housing structures and housing costs might differ not only from location to location but also over time. Sinai (2013) shows that house price cycles vary systematically across regions in the United States. We control for these differences, regardless of their source, by including a large vector of 415 metropolitan area F_m and year F_t dummies. Metropolitan areas are defined as specific counties or groups of counties centering on a substantial urban area. For the purpose of robustness checking, we present three alternative regression specifications to account for potential systematic differences across locations of residence.[11] One specification includes the interaction term metropolitan area $\times$ year. Another specification uses the interaction term of metropolitan central city status per year dummies, $MCC \times Year$. For households within metropolitan areas, the metropolitan central city status specifies whether the household is located inside or outside the central city of the metropolitan area. The results are robust to these variations. The error term is denoted by ε_{imot}. Given heteroskedasticity, there are two possible approaches to model the standard errors: one can either choose robust Eicker-Huber-White (EHW) standard errors or clustered standard errors at the country of origin level. A typical argument for clustered standard errors is that unobserved components of outcomes for units within clusters are correlated. Key assumptions for using

[10] The individual characteristics included in the baseline specification are age, age (squared), gender, marital status, number of children, income deciles, savings, categories for race, education and employment status. These controls account for sources of heterogeneity across second-generation immigrants other than their cultural preferences.

[11] We show the regression results in Appendix B, RC 12-15, table (B7). One robustness check explicitly addresses the concern that housing affordability might differ across locations of residence. We proxy local housing affordability by home-ownership rates at the MSA level and include these MSA homeownership rates in the baseline regression. The proxy for culture $\tilde{Z}_o$ remains positive and highly significant, while the MSA homeownership rate is not statistically significant.

clustered standard errors are that observations can be grouped into clusters where the model errors are uncorrelated across and correlated only within clusters. Second, the number of clusters (rather than the number of observations) goes to infinity. In our case, we think that neither assumption is necessarily reasonable. Although there is no clear test when worrying about too few clusters is justified, at least for the balanced cluster case, a rule of thumb that one should have at least 50 clusters can be inferred from Bertrand et al. (2004). However, Cameron et al. (2008), Imbens and Kolesár (2016) and Carter et al. (2017) show that when the number of observation vary across clusters (i.e., unbalanced clusters) the minimum number of clusters needed is much higher than in the balanced case. According to Mackinnon and Webb (2016), inference using clustered standard errors can be unreliable even with 100 unbalanced clusters. Hence, given that we have 33 very unbalanced clusters, we use the robust EWH standard errors for our baseline estimations.[12]

3.2 Data and Sample Selection

Individual Data

The main dataset consists of the March supplement of the Current Population Surveys (CPS) from 1994 to 2017.[13] The March CPS includes questions about the birthplace of each individual and his or her parents. We define "second-generation" immigrants as individuals who were born in the United States while having fathers born abroad.[14]

Our main sample includes second-generation immigrant household heads that are born in the United States and whose fathers emigrated from one of the 38 countries for which comparable homeownership rates are available. Most countries are European (28 countries).[15] We also include a few countries in Asia (Japan, South

[12]We have 33 countries of origin with an average of 1,907 observations; the clusters are very unbalanced with a minimum of 27 to a maximum of 19,836 observations. Nevertheless, we test the impact of using clustered standard errors. For the full sample of second-generation immigrant household heads, and for the subset of singles, the clustered standard errors are larger than the EHW standard errors, and hence the statistical significance of the cultural proxy decreases. In contrast, for the key subset of second-generation immigrant household heads that are married to a spouse with the same cultural background, the statistical significance of the cultural proxy increases while the standard errors decrease, refer to Appendix B, robustness check 24, Table (B11).

[13]Sarah Flood, Miriam King, Steven Ruggles, and J. Robert Warren. Integrated Public Use Microdata Series, Current Population Survey: Version 5.0. [dataset]. Minneapolis: University of Minnesota, 2017. https://doi.org/10.18128/D030.V5.0.

[14]The results are robust to defining a second-generation immigrant as being born in the United States, and whose parents, either father or mother, were born abroad. Table (B10), Appendix B.

[15]The sample includes: Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithua-

Korea, Singapore), in Australasia (Australia and New Zealand), in the Americas (Mexico, Canada, Chile), and in the Middle East (Israel, Turkey).

In the baseline sample, the six largest second-generation immigrant groups have their cultural origin in Mexico (29%), Italy (16%), Canada (10%), Germany (8%), Poland (7%), and Ireland (4%). The results are robust to excluding Mexico or excluding the two largest groups, Mexico and Italy (45% of the observations).[16]

Figure (A1) shows the baseline sample's distribution of all observations across U.S. states. While Figure (A2) illustrates the distribution of all observations across metropolitan statistical areas (MSAs) in the United States.[17] For first-generation immigrants, these distributions are shown in Figures (A3) and (A4) respectively.

The sample consists of 33,290 female and 35,376 male second-generation household heads.[18] The average second-generation immigrant does not differ significantly from the average native whose parents were born in the United States as far as socioeconomic characteristics are concerned. Table (A3) in appendix A provides summary statistics for the sample of second-generation immigrants at the level of the father' country of origin, while Table (A4) provides detailed characteristics for first-generation immigrants at the level of the country of origin.

The average homeownership rate of second generation immigrants is 70.5%. This compares to a homeownership rate of 70.2% for the household heads whose fathers were born in the United States. Despite these very similar average homeownership rates, there is considerable variation in aggregate homeownership rates across second-generation immigrants grouped by country of ancestry.

Country Level Data: Aggregate Homeownership Rates

Comparable homeownership rates across countries and over time are scarce. We collect two different datasets for aggregate homeownership rates, namely the homeownership rate provided by the PEW research center, and the OECD homeownership rate. For the main estimations, we use the comparable aggregate homeownership

nia, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland, and the United Kingdom.

[16]We impose the restriction that the number of observations must be larger than twenty for each country of origin. This restriction ensures that there are sufficient observations for each of the cultural groups to reliably estimate the cultural homeownership differentials. Relaxing this restriction does not alter the results.

[17]In the baseline, second-generation immigrants are distributed across 415 different MSAs.

[18]This compares to 564,257 female and 636,458 male household heads, who were born in the United States, and whose fathers were also born in the United States.

rates for 38 countries provided by the PEW research center.[19] Homeownership rates are defined by the fraction of the households living in an owner-occupied dwelling. The OECD provides the second measure for homeownership. The OECD calculations are mainly based on the European Survey on Income and Living Conditions (EU SILC). In comparison to the first measure, the OECD measure covers five fewer countries of origin (Singapore, Israel, Japan, Turkey, New Zealand), and therefore, we lose 15 percent of our baseline observations.

Despite some variations in the homeownership rates across these two different sources, the correlation coefficient equals 0.959, while the Spearman's rank correlation coefficient equals 0.960. Table (A1), in Appendix A, gives an detailed overview of the homeownership data, followed by descriptive statistics. We also collect aggregate data on GDP, schooling, and wages at the country-of-origin level from the Penn World Tables.

4 Estimation and Results

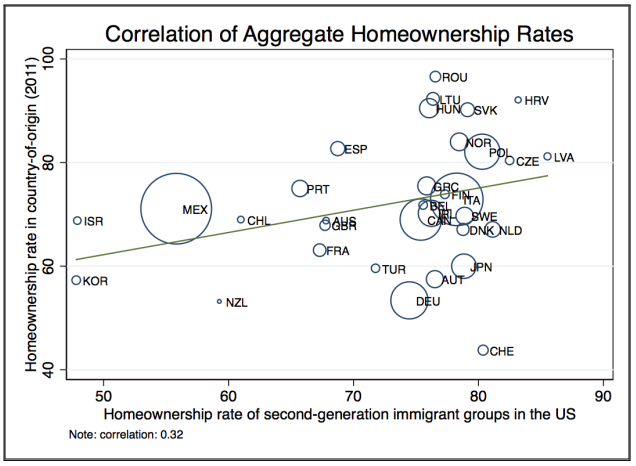
4.1 Correlation of homeownership rates at the Macro-level

Consistent with Abdul-Razzak et al. (2015), in our baseline sample of second-generation immigrants, we find no homeownership gap between the average second-generation immigrant household and the average native household. However, we see considerable variation in aggregate homeownership rates across second-generation immigrant groups from different cultural backgrounds.

In fact, the persistent cross-country differences in homeownership rates are replicated in the United States by the descendants of immigrants from those countries. Figure (2) plots the aggregate homeownership rates of second-generation immigrant groups against our cultural proxy, i.e. the aggregate homeownership rates of the country of origin of the immigrant's father. The correlation is positive and equal

[19] This set of countries has been chosen as it corresponds to the most extensive collection of comparable aggregate homeownership rates. For example, we would have liked to include China (the second-generation immigrants from China constitute the 12th largest group in the initial CPS sample). However, there are many concerns that the official Chinese homeownership rate is not internationally comparable. The official statistics from the National Chinese Statistics Bureau reports a homeownership rate of 89.3% as of 2010. However, the official figure uses the concept of privately owned land (in proportion to total land for residential purpose), while we define aggregate homeownership rates by the fraction of the households living in an owner-occupied dwelling. Note that the baseline sample includes eight out of the eleven largest second-generation immigrant groups of the initial CPS sample. We had to exclude the fourth-largest group, Puerto Rico (6.61%), the seventh-largest group, Russia (3.36%), and the ninth-largest group, the Philippines (2.38%).

to 0.32. Countries of origin with higher homeownership rates are associated with higher homeownership rates of the descendants of immigrants from those countries living in the United States.[20]



Circle size represents the number of second-generation immigrants from a particular country of origin.

Figure 2: Aggregate Homeownership Rates

4.2 Baseline Model

This section presents the results of the probit estimation of the model (3.1). As a robustness check, we repeat all regressions using a linear probability model and find very similar results.[21]

Table (1) shows the marginal effects for the probit estimation. In the first column, the homeownership status of second-generation immigrant i is regressed on the proxy for the cultural preference towards homeownership without any control variables. In the second column we add a full set of year and metropolitan area dummies corresponding to individuals' location of residence. In both cases, the coefficient of interest is strongly significant and positive, indicating that second-generation immigrants with fathers that emigrated from a high homeownership country are more likely to be a homeowner themselves. Using the alternative definition for second-generation immigrants, someone who was born in the United States and whose

[20] We run a corresponding (and basic) OLS regression and find that an increase in the homeownership rate in the country of origin of the immigrant's father o by one standard deviation (across countries) is associated with an increase in the homeownership rate of the corresponding second-generation immigrant group in the United States, accounting for 27.22% of the variation in the homeownership rate across immigrant groups within the United States. Refer to Appendix A.

