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Abstract

This paper analyzes the home-ownership gap between native and immigrant households in Germany, paying particular attention to the assimilation process of immigrant households. A double cohort approach is applied to investigate the effect of the duration of residence in Germany on the home-ownership probability of immigrant households. Moreover, focusing on home-owners, differences in the housing quality between native and immigrant households are being examined. The estimates indicate that immigrant households are less likely to own their primary residence than comparable native households. Since the effect of the duration of residence in Germany on the home-ownership probability turns out to be insignificant, the empirical findings suggest that an assimilation process in home-ownership between native and immigrant households does not take place. Finally, differences in housing quality measures become insignificant after controlling for socioeconomic characteristics and contextual factors of native and immigrant households in an interacted model.

JEL Classification: F22, I31, R21

Keywords: Home-ownership, International Migration, Assimilation

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1 Introduction

The ability of immigrants to integrate successfully into the economic, social and political life of their host country depends largely on their economic performance. Starting with the seminal work of Chiswick (1978), numerous studies have investigated the assimilation process of the foreign-born population towards comparable natives. The majority of these studies focuses on the assimilation of labor market related outcomes, such as wages and employment, which do not necessarily reflect the long-term economic and social well-being of individuals.

In the context of home-ownership, only a few studies have generated empirical evidence for an assimilation process between immigrant and native households. Home-ownership, however, is an important measure of economic assimilation. In contrast to wages, home-ownership permits inferences about the long-term integration process of immigrant minorities, since it represents an outcome of long-term economic progress and plays a key role in providing long-term financial security. Moreover, housing does not only provide direct services to a family (Wolff 1998) but may also increase life satisfaction and improve physical and psychological health (Rohe, Zandt, and McCarthy 2001). Additionally, even after controlling for income, children of home-owners are more likely to attain higher education levels than children of renters (Green and White 1997). Myers and Lee (1996) identify home-ownership as one of the most important events in the integration process of immigrants.

So far, differences in the home-ownership probability between natives and ethnic minorities have been examined mainly for the US (Wachter and Megbolugbe 1992, Painter, Gabriel, and Myers 2001, Gabriel and Rosenthal 2005). However, in the context of home-ownership, empirical evidence on the assimilation process of immigrant minorities in Germany, the major immigrant country in the European Union, does not exist. This is unfortunate because the home-ownership gap between native and immigrant households and the assimilation process of immigrant households towards home-ownership levels of native households in Germany seem to differ substantially from the corresponding patterns in the US: Analyzing data from *US Censuses* and the *Current Population Survey*, Borjas (2002) finds that the home-

ownership gap between native-born and immigrant households in the US increased from 14.3 percentage points in 1990 to 19.8 percentage points in 2000. During the same period, the home-ownership gap between native and immigrant households in Germany declined from 26.0 to 17.4 percentage points, indicating a convergence in home-ownership rates between German-born and foreign-born households, which might be attributable to the duration of residence of immigrant households in Germany.

This paper aims at providing empirical evidence on the home-ownership gap between native and immigrant households using data from the German *Socio-Economic Panel* (SOEP) for West German households. In this endeavor, the relative importance of the determinants of home-ownership and differences in the home-ownership probability between different groups of migrants and natives are being examined, using home-ownership as a binary dependent variable in a cross-sectional analysis. Moreover, empirical evidence on the assimilation process of immigrant households in Germany is generated by investigating the effect of years of residence on home-ownership, applying the empirical framework of Myers and Lee (1996). Finally, in order to gain an understanding of disparities in the housing quality between native and immigrant home-owners, differences in the housing value and the imputed rent level are being analyzed.

The paper contributes to the existing migration literature in several respects. Firstly, empirical evidence on the economic integration of immigrants in Germany is generated using an indicator of well-being other than earnings and employment. The results derived from such an analysis are important for the design of long-term integration policies. Secondly, the analysis contributes to a better understanding of the factors which influence home-ownership decisions of immigrant and native households. Thirdly, tax benefits for home-owners in Germany might facilitate low-income households in owning their primary residence (Clark, Deurloo, and Dieleman 1997). For that reason, the law on tax benefits for home-owners, which was introduced in 1996, might have enabled a large number of immigrant families to acquire a house or apartment, resulting in a relatively strong residential assimilation between native and immigrant households after 1995. Therefore, even though the paper does

not provide empirical evidence on the policy effects of tax benefits, particular attention is paid to the effect of the duration of residence of immigrant households on home-ownership after 1995. Finally, the investigation of differences in the housing value per square meter and the imputed rent level allows inferences about the housing quality gap between native and immigrant home-owners.