[21] The OLS estimation results can be found in appendix B, RCs 1a-1c, tables (B1)-(B2). The results are also robust to using Logit instead of Probit or OLS.

parents, either father or mother, were born abroad, does not alter the results.[22]

There may be many reasons for finding the aforementioned positive correlation that might have little to do with cultural preferences. For example, second-generation immigrants may vary in a systematic fashion by country of origin that affects their propensity to become a homeowner. There could be systematic differences regarding, e.g., income, savings, and education or other socioeconomic characteristics that are known to affect the propensity to become a homeowner. In particular, if second-generation immigrants from high homeownership countries were to have systematically higher incomes, omitting income would bias the coefficient of the proxy for cultural preferences upwardly. Therefore, in column 3, we include a series of individual characteristics that we expect to be essential drivers for homeownership. This column presents the full baseline specification.

As expected, and consistent with the literature studying tenure choice, individuals are more likely to be homeowners if they have more income, are employed, are married, are better educated, and if they are older.[23]

The marginal effect of culture is larger in column 3 compared to column 2. It should be noted from Table (A7) that aside from cultural preferences, the second-generation immigrant's income and marital status are the main drivers of homeownership. Table (A7) shows in columns 4 and 9 that omitting these characteristics biases the impact of cultural preferences on homeownership downwards.

We conclude that cultural preferences concerning homeownership play a significant role in home buying decisions. The results are robust to an extensive battery of robustness checks that we discuss in detail in section 6.

4.3 Quantitative Impact of Cultural Preferences

The quantitative impact of culture on the homeownership decision is sizable for second-generation immigrants in the United States. An increase in the aggregate homeownership rate in the country of origin of the immigrant's father by one standard deviation (across countries) is associated with a 0.5 percentage point increase in the probability that an average second-generation immigrant is a homeowner in the United States. This accounts for 5.3% of the variation in the homeownership rate across second-generation immigrant groups within the United States.

[22] Appendix B, robustness check 24, table (B10).

[23] The number of children, gender, and the saving proxy are not statistically significant.

Dependent Variable: Homeownership status of 2^{nd} generation immigrant i			
	(1)	(2)	(3)
HO_{origin}	0.080***	0.0591***	0.0647***
	(0.020)	(0.022)	(0.023)
age			0.0219***
			(0.001)
age squared			-0.0001***
			(0.000)
male (dummy)			-0.0049
			(0.004)
marital status			0.172***
			(0.004)
number of children			0.0024
			(0.002)
savings			-0.0000
			(0.000)
employment status			✓
income categories			✓
education categories			✓
race categories			✓
metropolitan area		✓	✓
year (dummy)		✓	✓
N	68666	68666	68666
pseudo R^2	0.0002	0.044	0.228

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: Equal to one if 2^{nd} the generation immigrant is a homeowner, 0 otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Number of income categories (income deciles) is 10. The first decile is the reference category. The education categories are: High School or less, college without degree, college +. The first category 'High School or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which paid interest. Number of metropolitan area categories: 415. HO_{origin} denotes the aggregate homeownership rate in the parents' country of origin in 2011 and is $\in (0, 1)$.

Table 1: Main Probit Regression - Culture and Homeownership

Given that our subjects of study are second-generation immigrants, we suspect the quantitative impact of the presented baseline estimate to be a lower bound for the general effect of culture on the homeownership decision. Second-generation immigrants were born in the United States. The impact of the ancestral culture may diminish over time, as parents are not the only transmitter of cultural preferences. The friendships of the second-generation immigrant and the institutions in the country of residence (i.e., the United States) may also shape their preferences and beliefs. In the baseline sample of second-generation immigrant household heads, there might also be heterogeneity in the ability to preserve their ancestral culture. For example, some second-generation immigrants might be married to or live with a partner of a different cultural background, making it more difficult to maintain their ancestral culture.

To unravel these effects and thereby explore the impact of cultural preferences on the homeownership decision in a sharper way, we split the group of second-generation immigrants further into more homogeneous subgroups. Repeating the analysis for more homogeneous subgroups allows us to capture more accurately the different cultural homeownership preferences across countries. Section 5 shows the results.

5 Married Couples and Cultural Transmission

To reflect and proxy cross-country differences in the preference for homeownership in a sharper way, we split the baseline sample of second-generation immigrants further into more homogeneous subgroups. In particular, we study the effect of the composition of married couples on cultural transmission. For a second-generation immigrant, the spouse may play an strong role in preserving the beliefs and preferences transmitted by the parents. We study three subsamples. The first consists of second-generation household heads that are single, and the second (third) sample consist of second-generation household heads that are married to a spouse of a different (same) cultural background.

It is clear that marital status and the choice of the spouse are both endogenous variables. It is very likely that individuals who feel strongly attached to their country of ancestry also marry someone from this country (selection effect). It is also likely that individuals who are married to a spouse of the same cultural background will be more exposed to their cultural inheritance compared to singles and those who

are married to spouses of different cultural backgrounds (spouse effect).

So, if we would find a stronger effect of culture for this subgroup, then we could not disentangle whether the results are due to selection (more culturally attached individuals marrying within the same culture) or due to an influence of being with a spouse from the same culture. Although it would be interesting to know whether the effect is due to selection or to the spouse effect, we are interested in finding a more homogenous subsample of second-generation immigrants (in comparison to the baseline sample) with preferences that are closest to those prevailing in their country of ancestry. Given the arguments above, we suspect that this subsample consists of household heads that are married to a spouse of the same cultural background.

Table (2) shows the estimation results. For comparison, column 1 illustrates the baseline regression. In column 2, we run the regression for second-generation immigrant single household heads only. The third column presents the estimation results for the subset of married household heads whose spouse is from a different background. In column 4, we only include married household heads that share the same cultural background as their spouse.

Consistent with the theories of the spouse effect and selection, we find that the impact of culture is the largest for married household heads with the same cultural background as their spouse (col.4). The marginal effect is more than three times as large compared to singles (col.2), and nine times larger compared to household heads that are married to a spouse of a different cultural background (col.3).[24] In addition, we find that the effect of culture is statistically significant and three times larger for single household heads compared to married couples that do not share the same cultural background.[25] The quantitative impact of culture is surprisingly large for single households, given the consensus in the literature that marital status is one of the most important drivers of homeownership.

We find that the quantitative impact of cultural preferences is quantitatively substantial for married household heads with the same cultural background as their spouse. An increase in the homeownership rate in the country of origin of the immigrant's father by one standard deviation (across countries) is associated with a 3.7 percentage point increase in the probability that an average married second-

[24] We perform upper-tailed Z-tests to test whether the differences in the coefficients β_2 across the subgroups are statistically significant. The results are shown in table (A5), appendix A.

[25] For second-generation married household heads with a spouse from a different cultural background, their own cultural background is not statistically significant, and has a much smaller impact on their homeownership decision compared to the baseline estimation.

	Dependent Variable: Homeownership status of immigrant i			
	second-generation			
	all (baseline) (1)	single (2)	married $\neq$ background (3)	married same background (4)
HO_{origin}	0.065***	0.092***	0.032	0.314**
	(0.023)	(0.035)	(0.023)	(0.130)
male	-0.005	-0.032***	0.004	0.001
	(0.004)	(0.006)	(0.004)	(0.011)
marital status	0.172***			
	(0.004)			
age	0.022***	0.022***	0.018***	0.023***
	(0.001)	(0.001)	(0.001)	(0.002)
age squared	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
number of children	0.002	-0.007*	0.009***	0.014***
	(0.002)	(0.004)	(0.002)	(0.004)
savings	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓	✓
education categories	✓	✓	✓	✓
income categories	✓	✓	✓	✓
race categories	✓	✓	✓	✓
metropolitan area	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓
N	68666	35252	22958	8673
pseudo R^2	0.228	0.152	0.219	0.262

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: Equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. HO_{origin} denotes the aggregate homeownership rate in the parents' country of origin in 2011 and is $\in (0, 1)$.

Table 2: Married – Does the Partners Background matter?

	Dependent Variable: Homeownership status of immigrant i		
	second-generation		first-generation
	all (baseline)	married same background	married same background
	(1)	(2)	(3)
HO_{origin}	0.065***	0.314**	0.430***
	(0.023)	(0.130)	(0.073)
male	-0.005	0.001	0.003
	(0.004)	(0.011)	(0.007)
marital status	0.172***		
	(0.004)		
age	0.022***	0.023***	0.029***
	(0.001)	(0.002)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
number of children	0.002	0.014***	0.021***
	(0.002)	(0.004)	(0.002)
savings	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N	68666	8673	38843
pseudo R^2	0.228	0.262	0.201

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: Equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. HO_{origin} denotes the aggregate homeownership rate in the parents' country of origin in 2011 and is $\in (0, 1)$. For first-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in their country of origin in 2011 and is $\in (0, 1)$.

Table 3: Married – Does the Partner's Background matter? (2)

generation immigrant (with a spouse of the same cultural background) is a homeowner in the United States. This accounts for 39% of the variation in the homeownership rate across second-generation immigrant groups within the U.S.

Next, we explore cultural transmission. As mentioned before, the impact of culture might diminish over time in our sample. The longer you are exposed to the culture of your host country, the more difficult it might be to preserve the culture of the home country. Therefore, we expect the effect of cultural preferences towards homeownership to be larger for first- compared to second-generation married immigrants. Column 3 in Table (3) shows the estimation results. Married first-generation household heads that are older, better educated, and who have a higher income are more likely to be a homeowner. The culture proxy is highly significant, and the marginal effect is 37% larger for first-generation married couples with the same cultural background compared to second-generation couples with the same background. These effects are statistically significant and quantitatively large.[26]

We draw three main conclusions from this section. First, we find that cultural preferences towards homeownership are transmitted from generation to generation. Second, the results of this section indicate that the quantitative impact of cultural preferences on the homeownership decision is substantial. Third, this section provides evidence that the quantitative impact found in the baseline specification is indeed a lower bound for the general effect of culture on the actual homeownership decision. We find a much larger effect of culture for second-generation immigrant household heads married to a spouse with the same cultural background. This subsample might have the closest preferences to the one in the country of ancestry, either because of the spouse or/and selection effect discussed above.

6 Robustness of our Findings

We found a significant effect of culture on the homeownership decision of second-generation immigrants. Thus far, we showed that the results are robust to variations in the vector of individual controls, to alternative estimation techniques, an alternative definition of immigrant status, and alternative specifications for the location

[26] An increase in the homeownership rate in the country of origin by one SD (across countries) is associated with a 5 percentage point increase in the probability that an average married first-generation immigrant (with a spouse of same cultural background) is a homeowner in the U.S.

of residence.[27]

This section is dedicated to exploring the robustness of our findings with respect to sample selection, differential selection of immigrants, parental income, as well as to alternative measurements of cultural preferences towards homeownership.

6.1 Parent's financial situation

Ideally, we would like to control for parental income and wealth. Our estimate of culture could be biased if the parental income varies in a systematic fashion across countries of origin and if parents are a source of financial help to become a homeowner. If the positive coefficient of the culture proxy were driven by omitted parental income and wealth, then parents from high homeownership countries would need to be systematically richer compared to parents from low homeownership countries.[28]

Unfortunately, we do not observe parental income or wealth, but we study the characteristics of first-generation immigrants in our sample – the generation that the parents of our subjects of study belong to. Table (A4) in Appendix A shows that first-generation immigrants' income is not significantly correlated with homeownership rates prevailing in the country of origin.[29]

To address this concern thoroughly, we construct three different proxies for parental income and include them in the baseline specification separately.[30] The first parental income proxy measures the "average personal income in survey year t of the group of first-generation immigrants that the parents of the second-generation immigrant i belong to". The second proxy is very similar; instead of the average personal income, we use the average household income of the group of first-generation

[27]For OLS refer to Appendix B, robustness checks 1a-1c, Tables (B1) and (B2). A Logit model yields very similar results. For the alternative definition of the immigrant status, we refer to Table (B10), and for alternative specifications of the location of residence, we refer to Table (B7).

[28]On a general note, it is unlikely that parents from higher homeownership countries were systematically richer before emigrating. On average, countries with larger homeownership rates are characterized by a lower GDP per capita; see e.g. Oxley (1984), Fisher and Jafee (2003) or Davis (2012). These negative cross-country correlations between homeownership rates and income hold irrespective of measuring income by (1) real GDP per capita or (2) real GDP per capita, adjusted for purchasing power parity. Assuming for now that this cross-country pattern persists after emigrating, then omitting parental income would lead to an underestimation of our cultural preference effect. As migrants from richer countries (are on average richer) are those emigrating from countries with lower homeownership rates, the coefficient of HO_{org} would pick up the effect of this omitted variable and would be biased downwards.

[29]The correlation between the homeownership rate in the country of origin and average income of the corresponding first-generation immigrant group is equal to -0.16. If we take this small correlation seriously, we would conclude that first-generation immigrants (the parents) from high homeownership countries are poorer.

[30]Appendix B, Table (B8).

immigrants that the parents of the second-generation immigrant belong to.

For both parental income proxies, we find that parental income has a positive and statistically significant impact on the probability of becoming a homeowner for second-generation immigrants. The proxy for cultural preferences towards homeownership remains highly significant, although larger in magnitude, suggesting that homeownership rates in the countries of origin and income of the corresponding first-generation immigrant groups (the parents) are negatively correlated.

The third parental income proxy is given by real GDP per capita (PPP adjusted) prevailing in the country of origin. We find that this parental income proxy has no statistically or economically significant impact on the probability of becoming a homeowner for second-generation immigrants. The proxy for cultural preferences towards homeownership remains highly significant, although slightly larger in magnitude, suggesting that homeownership rates in the countries of origin and GDP per capita are negatively correlated. This observation is in line with the literature mentioned above and cross-country correlations.

Therefore, it seems unlikely that our baseline results suffer from an upward bias as a result of parental income being omitted.

6.2 Selection

This section addresses two concerns of selection – first, the sample selection and second, the systematic selection of immigrants.

Table (A3) shows that the number of observations varies a lot across countries of origin. To make sure that specific countries of origin do not drive our results we perform the following six robustness checks: First, we drop those second-generation immigrants that come from a country of origin for which we have less than 100 (200) observations. In other specification, we include five more countries of origin (Bulgaria, Cyprus, Estonia, Iceland, and Singapore). In the baseline, we exclude these countries of origin, as each country has less than twenty observations.[31]

In addition, we run a robustness check where we drop all second-generation immigrants with Mexican origin because they form the largest group (29% of the baseline's observations) and therefore may drive our result. Our results are also not affected by excluding the two countries of origin that have the largest number of observations (Mexico and Italy, which account for 45% of the baseline's obser-

[31] Appendix B, Table (B4).

vations).[32] Lastly, we exclude those countries of origin (Israel, Palestine, Mexico, South Korea, New Zealand) that represent outliers and cluster in the left bottom corner in figure (1). The estimates are largely unaffected by these six sample size variation robustness checks.

Next, we discuss the general concern of a systematic selection of immigrants. Ideally, we would like the immigrants to be randomly selected from their country of origin's population. However, it is clear that first-generation emigrants are a selective sample, and might therefore not be representative of their home country. As long as the degree of selection into emigration is the "same" across countries of origin, our coefficient of interest would be unbiased. However, there are reasons why one could suspect a differential selection depending on the country of origin. The difficulty of assimilation to the United States (e.g., learning the language of the host country) and the reasons for emigration might vary in a systematic fashion depending on the country of origin. Also, it might be the case that the plans for returning differ across home countries.

First, we address this differential selection concern by examining second-generation immigrant household heads instead of first-generation immigrants. A second-generation immigrant is a resident of the United States who was born, raised, and educated there. Therefore, studying second-generation immigrant household heads mitigates biases of differential selection into emigration by country of origin (Fernández (2008)).

Second, one should note that the above-described differential selection leads to an upward bias of culture only if second-generation immigrants with the same country of ancestry have an unobserved characteristic in common that affects their homeownership decision in the United States, and if this unobserved attribute positively correlates with the homeownership rate in the country of origin. To investigate this possibility, we follow the literature and add several aggregate variables at the country-of-origin level to our baseline specification. We add GDP per capita, average years of schooling, as well as the share of labor income in GDP. Our proxy for cultural preferences for homeownership remains highly significant, while the additional aggregate country-of-origin variables are not statistically significant.[33]

Third, to address the concern of a differential selection into emigration by coun-

[32] Appendix B, table (B5).

[33] Appendix B, Table (B9). Following Fernández and Fogli (2009), we also perform placebo regressions, the results are available upon request. Country-of-origin homeownership rates have no statistically significant impact on, e.g., income or education.

try of origin explicitly, we propose three sample size variations, where we exclude countries of origin that might have been systematically different and therefore encouraged systematically different types of emigrants (i.e. the parents of our subjects of study). We exclude countries of origin that experienced war in the period 1945-1994. We also run one specification where we exclude countries that were post-Soviet states, and one specification where we exclude countries that experienced dictatorships during the 1945-1994 period. Our baseline results are very robust to these sample size variations.[34]

Fourth, we also examine the characteristics of first-generation immigrants, which is the generation that the parents of our subjects of study belong to. Table (A4) shows the correlations of observed average first-generation immigrant's characteristics (income, education levels, age, etc.) with homeownership rates prevailing in the country of origin. The correlations are low. We find that first-generation immigrants from high homeownership countries are on average less educated and have less income and savings (and hence making them less likely to be homeowners in the United States). We conclude from this wide range of robustness checks that it is unlikely that our results are driven by a differential selection of second-generation immigrants.

6.3 Alternative measures for culture

Our results are robust to alternative proxies for cultural preferences towards homeownership. Instead of using the quantitative continuous variable *aggregate homeownership rates in the country of origin*, we construct a dummy variable that is equal to one if the homeownership rate in the country of origin is larger than the average value and zero otherwise. Similarly, the second (third) alternative proxy is given by a dummy variable that is equal to one if the homeownership rate in the country of origin is larger the median value (the 75 percentile) and zero otherwise. The estimation results are presented in Appendix B, Table (B3), columns 2-4.

As discussed in the data section, comparable homeownership rates across countries and over time are scarce. We collected two different datasets for aggregate homeownership rates, namely the homeownership rate provided by the PEW research center, and the OECD homeownership rate. For the main estimations, we

[34] Appendix B, Table (B6). The time window 1945-1994 corresponds to the most likely period when the parents emigrated to the United States.

used the aggregate homeownership rates for 38 countries provided by the PEW research center. The OECD measure covers five fewer countries of origin (Singapore, Israel, Japan, Turkey, New Zealand), consequently, we lose 15 percent of our baseline observations. Our results are robust to using the OECD homeownership rate as our proxy for cultural preferences towards homeownership; Table (B3), column 1.

7 Conclusion

This paper argues that cross-country differences in cultural preferences regarding homeownership are an important explanatory factor for the large and persistent cross-country differences in homeownership rates that we observe in the data.

By studying second-generation immigrant household heads, we credibly disentangle the effect of cultural preferences from the impact of markets and institutions. In our baseline sample, we find no homeownership gap between the average second-generation immigrant household and the average native household. However, we identify considerable variation in aggregate homeownership rates across second-generation immigrant groups from different cultural backgrounds. In fact, the persistent cross-country differences in homeownership rates are replicated in the United States by the descendants of immigrants from these countries.

We find that cultural preferences for homeownership are persistent, transmitted between generations, and influence the rent-versus-buy decision. We robustly show that the aggregate homeownership rate in the father's country of origin, our cultural proxy, has a significant and sizable impact on the homeownership decisions of second-generation immigrants living in the United States. The results hold after controlling for a large set of individual characteristics that are known to affect the tenure choice. We also account for systematic differences over time and across metropolitan areas of residence.

Second-generation immigrant household heads that are married to a spouse of the same cultural background might have preferences, beliefs, and values that are closest to those prevailing in their country of ancestry. For this subset, we find a quantitatively large impact of culture. An increase in the homeownership rate in the country of origin of the immigrant's father by one standard deviation (across countries) is associated with a 3.7 percentage point increase in the probability that an average married second-generation immigrant (with a spouse of the same cul-

tural background) is a homeowner in the United States. This accounts for 39% of the variation in the homeownership rate across second-generation immigrant groups within the United States. The effect of culture is still quantitatively sizable for singles, but not for those second-generation immigrants that are married to a spouse of a different cultural background.

Our results are policy relevant. Huber (2019) shows for a sample of OECD countries that countries characterized by larger homeownership rates are those countries that are more vulnerable to housing bubbles and generally characterized by more volatile housing markets. To develop an effective macro-prudential policy tool for the control of European housing markets, country heterogeneity in homeownership rates needs to be taken into account. Furthermore, heterogeneity in homeownership behaviour across European countries can influence the transmission mechanism for monetary policy, as homeownership e.g. impacts households' asset and debt structure. Hence it is helpful to understand where the large and persistent cross-country differences in homeownership rates originate from.

8 Appendix A

8.1 Summary and Descriptive Statistics

	Source: PEW Research Center		Source: OECD		
Country	**year**	**Homeownership**	**Homeownership**	**year**	**Source**
Romania	2011	96.6	96.2	2014	EU SILC
Lithuania	2011	92.3	89.9	2014	EU SILC
Croatia	2011	92.1	89.2	2014	EU SILC
Hungary	2012	90.5	88.2	2014	EU SILC
Slovakia	2011	90.2	90.2	2014	EU SILC
Singapore	2012	90.1	n.a.	n.a	n.a
Bulgaria	2011	87.2	83.6	2014	EU SILC
Norway	2011	84.0	76.4	2014	EU SILC
Estonia	2011	83.5	77.2	2014	EU SILC
Spain	2011	82.7	78.0	2014	EU SILC
Poland	2011	82.1	81.1	2014	EU SILC
Latvia	2012	81.2	89.9	2014	EU SILC
Malta	2011	80.8	76.2	2014	EU SILC
Czech Republic	2012	80.4	76.5	2014	EU SILC
Iceland	2011	77.9	74.0	2014	EU SILC
Slovenia	2011	77.5	75.6	2014	EU SILC
Greece	2011	75.9	72.1	2014	EU SILC
Portugal	2011	75.0	73.9	2014	EU SILC
Finland	2012	73.9	66.4	2014	EU SILC
Cyprus	2011	73.8	65.4	2014	EU SILC
Italy	2011	72.9	71.8	2014	EU SILC
Belgium	2011	71.8	66.1	2014	EU SILC
Mexico	2011	71.1	71.7	2014	ENIGH
Ireland	2011	70.2	69.4	2014	EU SILC
Sweden	2011	69.7	62.1	2014	EU SILC
Canada	2006	69.0	69.3	2011	SLID
Chile	2006	69.0	64.6	2013	CASEN
Australia	2010	68.8	62.9	2014	HILDA
Israel	2008	68.8	n.a.	n.a	n.a
Luxembourg	2011	68.2	69.0	2014	EU SILC
United Kingdom	2011	67.9	63.4	2014	EU SILC
Denmark	2011	67.1	53.9	2014	EU SILC
Netherlands	2011	67.1	56.5	2014	EU SILC
France	2011	63.1	61.4	2014	EU SILC
Japan	2010	60.0	n.a.	n.a	n.a
Turkey	2011	59.6	n.a.	n.a	n.a
Austria	2011	57.5	49.7	2014	EU SILC
South Korea	2005	57.3	53.6	2014	Korean Housing Survey
Germany	2011	53.4	45.0	2014	GSOEP
New Zealand	2006	53.2	n.a.	n.a	n.a
Switzerland	2011	43.8	39.8	2014	EU SILC

The homeownership data from the PEW Research Center is based on: Eurostat; US Census Bureau; Turkish Statistical Institute; Statistics Canada; Singapore Department of Statistics; Australien Bureau of Statistics; Statistics New Zealand; Housing Finance Information Network. The homeownership data from the OECD is mainly based on European Survey on Income and Living Conditions (EU SILC). ENIGH stands for Encuesta Nacional de Ingresos y Gastos de los Hogares, SLID stands for the Survey of Labour and Income Dynamics, GSOEP stands for the German Socioeconomic Panel, CASEN stands for Encuesta de Caracterizacion Socioeconomica Nacional, and HILDA stands for he Household, Income and Labour Dynamics Survey.
Despite some variations in the homeownership rates across these two different sources, the correlation coefficient equals 0.959, while the Spearman's rank correlation coefficient equals 0.960.

Table A1: Aggregate Homeownership Rates in %

	Homeownership Rates				
	1970	1990	2004	2009	2010
1970	1.00				
1990	0.90	1.00			
2004	0.92	0.98	1.00		
2009	0.93	0.95	0.98	1.00	
2010	0.95	0.95	0.97	0.98	1.00

Table A2: Cross-country correlations for selected year pairs

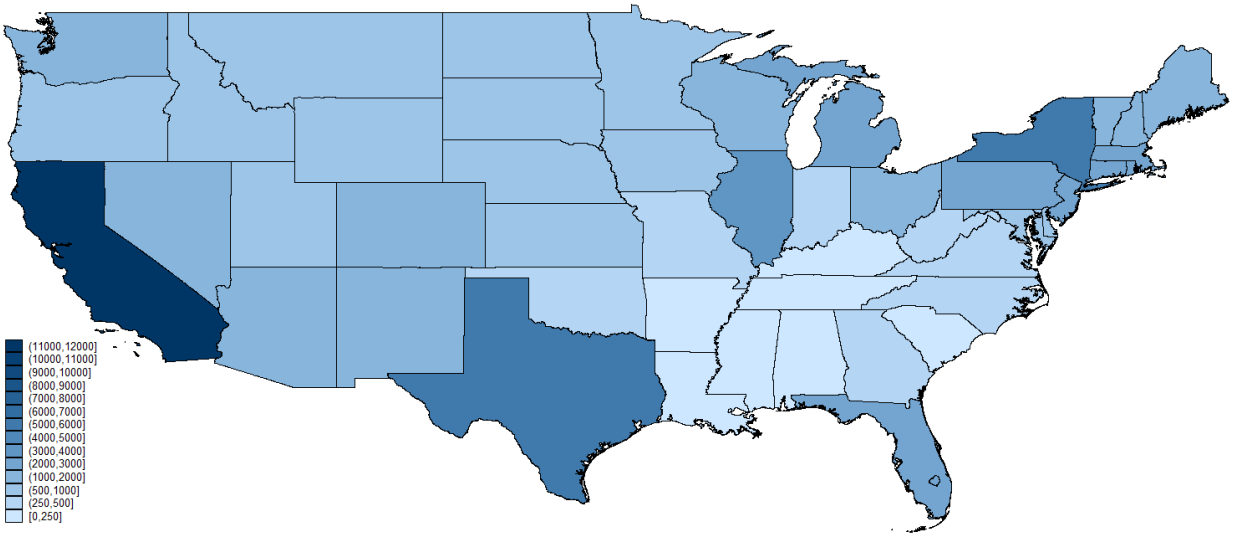


Figure A1: Distribution of second-generation immigrants across U.S. states

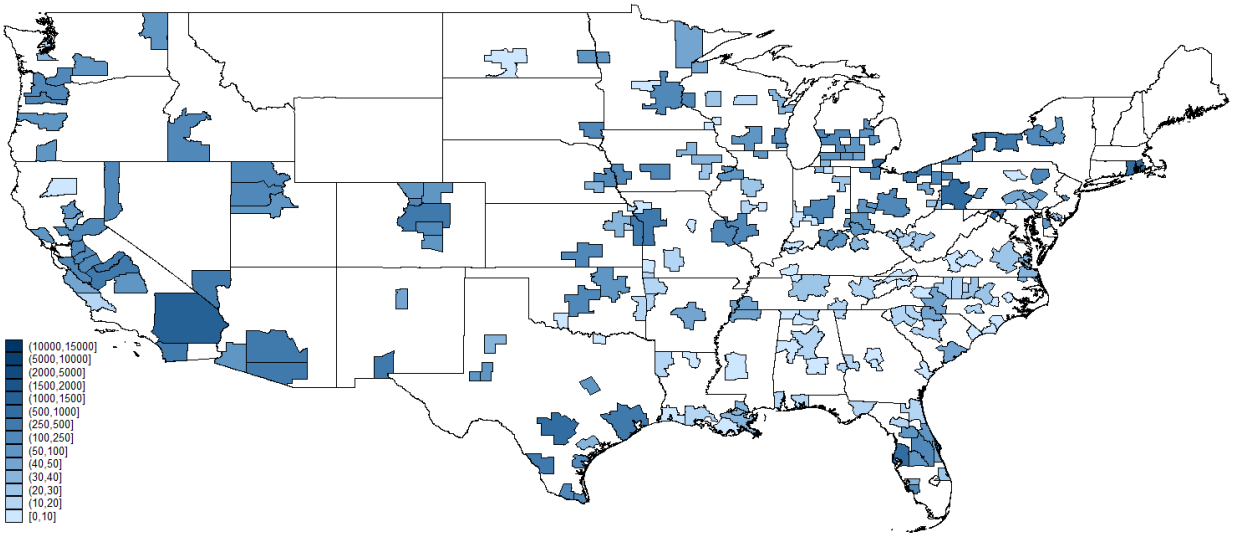


Figure A2: Distribution of second-generation immigrants across MSAs

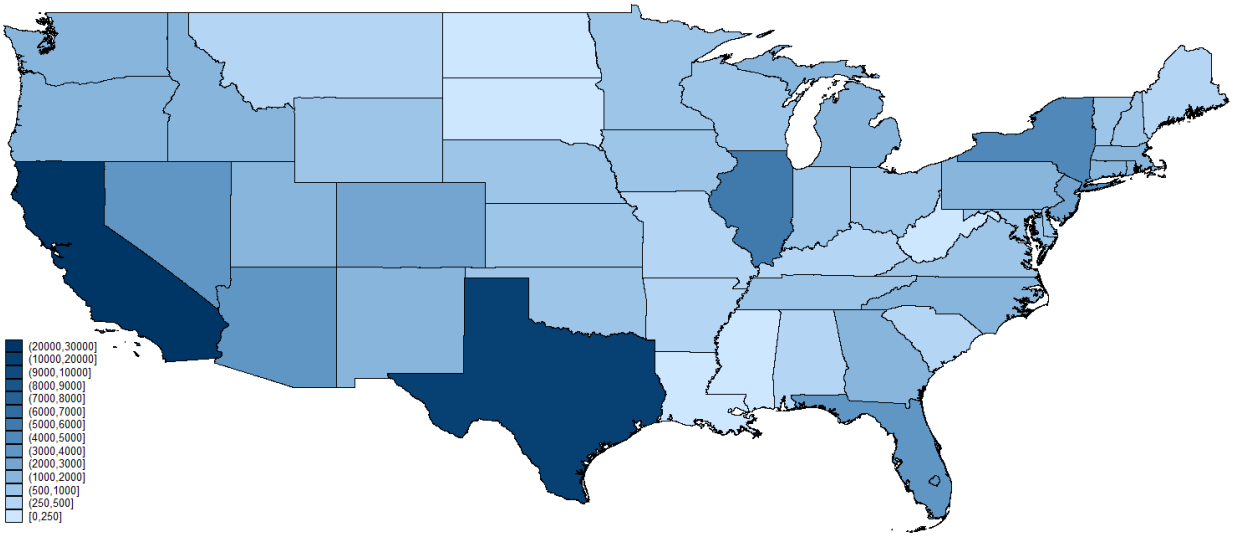


Figure A3: Distribution of first-generation immigrants across U.S. states

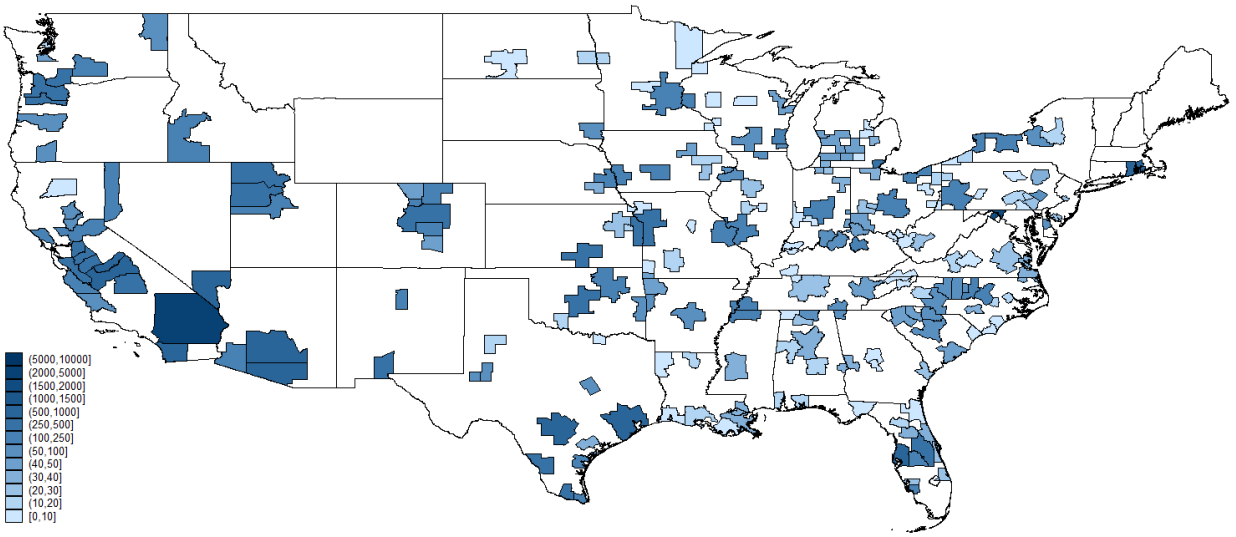


Figure A4: Distribution of first-generation immigrants across MSAs

Second-Generation Immigrants: Summary Statistics I															
Father's birthplace	Age	Male	Marital status	# of children	Employed	Un-employed	Not in labor force	Household income	Interest income	High school (or less)	College w/o degree	College degree	Nobs	HO_{im}	HO_{org}
Natives	48.8	0.53	0.53	0.87	0.66	0.03	0.31	64601	1586	0.42	0.18	0.38	1,271,469	70.19	66.2
Australia	57.2	0.5	0.44	0.48	0.49	0.03	0.47	80924	1839	0.26	0.25	0.48	118	67.8	68.8
Austria	69.7	0.47	0.41	0.26	0.3	0.01	0.69	53030	3401	0.5	0.15	0.35	1043	76.51	57.5
Belgium	62.2	0.53	0.57	0.52	0.42	0.03	0.56	64631	4064	0.48	0.18	0.34	221	75.57	71.8
Canada	58.7	0.54	0.53	0.59	0.51	0.03	0.47	61037	2185	0.45	0.18	0.37	6630	75.38	69.0
Chile	39.1	0.6	0.41	0.7	0.8	0.02	0.17	71505	1106	0.21	0.24	0.55	123	60.98	69.0
Croatia	58.3	0.55	0.53	0.64	0.61	0.01	0.38	99819	3508	0.28	0.13	0.59	101	83.17	92.1
Czech Republic	69.2	0.46	0.45	0.24	0.3	0.02	0.67	49406	3264	0.53	0.13	0.35	217	82.49	80.4
Denmark	69.1	0.53	0.47	0.26	0.33	0.02	0.65	55805	3350	0.45	0.21	0.34	485	78.76	67.1
England	60.1	0.53	0.5	0.5	0.46	0.02	0.51	61680	3000	0.39	0.19	0.42	2234	74.75	67.9
Finland	70.8	0.47	0.42	0.24	0.24	0.01	0.75	45199	2665	0.52	0.17	0.31	238	77.31	73.9
France	54.0	0.5	0.45	0.53	0.56	0.04	0.41	59767	2041	0.35	0.19	0.46	535	67.29	63.1
Germany	59.5	0.53	0.5	0.58	0.49	0.02	0.49	62760	2788	0.44	0.17	0.39	5307	74.47	53.4
Greece	55.4	0.52	0.48	0.62	0.54	0.02	0.44	75456	2460	0.33	0.2	0.47	1168	75.86	75.5
Hungary	63.8	0.49	0.47	0.46	0.39	0.02	0.59	63780	3511	0.48	0.16	0.36	1328	76.05	90.5
Ireland	62.0	0.53	0.49	0.56	0.45	0.02	0.53	66714	2833	0.37	0.18	0.46	2562	76.23	70.2
Isreal/Palestine	39.3	0.49	0.52	1.3	0.67	0.02	0.31	85815	1145	0.3	0.14	0.56	167	47.9	68.8
Italy	65.5	0.52	0.49	0.43	0.35	0.02	0.63	52741	2694	0.58	0.14	0.28	10835	78.26	72.9
Japan	69.4	0.54	0.48	0.36	0.26	0.01	0.73	59068	3647	0.5	0.14	0.36	2234	78.83	60.0
Latvia	55.8	0.48	0.57	0.66	0.59	0.01	0.4	84477	4267	0.12	0.17	0.71	145	85.52	81.2
Lithuania	68.4	0.43	0.41	0.35	0.3	0.01	0.69	55076	4344	0.46	0.17	0.38	550	76.36	92.3
Mexico	42.2	0.51	0.48	1.09	0.65	0.05	0.3	52474	610	0.58	0.21	0.21	19836	55.81	71.1
Netherlands	58.4	0.58	0.6	0.73	0.56	0.02	0.42	71048	1999	0.46	0.13	0.41	848	81.13	67.1
New Zealand	38.6	0.37	0.33	0.96	0.81	0.04	0.15	88651	5028	0.37	0.26	0.37	27	59.26	53.2
Norway	68.6	0.49	0.49	0.29	0.31	0.02	0.67	51324	3505	0.51	0.17	0.32	1128	78.46	84.0
Poland	68.1	0.49	0.44	0.35	0.32	0.01	0.67	53367	3246	0.53	0.14	0.32	4746	80.3	82.1
Portugal	53.1	0.47	0.48	0.66	0.52	0.04	0.44	56319	1680	0.54	0.16	0.3	948	65.72	75.0
Romania	65.3	0.5	0.51	0.4	0.39	0.01	0.59	69445	5207	0.36	0.2	0.44	371	76.55	96.6
Scotland	61.4	0.51	0.55	0.5	0.5	0.01	0.49	65973	2733	0.36	0.2	0.44	954	80.08	67.9
Slovakia	69.2	0.48	0.42	0.34	0.31	0.02	0.67	41448	2519	0.65	0.13	0.23	661	79.12	90.2
South Korea	35.5	0.58	0.32	0.42	0.63	0.04	0.32	77182	1917	0.2	0.19	0.61	228	47.81	57.3
Spain	55.5	0.55	0.48	0.55	0.53	0.03	0.45	67202	2122	0.38	0.19	0.44	691	68.74	82.7
Sweden	69.5	0.49	0.43	0.3	0.31	0.01	0.68	48603	3134	0.46	0.21	0.33	1080	78.89	69.7
Switzerland	64.3	0.47	0.45	0.31	0.4	0.03	0.58	58640	3137	0.4	0.23	0.37	326	80.37	43.8
Turkey	58.0	0.49	0.43	0.35	0.5	0.01	0.48	61919	3388	0.35	0.16	0.5	216	71.76	59.6
United Kingdom	52.6	0.51	0.49	0.61	0.54	0.05	0.4	71150	2148	0.29	0.16	0.55	347	67.72	67.9
Wales	70.6	0.44	0.33	0.17	0.28	0.00	0.72	66704	3684	0.39	0.56	0.06	18	55.56	67.9
Average	56.9	0.52	0.48	0.65	0.48	0.03	0.49	57046.80	2176.84	0.51	0.18	0.32	1907.39	70.49	70.83
Std. deviation	20.2	0.50	0.50	1.06	0.50	0.16	0.50	67680.23	8723.57	0.50	0.38	0.47	3736.86	9.47	11.90
Correlation w/ HO_{origin}	0.29	-0.03	0.24	-0.09	-0.23	-0.29	0.24	-0.05	0.21	0.16	-0.21	-0.02	-0.04	0.31	1.00

Number of observations: 68666. Male dummy: equal to one if male. Marital status dummy: equal to one if married and living with partner. Household income: total annual household income. Interest income (saving proxy 1): pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Rental income (saving proxy 2): pre-tax income received from rent (after expenses), from charges to roomers or boarders, and from money paid by estates, trusts, and royalties. HO_{im} denotes the aggregate homeownership rate of the corresponding second-generation immigrant group. HO_{origin} denotes the aggregate homeownership rate in the country of origin in 2011.

Table A3: Characteristics of second-generation immigrants in the baseline sample

First-Generation Immigrants: Summary Statistics II

Birthplace	Age	Male	Marital status	# of children	Employed	Un-employed	Not in labor force	Household income	Interest income	High school (or less)	College w/o degree	College degree	Nobs	HO_{im}	HO_{org}
Natives	48.8	0.53	0.53	0.87	0.66	0.03	0.31	64601	1586	0.42	0.18	0.38	1,271,469	70.19	66.2
Australia	45.9	0.54	0.61	0.92	0.73	0.04	0.24	114284	2776	0.21	0.15	0.64	346	62.14	68.8
Austria	62.7	0.5	0.48	0.41	0.45	0.02	0.53	66527	2469	0.35	0.15	0.5	345	76.52	57.5
Belgium	52.7	0.47	0.56	0.85	0.59	0.03	0.38	96346	2253	0.22	0.14	0.64	179	75.98	71.8
Canada	53.2	0.5	0.57	0.75	0.6	0.02	0.37	78324	2198	0.36	0.17	0.47	4063	73.2	69
Chile	46.7	0.6	0.62	0.9	0.71	0.04	0.26	62471	1369	0.33	0.14	0.54	762	48.03	69
Croatia	51.4	0.66	0.63	0.73	0.73	0.01	0.26	102836	2243	0.4	0.09	0.5	107	70.09	92.1
Czech Republic	50.8	0.62	0.55	0.86	0.65	0.01	0.35	71206	1139	0.37	0.08	0.55	178	65.17	80.40
Denmark	56.8	0.45	0.49	0.56	0.57	0.01	0.43	89123	2478	0.21	0.15	0.64	176	69.32	67.10
England	54.2	0.5	0.56	0.73	0.61	0.02	0.37	81638	2780	0.32	0.17	0.51	2907	74.48	67.90
Finland	54.4	0.37	0.45	0.59	0.55	0.03	0.43	82938	1405	0.29	0.12	0.59	119	67.23	73.90
France	51.4	0.47	0.5	0.68	0.66	0.01	0.33	82005	2374	0.25	0.13	0.62	886	62.64	63.1
Germany	58.5	0.43	0.51	0.49	0.5	0.02	0.48	63900	2694	0.36	0.16	0.48	3451	75.59	53.4
Greece	55.4	0.63	0.6	0.86	0.6	0.03	0.37	64078	2191	0.56	0.12	0.32	969	75.54	75.5
Hungary	57.9	0.57	0.62	0.64	0.49	0.04	0.47	65118	3073	0.36	0.14	0.51	618	71.68	90.5
Ireland	56.1	0.52	0.51	0.71	0.56	0.02	0.42	73413	2131	0.44	0.15	0.42	1134	68.08	70.2
Isreal/Palestine	41.1	0.68	0.65	1.49	0.76	0.03	0.21	87836	1259	0.33	0.1	0.57	389	55.27	68.8
Italy	59.2	0.58	0.6	0.75	0.5	0.02	0.48	63544	1987	0.61	0.1	0.29	3025	76.79	72.90
Japan	49.5	0.44	0.45	0.53	0.59	0.01	0.4	64114	1658	0.28	0.12	0.59	2194	47.54	60
Latvia	62.1	0.43	0.53	0.49	0.45	0.03	0.52	57293	1904	0.14	0.22	0.65	102	78.43	81.2
Lithuania	56.2	0.45	0.52	0.66	0.52	0.05	0.43	65211	1809	0.24	0.17	0.59	245	63.27	92.3
Mexico	41.4	0.59	0.63	1.66	0.69	0.06	0.25	41833	220	0.84	0.08	0.08	64461	45.27	71.10
Netherlands	55.5	0.61	0.64	0.69	0.65	0.01	0.34	94315	3304	0.26	0.18	0.56	586	78.84	67.10
New Zealand	44.9	0.47	0.67	1.09	0.78	0.02	0.21	108631	2276	0.2	0.14	0.66	116	59.48	53.2
Norway	62.7	0.49	0.47	0.53	0.38	0.02	0.6	66881	3855	0.33	0.19	0.48	235	74.89	84
Poland	52.9	0.52	0.59	0.75	0.61	0.03	0.35	64418	1926	0.42	0.16	0.41	2896	67.37	82.1
Portugal	51.1	0.58	0.67	1	0.63	0.04	0.33	61401	1340	0.74	0.09	0.16	1407	71.07	75
Romania	48.1	0.57	0.66	0.89	0.69	0.03	0.28	86672	2127	0.32	0.12	0.56	662	66.31	96.6
Scotland	57.6	0.47	0.53	0.64	0.52	0.03	0.46	72334	2367	0.38	0.21	0.41	659	69.95	67.90
Slovakia	56.5	0.45	0.52	0.63	0.51	0.01	0.47	56357	2068	0.43	0.11	0.46	237	71.73	90.2
South Korea	45.3	0.54	0.6	0.83	0.65	0.03	0.32	61138	856	0.31	0.12	0.56	2606	43.75	57.3
Spain	56.4	0.53	0.5	0.59	0.54	0.02	0.44	63826	1989	0.38	0.14	0.47	1261	62.49	82.7
Sweden	56	0.42	0.57	0.82	0.52	0.02	0.47	87999	2153	0.23	0.12	0.64	250	72	69.7
Switzerland	56.3	0.52	0.53	0.65	0.61	0.02	0.37	87788	5140	0.21	0.11	0.68	246	75.2	43.8
Turkey	47.4	0.66	0.6	0.87	0.64	0.04	0.33	74375	1261	0.34	0.1	0.55	615	49.11	59.6
United Kingdom	51.4	0.58	0.66	0.75	0.71	0.03	0.26	120317	2640	0.17	0.13	0.7	636	75.31	67.90
Wales	73.8	0.33	0.25	0.25	0.33	0	0.67	46196	4430	0.25	0.17	0.58	12	66.67	67.90
Average	53.71	0.52	0.56	0.76	0.59	0.03	0.39	75741.28	2226.17	0.35	0.14	0.52	271.23	66.84	71.71
Std. Deviation	6.48	0.08	0.08	0.26	0.10	0.01	0.11	18143.41	941.83	0.15	0.03	0.14	286.35	9.9	12.06
Correlation w/ HO_{origin}	0.11	0.14	0.11	-0.01	-0.14	0.16	0.11	-0.16	-0.18	0.19	0.01	-0.21	0.06	0.17	1

Number of observations:. We restricted this sample to those first-generation immigrants that emigrated from countries of origin that are included in our baseline sample. Male dummy: equal to one if male. Marital status dummy: equal to one if married and living with partner. Household income: total annual household income. Interest income (saving proxy 1): pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Rental income (saving proxy 2): pre-tax income received from rent (after expenses), from charges to roomers or boarders, and from money paid by estates, trusts, and royalties. HO_{im} denotes the aggregate homeownership rate of the corresponding first-generation immigrant group. HO_{origin} denotes the aggregate homeownership rate in the country of origin in 2011.

Table A4: Characteristics of first-generation immigrants

8.2 Additional Results

No.	Hypothesis tested	Z-value	Accept if	Accepted
1.	$H_1 : \beta^{single} > \beta^{married_{\neq}}$	1.43	$Z > 1.645$	no
2.	$H_2 : \beta_2^{married_{same}} > \beta_2^{married_{\neq}}$	2.14	$Z > 1.645$	yes
3.	$H_3 : \beta_2^{married_{same}} > \beta_2^{single}$	1.647	$Z > 1.645$	yes

$z = \frac{(\beta_1 - \beta_2)}{\sqrt{(s_1^2 + s_2^2)}}$, where s_i is the standard deviation of coefficient β_i. An one-sided Z-test with $\alpha = 0.05$, implies a z-score of 1.645.

Table A5: Z-tests: comparing coefficients across models

Aggregates

We compute aggregate homeownership rates H_{i_o} for all second-generation immigrants i with a father born in the country of origin o. Figure (2) plots the aggregate homeownership rates HO_{i_o} against our cultural proxy, i.e. the aggregate homeownership rates of the country of origin of the immigrant's father. The correlation is positive and equal to 0.32. Higher homeownership countries are associated with higher homeownership rates of their descendants living in the United States. We run a corresponding (and basic) OLS regression:

$$H_{i_o} = \beta_0 + \beta_1 HO_{origin} + \varepsilon_{io}$$

The results can be found in table (A6) in the appendix. Our proxy for cultural preferences towards homeownership is significant, positive and large. An increase in the homeownership rate in the country of origin of the immigrant's father o by one standard deviation (across countries) is associated with an increase of in the homeownership rate of the corresponding second-generation immigrant group in the United States by 3.35 percentage points, which is about 27.22% of the variation in the homeownership rate across immigrant groups within the United States. We take these results as additional evidence that cultural preferences for homeownership matter when it comes to the actual homeownership decision.

Dependent variable: Aggregate Homeownership Rate of second-generation immigrant groups H_{im}	
HO_{origin}	0.244*
	(0.126)
N	33
R^2	0.105
adj. R^2	0.076

Standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.

Table A6: OLS – Culture and Homeownership – Aggregates

Dependent Variable: Homeownership status of second-generation immigrant i										
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
HO_{org}	0.059**	0.069***	0.06***	0.067***	0.079***	0.084****	0.048**	0.053**	0.117***	0.065***
	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.022)	(0.023)
race categories		✓								✓
number of children			✓							✓
male				✓						✓
marital status					✓					✓
education categories						✓				✓
employment status							✓			✓
savings								✓		✓
income categories									✓	✓
metropolitan area	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	68666	68666	68666	68666	68666	68666	68666	68666	68666	68666
pseudo R^2	0.044	0.047	0.044	0.052	0.107	0.054	0.048	0.054	0.109	0.228

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01, **** p<0.001. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. HO_{origin} denotes the aggregate homeownership rate in the country of origin in 2011 and is $\in (0, 1)$.

Table A7: Further Insights: adding individual controls

9 Appendix B: Robustness Checks

Robustness Check 1: Alternative Estimation Method (OLS)

Robustness Check 1a: Baseline

We estimate the model in (3.1) with an OLS regression. The estimation results are shown in Table (B1) in the first column. The proxy for cultural preferences towards homeownership remains highly significant and the OLS estimates correspond to the marginal effects. An increase in the homeownership rate in the country of origin of the immigrant's father o by one standard deviation (across countries) is associated with an increase of in the homeownership rate of the corresponding second-generation immigrant group in the United States by 0.5 percentage points, which accounts for 5.1% of the variation in the homeownership rate across immigrant groups within the US.

Robustness Check 1b: Married Couples

The corresponding OLS results of Table (2) are shown in Table (B1). An increase in the homeownership rate in the country of origin of the immigrant's father o by one standard deviation (across countries) is associated with an increase of in the homeownership rate of the corresponding second-generation immigrant group in the United States by 2.1 percentage points, which accounts for 22% of the variation in the homeownership rate across immigrant groups within the United States.

Robustness Check 1c: Married Couples (2)

The corresponding OLS results of Table (3) are shown in Table (B2). An increase in the homeownership rate in the country of origin of the immigrant's father o by one standard deviation (across countries) is associated with an increase of in the homeownership rate of the corresponding second-generation immigrant group in the United States by 3.7 percentage points, which accounts for 39.21% of the variation in the homeownership rate across immigrant groups within the United States.

Robustness Check 2: Alternative Proxies for Cultural Preferences

Robustness Check 2a: OECD Homeownership measure

We estimate the model in (3.1) using the aggreagte homeownership rates provided by the OECD. The OECD calculations are mainly based on the European Survey on Income and Living Conditions (EU SILC). In comparison to the baseline mea-

sure, the OECD measure cover fewers countries of origin (Singapore, Israel, Japan, Turkey, New Zealand), and we, therefore, lose 15 percent of our baseline observations. The estimation results are shown in Table (B3) in column 4.

Robustness Check 2b: Dummy High Homeownership country (> mean)
We estimate the model in (3.1) with an alternative proxy for cultural preferences for homeownership. The alternative proxy is a dummy variable and equal to one if the homeownership rate in the country of origin is larger than 70.81% (mean value) and zero otherwise. The estimation results are shown in Table (B3) in column 2.

Robustness Check 2c: Dummy High Homeownership country (> median)
We estimate the model in (3.1) with an alternative proxy for cultural preferences for homeownership. The alternative proxy is a dummy variable and equal to one if the homeownership rate in the country of origin is larger than 71.10% (median value) and zero otherwise. The estimation results are shown in Table (B3) in column 3.

Robustness Check 2d: Dummy High Homeownership country (> 75th percentile)
We estimate the model in (3.1) with an alternative proxy for cultural preferences for homeownership. The alternative proxy is a dummy variable and equal to one if the homeownership rate in the country of origin is larger than 73% (75th percentile value) and zero otherwise. The results are shown in Table (B3) in column 4.

Robustness Checks 3-11: Varying Sample Sizes
Robustness Check 3: Larger Sample
We estimate (3.1) for all available countries in the sample. The sample includes five more countries of origin in comparison to our baseline sample (Bulgaria, Cyprus, Estonia, Iceland, and Singapore). In the baseline, we exclude these countries of origin, as each country has less than twenty observations. The estimation results are very similar. Table (B4) shows the regression results in column 1.

Robustness Check 4: Excluding countries < 100 *observations*
We estimate (3.1) for a smaller sample of countries. We exclude all countries of origin listed in Table (A1) that have less than 100 observations (Croatia). Table (B4) shows the results in column 2.

Robustness Check 5: Excluding countries < 200 *observations*
We estimate (3.1) for a smaller sample of countries, all countries of origin listed in Table (A1) that have less than 200 observations (Australia, Croatia, Chile, Israel, Palestine, New Zealand, and Latvia) are excluded. Table (B4), column 3.

Robustness Check 6: Excluding Mexico (country of origin with most observations)
We estimate (3.1) for a smaller sample of countries. We exclude the country of origin that has the largest number of observations, i.e., Mexico. We lose 29% of the baseline observations. Table (B5) shows the regression results in column 1.

Robustness Check 7: Excluding Mexico and Italy
We estimate (3.1) for a smaller sample of countries. We exclude the two countries of origin that have the largest number of observations, i.e., Mexico and Italy. We lose 45% of the baseline observations. Table (B5) shows the results in column 2.

Robustness Check 8: Excluding Outliers
We estimate (3.1) for a smaller sample of countries. We exclude all countries of origin from the baseline sample that cluster in the left bottom corner in Figure (1), we exclude Israel, Palestine, Mexico, South Korea, New Zealand. Table (B5) shows the regression results in column 3.

Robustness Check 9: Excluding "war countries"
We estimate (3.1) for a smaller sample of countries. We exclude all countries of origin listed in Table (A1) that have been affected by wars between 1945-1994 and which therefore might have encouraged systematically different types of emigrants (i.e., the parents of our subjects of study). We exclude Israel/Palestine, Croatia, and South Korea. Table (B6) shows the regression results in column 1.

Robustness Check 10: Excluding "dictatorship countries"
We estimate (3.1) for a smaller sample of countries. We exclude all countries of origin from the baseline sample that had a dictatorship at some point between 1945-1994 and which therefore might have encouraged systematically different types of emigrants (i.e., the parents of our subjects of study). We exclude Portugal, Spain,

and Greece. Refer to Table (B6) in column 2.

Robustness Check 11: Excluding Post-Soviet States
We estimate (3.1) for a smaller sample of countries. We exclude all countries of origin from the baseline sample that are post-Soviet states (Lithuania, Estonia, and Latvia), and which therefore might have encouraged systematically different types of emigrants (i.e., the parents of our subjects of study). Table (B6) shows the regression results in column 3.

Robustness Check 12-15: Varying Controls of Location of Residence

Robustness Check 12: Without metropolitan area and year dummies
We estimate (3.1) without F_m and F_t, the large sets of metropolitan area and time dummies. Table (B7) shows the regression results in column 1.

Robustness Check 13: Metropolitan area per year dummies
(instead of metropolitan area and year dummies)
We estimate (3.1) without F_m and F_t, the large sets of metropolitan area and time dummies. Instead, we include $MSA \times Year$, a set of metropolitan area per year dummies. Table (B7) shows the regression results in column 2.

Robustness Check 14: Metropolitan central city status per year dummies
We estimate (3.1) without F_m and F_t, the large sets of metropolitan area and time dummies. Instead, we include $MCC \times Year$, a set of metropolitan central city status per year dummies. For households within metropolitan areas, the metropolitan central city status specifies whether the household is located inside or outside the central city of the metropolitan area. Table (B7) shows the results in column 3.

Robustness Check 15: Housing Affordability across MSAs
We add to baseline specification a proxy for housing affordability. Including homeownership rates at the MSA level will capture differences in housing affordability across MSAs. Table (B7) shows the results in column 4.

Robustness Checks 16-18: Omitted Parental Income

Robustness Check 16: Parental Income Proxy 1

We add to the baseline the first parental income proxy, the "yearly average personal income of the group of first-generation immigrants that the parents of the second-generation immigrant i belong to". Table (B8), column 1.

Robustness Check 17: Parental Income Proxy 2

We add to the baseline the second parental income proxy, the "yearly average household income of the group of first-generation immigrants that the parents of the second-generation immigrant i belong to". Table (B8), column 2.

Robustness Check 18: Parental Income Proxy 3

We add to the baseline the third parental income proxy: real GDP per capita (PPP adjusted) prevailing in the country of origin. Data source: Penn World Tables. Table (B8), column 3.

Robustness Checks 19-22: Additional covariates at country-of-origin level

Robustness Check 19: GDP per capita (PPP)

We add to the baseline real GDP per capita (PPPs, in mil. 2011US$) prevailing in the country of origin. Data source: Penn World Tables. Table (B9), column 1.

Robustness Check 20: Years of education

We add to the baseline average years of schooling at the country-of-origin level. Data source: Penn World Tables. Table (B9), column 2.

Robustness Check 21: Average wage

We add to the baseline the average wage of employees prevailing in the country of origin. Data source: Penn World Tables. Table (B9), column 3.

Robustness Check 22: GDP, Education, Average wage

We add to the baseline real GDP per capita (PPP adjusted), average years of schooling, and the average wage of employees. Data source: Penn World Tables. Table (B9), column 4.

RC 23: Different Definition of second-generation immigrants

As common in the related literature, we define a second-generation immigrant as someone who was born in the United States and whose father was born abroad. In this specification, however, we define a second-generation immigrant as someone who was born in the United States and whose parents, either father or mother, were born abroad. Table (B10) shows the regression results.

Robustness Check 24: Varying Standard Errors

Robustness Check 24a: Clustered Standard Errors at the MSA level

Instead of using robust Huber-White sandwich standard errors, we estimate (3.1) with clustered standard errors at the metropolitan area level. Table (B11) shows the regression results in column 1.

Robustness Check 24b: Clustered Standard Errors at the country of origin level

Instead of using robust Eicker-Huber-White sandwich standard errors, we estimate all main regressions with clustered standard errors at the country-of-origin level. Table (B11) shows the regression results in columns 2-6. For the full sample of second-generation immigrant household heads (col. 2), and for the subset of singles (col. 3), the clustered standard errors are larger than the EHW standard errors, and hence the statistical significance of the cultural proxy decreases. In contrast, for the key subset of second-generation immigrant household heads that are married to a spouse with the same cultural background (col. 5), the statistical significance of the cultural proxy increases while the clustered standard errors are smaller than the EHW standard errors.

	Dependent Variable: Homeownership status of immigrant i			
	second-generation			
	all (baseline)	single	married $\neq$ background	married same background
	(1)	(2)	(3)	(4)
HO_{origin}	0.041**	0.077**	0.014	0.176**
	(0.018)	(0.030)	(0.022)	(0.086)
male	-0.011***	-0.028***	0.000	-0.006
	(0.003)	(0.005)	(0.005)	(0.010)
marital status	0.148***			
	(0.004)			
age	0.022***	0.020***	0.029***	0.027***
	(0.001)	(0.001)	(0.001)	(0.002)
age squared	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
number of children	0.007***	-0.008**	0.014***	0.014***
	(0.002)	(0.003)	(0.003)	(0.005)
savings	✓	✓	✓	✓
employment status	✓	✓	✓	✓
education categories	✓	✓	✓	✓
income categories	✓	✓	✓	✓
race categories	✓	✓	✓	✓
metropolitan area	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓
N	68666	35252	22958	8673
R^2	0.254	0.190	0.194	0.280
adj. R^2	0.249	0.180	0.182	0.259

* p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$.

Table B1: Robustness Check (1a) and (1b): OLS – Baseline and Married

	Dependent Variable: Homeownership status of immigrant i		
	second-generation		first-generation
	all (baseline)	married same background	married same background
	(1)	(2)	(3)
HO_{origin}	0.041**	0.176**	0.314***
	(0.018)	(0.086)	(0.051)
male	-0.011***	-0.006	0.001
	(0.003)	(0.010)	(0.006)
marital status	0.148***		
	(0.004)		
age	0.022***	0.027***	0.025***
	(0.001)	(0.002)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
number of children	0.007***	0.014***	0.017***
	(0.002)	(0.005)	(0.002)
savings	✓	✓	✓
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N	68666	8673	38843
R^2	0.254	0.280	0.245
adj. R^2	0.249	0.259	0.238

* p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. For first-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in 2011 of the country they emigrated from.

Table B2: Robustness Check (1c): OLS – Married (2)

Dependent Variable: Homeownership status of immigrant i	(1)	(2)	(3)	(4)
HO_{OECD}	0.053***			
	(0.020)			
$HO^{mean}_{high-low}$		0.012***		
		(0.004)		
$HO^{median}_{high-low}$			0.038***	
			(0.004)	
$HO^{p75}_{high-low}$				0.019***
				(0.005)
age	0.022***	0.022***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
male	-0.010**	-0.005	-0.005	-0.005
	(0.004)	(0.004)	(0.004)	(0.004)
marital status	0.177***	0.172***	0.172***	0.172***
	(0.005)	(0.004)	(0.004)	(0.004)
number of children	0.004	0.002	0.003	0.003
	(0.002)	(0.002)	(0.002)	(0.002)
savings	-0.000*	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓	✓
income categories	✓	✓	✓	✓
education categories	✓	✓	✓	✓
race categories	✓	✓	✓	✓
metropolitan area	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓
N	58354	68666	68666	68666
pseudo R^2	0.230	0.228	0.228	0.228

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. $HO^{mean}_{high-low}$ is equal to one if the homeownership rate in the country of origin in 2011 is larger than the mean value and zero otherwise. $HO^{median}_{high-low}$ is equal to one if the homeownership rate in the country of origin in 2011 is larger than the median value and zero otherwise. $HO^{p75}_{high-low}$ is equal to one if the homeownership rate in the country of origin in 2011 is larger than the 75th percentile value and zero otherwise.

Table B3: Robustness Checks (2a)-(2d): Alternative Proxies Cultural Preferences

Dependent Variable: Homeownership status of second-generation immigrant i			
	all countries of origin (no restrictions)	only countries of origin with >100 obs.	only countries of origin with >200 obs.
	(1)	(2)	(3)
HO_{origin}	0.062***	0.065***	0.059**
	(0.023)	(0.023)	(0.023)
age	0.022***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
male	-0.005	-0.005	-0.005
	(0.004)	(0.004)	(0.004)
marital status	0.172***	0.172***	0.172***
	(0.004)	(0.004)	(0.004)
number of children	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
savings	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N	68715	68639	68152
pseudo R^2	0.227	0.227	0.227

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy 1: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In the first column, we add five more countries of origin (Bulgaria, Cyrus, Estonia, Iceland, and Singapore), with each country having less than 20 observations. In the second column, we exclude all countries of origin that have less than 100 observations in the baseline sample (Croatia). In the third column, we exclude all countries of origin that have less than 200 observations in the baseline sample (Australia, Croatia, Chile, Latvia, Israel, Palestine, and New Zealand).

Table B4: Robustness Check (3)-(5): Varying Sample Size

Dependent Variable: Homeownership status of 2^{nd} generation immigrant i			
	Excluding Mexico	Excluding Mexico, Italy	Excluding ouliers
	(1)	(2)	(3)
HO_{origin}	0.058***	0.058***	0.058***
	(0.020)	(0.021)	(0.020)
age	0.023***	0.025***	0.023***
	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
male	-0.010**	-0.010**	-0.009**
	(0.004)	(0.005)	(0.004)
marital status	0.170***	0.175***	0.170***
	(0.005)	(0.005)	(0.005)
number of children	0.018***	0.015***	0.018***
	(0.003)	(0.003)	(0.003)
savings	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N	48737	37749	48484
pseudo R^2	0.205	0.214	0.204

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category.Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In the first column, we exclude the country of origin with the most observations, i.e. Mexico (29% of baseline observations). In the second column, we exclude the two countries of origin that have the largest number of observations, i.e. Mexico and Italy (45% of baseline observations). In the third column, we exclude all countries of origin from baseline sample that are outliers in Figure (2), (South Korea, Israel, Palestine, Mexico, and New Zealand).

Table B5: Robustness Check (6)-(8): Varying Sample Size 2

Dependent Variable: Homeownership status of second-generation immigrant i			
	no war countries	no dictator countries	no post-Soviet states
	(1)	(2)	(3)
HO_{origin}	0.057**	0.063***	0.067***
	(0.023)	(0.024)	(0.024)
age	0.022***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
male	-0.005	-0.005	-0.005
	(0.004)	(0.004)	(0.004)
marital status	0.172***	0.172***	0.172***
	(0.004)	(0.004)	(0.004)
number of children	0.002	0.002	0.002
	(0.002)	(0.002)	(0.002)
savings	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N	68386	65777	68013
pseudo R^2	0.227	0.229	0.228

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In the first column, we exclude all countries of origin that have been affected by wars between 1945-1994 (Isreal, Palestine, Croatia, and South Korea). In the second column, we exclude all countries that experienced a dictatorship during 1945-1994 (Portugal, Spain, and Greece). In the third column, we exclude countries of origin that are post-Soviet states (Lithuania, Estonia, and Latvia).

Table B6: Robustness Check (9)-(11): Varying Sample Size 3

Dependent Variable: Homeownership status of second-generation immigrant i				
	w/o MSA nor year dummies (1)	MSA×Year dummy (2)	MCC×Year dummy (3)	Baseline plus HO_{MSA} (4)
HO_{origin}	0.047**	0.064**	0.061***	0.086***
	(0.022)	(0.025)	(0.022)	(0.023)
male	-0.002	-0.002	-0.001	-0.004
	(0.004)	(0.004)	(0.004)	(0.004)
marital status	0.185***	0.183***	0.171***	0.173***
	(0.004)	(0.004)	(0.004)	(0.004)
age	0.023***	0.023***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***	-0.000****
	(0.000)	(0.000)	(0.000)	(0.000)
number of children	0.002	0.002	0.003	0.005**
	(0.002)	(0.002)	(0.002)	(0.002)
savings	0.000	0.000	0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓	✓
education categories	✓	✓	✓	✓
income categories	✓	✓	✓	✓
race categories	✓	✓	✓	✓
metropolitan area per year (MSA×Year)		✓		
metropolitan central city per year (MCC×Year)			✓	
HO_{MSA}				✓
year (dummy)				✓
N	68666	64524	71118	68666
pseudo R^2	0.196	0.249	0.21	0.215

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In the first column, we exclude the metropolitan area and year dummies. In the second column, we exclude the separate year and metropolitan area dummies, instead we include a large set of 4,339 year per metropolitan area dummies. In the third column, we exclude the separate year and metropolitan area dummies, instead we include a set of metropolitan central city status *per* year dummies. For households within metropolitan areas, metropolitan central city status specifies whether the housing unit is inside or outside the central city of the metropolitan area. In the fourth column, we add to the baseline specification a measure for housing affordability (HO_{MSA}), which is the homeownership rate at the metropolitan area, i.e. the fraction of household heads owning the dwelling they live in.

Table B7: Robustness Checks (12)-(15): Location of Residence

Dependent Variable: Homeownership status of second-generation immigrant i			
	Parental income Proxy 1 (1)	Parental income Proxy 2 (2)	Parental income Proxy 3 (3)
HO_{origin}	0.079***	0.081***	0.065**
	(0.024)	(0.024)	(0.028)
male	-0.005	-0.005	-0.009
	(0.004)	(0.004)	(0.004)
marital status	0.172***	0.172***	0.173***
	(0.004)	(0.004)	(0.004)
age	0.022***	0.021***	0.022***
	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)
number of children	0.003	0.003	0.004
	(0.002)	(0.002)	(0.002)
avg. household income (by year) of first-generation immigrant group	0.025***		
	(0.007)		
avg. personal income (by year) of first-generation immigrant group		0.027***	
		(0.006)	
real GDP in the country of origin (PPPs, in mil. 2011US$)			0.000105
			(0.00250)
savings	✓	✓	✓
employment status	✓	✓	✓
education categories	✓	✓	✓
income categories	✓	✓	✓
race categories	✓	✓	✓
metropolitan area	✓	✓	✓
year (dummy)	✓	✓	✓
N 68410	68422	60586	
pseudo R^2	0.227	0.228	0.229

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In column 1, we add the yearly average household income of the group of first-generation immigrants that the parents of the second-generation immigrant i belong to. In column 2, we add the yearly average personal income of the group of first-generation immigrants that the parents of the second-generation immigrant i belong to. In column 3, we add real GDP per capita (PPP adjusted) prevailing in the country of origin (proxy for relative living standards/income across countries).

Table B8: Robustness Checks (16)-(19): Omitted Parental Income

Dependent Variable: Homeownership status of second-generation immigrant i				
	GDP	Education	Wage	All
	(1)	(2)	(3)	(4)
HO_{origin}	0.065**	0.074***	0.055**	0.069**
	(0.028)	(0.025)	(0.025)	(0.030)
male	-0.009**	-0.009**	-0.009**	-0.009**
	(0.004)	(0.004)	(0.004)	(0.004)
marital status	0.173***	0.173***	0.173***	0.173***
	(0.004)	(0.004)	(0.004)	(0.004)
age	0.022***	0.022***	0.022***	0.022***
	(0.001)	(0.001)	(0.001)	(0.001)
age squared	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)
number of children	0.004*	0.004*	0.004**	0.004**
	(0.002)	(0.002)	(0.002)	(0.002)
real GDP (PPP)	-0.000			0.000
(in country of origin)	(0.002)			(0.003)
average years of schooling		0.001		0.002
(in country of origin)		(0.001)		(0.001)
average wage of employees			-0.066	-0.082*
(in country of origin)			(0.045)	(0.047)
savings	✓	✓	✓	✓
employment status	✓	✓	✓	✓
education categories	✓	✓	✓	✓
income categories	✓	✓	✓	✓
race categories	✓	✓	✓	✓
metropolitan area	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓
N	60586	60586	60227	60227
pseudo R^2	0.229	0.229	0.229	0.229

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: We include additional covariates at the country of origin level. In column 1, we add real GDP per capita (PPPs, in mil. 2011US$) prevailing in the country of origin. In column 2, we add average years of schooling. In column 3, we add the share of labor income in GDP, the average wage of employees. In column 4, we add real GDP per capita (PPP adjusted), average years of schooling, and the average wage of employees.

Table B9: Robustness Checks (20)-(23): Covariates at Country-of-Origin Level

Dependent Variable: Homeownership status of second-generation immigrant i		
	(1)	(2)
HO_{origin}	0.061***	0.081***
	(0.024)	(0.025)
[1em] male		-0.005
		(0.004)
marital status		0.172***
		(0.004)
age		0.022***
		(0.001)
age squared		-0.000***
		(0.000)
number of children		0.001
		(0.002)
savings		-0.000
		(0.000)
employment status		✓
education categories		✓
income categories		✓
race categories		✓
metropolitan area	✓	✓
year (dummy)	✓	✓
N	63612	63612
pseudo R^2	0.044	0.227

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: We define a second-generation immigrant as someone who was born in the United States and whose parents, either father or mother, were born abroad.

Table B10: RC 24: Different Definition of second-generation immigrant

Dependent Variable: Homeownership status of immigrant i						
	second-generation					first-generation
	all (baseline)	all (baseline)	single	married $\neq$ background	married same background	married same background
	(1)	(2)	(3)	(4)	(5)	(6)
HO_{origin}	0.065**	0.065*	0.092**	0.032	0.314***	0.430**
	(0.030)	(0.037)	(0.045)	(0.027)	(0.111)	(0.202)
male	-0.005	-0.005	-0.032***	0.004	0.001	0.003
	(0.006)	(0.005)	(0.007)	(0.004)	(0.007)	(0.009)
marital status	0.172***	0.172***				
	(0.006)	(0.017)				
age	0.022***	0.022***	0.022***	0.018***	0.023***	0.029***
	(0.001)	(0.003)	(0.005)	(0.001)	(0.003)	(0.002)
age squared	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***	-0.000***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
number of children	0.002	0.002	-0.007	0.009**	0.014**	0.021***
	(0.004)	(0.007)	(0.015)	(0.004)	(0.006)	(0.002)
savings	-0.000	-0.000	-0.000	-0.000	-0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
employment status	✓	✓	✓	✓	✓	✓
education categories	✓	✓	✓	✓	✓	✓
income deciles	✓	✓	✓	✓	✓	✓
saving proxies	✓	✓	✓	✓	✓	✓
race categories	✓	✓	✓	✓	✓	✓
metropolitan area	✓	✓	✓	✓	✓	✓
year (dummy)	✓	✓	✓	✓	✓	✓
N	68666	68666	35252	22958	8673	38843
pseudo R^2	0.228	0.228	0.152	0.219	0.262	0.201

Marginal effects. * p<0.1, ** p<0.05, *** p<0.01. Standard errors in parentheses. Dependent variable: equal to one if the second-generation immigrant is a homeowner, zero otherwise. Marital status dummy: equal to one if married and living with partner. Number of race categories: 21. Income measured in deciles, the first decile is the reference category. The education categories are: high school or less, college without degree, college +. The first category 'high school or less' is the reference category. The employment status categories are: unemployed, employed, not in labor force. 'Employed' is the reference category. Saving proxy: pre-tax income received from interest on saving accounts, certificates of deposit, money market funds, bonds, treasury notes, IRAs, and/or other investments which pay interest. Number of metropolitan area categories: 415. For second-generation immigrants, HO_{origin} denotes the aggregate homeownership rate in the country of origin of the second-generation immigrant's father in 2011 and is $\in (0, 1)$. Difference to baseline: In column 1, we use clustered standard errors at the metropolitan area of the second-generation immigrant's residence. In columns 2-6, we use clustered standard errors at the country-of-origin level of the second-generation or first-generation immigrant i. In the baseline specification we use robust Huber-White sandwich standard errors because the clusteres are very unbalanced, and second, the number of clusters is too small (33).

Table B11: Robustness Check (25): Clustered Standard Errors

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