The estimates of a binary Probit model reveal that immigrant households are less likely to own their primary residence than comparable native households, while differences in the home-ownership probability between immigrant households from different regions of origin are not significant. The results exhibit that the probability of immigrant households to own a house or apartment is about 25% lower than the corresponding probability of comparable German households. In addition, the estimates of the cohort model suggest that an assimilation process in home-ownership between native and immigrant households does not take place. Moreover, differences in the housing quality become insignificant after controlling for socioeconomic characteristics and contextual factors of native and immigrant households separately.

The paper proceeds as follows. Section 2 gives a survey of the existing literature on home-ownership of native and immigrant households. Section 3 describes the data used for the empirical analysis and explains the estimation strategy. The estimation results are presented in Section 4. Section 5 concludes.

2 Home-ownership, Assimilation and Housing Quality

2.1 The Home-ownership Gap

From a theoretical point of view, differences in housing demand are determined by different preferences, price levels and income constraints. Immigrants might have different preferences towards home-ownership because they intend to return to their country of origin. Moreover, differences in the wealth accumulation behavior might be responsible for differences in housing demand between native and immigrant households. Bauer and Sinning (2005) examine the savings behavior of temporary

and permanent migrants in Germany, using data from the SOEP. They demonstrate that a substantial part of the difference in the savings rate between native and immigrant households may be attributed to a different savings behavior.

Housing prices, which vary across different locations, may have strong effects on home-ownership probabilities. Coulson (1999), utilizing data from the *1996 Current Population Survey*, investigates home-ownership rates of Hispanic- and Asian-Americans. He exhibits that home-ownership rates are significantly lower for these groups than for comparable natives because they are located in areas where the cost of home-ownership is high. Borjas (2002) demonstrates that the residential location choice plays a decisive role for the home-ownership gap between U.S.-born and foreign-born households. In addition to the home-ownership gap between native and immigrant households, Borjas (2002) finds substantial differences in the housing tenure choice within the immigrant population. He shows that the national origin of immigrants represents an important factor of the propensity to own a house and argues that the changing nationality mix of the immigrant population has been a driving factor of the increasing differences in home-ownership between foreign-born and U.S.-born households. Using data from the *Public Use Microdata Sample*, Painter, Yang, and Yu (2003) derive similar results by comparing home-ownership rates of Asian-Americans and whites. They find a large variation in home-ownership rates across Asian groups and demonstrate that home-ownership disparities can be explained to a large extent by a higher mobility of Asian households and their concentration in metropolitan areas.

Due to self-selection and selective immigration policy, immigrants are neither representative for the population in the home nor for the population in the host country. For that reason, skill differences may be responsible for differences in the economic performance between immigrant and native households, impinging upon a number of socioeconomic characteristics such as income and the employment status. Particularly, human capital represents an important determinant of home-ownership. A variety of studies have provided empirical evidence for a positive effect of the level of education attained by the household head on home-ownership (Alba and Logan 1992, Krivo 1995, Coulson 1999). Moreover, in the context of economic

performance of immigrants in Germany, several empirical studies have examined the wage performance of immigrants (Dustmann 1993, Schmidt 1997).[1] These studies demonstrate that differences in labor market skills have a decisive influence on the wage gap between foreign-born and German-born workers.

Immigrants might face higher credit barriers than native-born individuals because of wage disparities, lack of collateral and increased flight risk.[2] Gabriel and Rosenthal (2005) analyze the determinants of the home-ownership propensity using data from the *1983 to 2001 Survey of Consumer Finance*. They examine the degree to which racial gaps can be explained by differences in household attributes and the influence of credit barriers. Gabriel and Rosenthal (2005) discover that changes in socio-demographic characteristics account for most of the increase in home-ownership in the 1990s, indicating that innovation in mortgage finance and declining interest rates were not the primary drivers of the rise in home-ownership during the 1990s.

Finally, in addition to economic factors, life cycle theory suggests that the probability of home-ownership increases with the age of the household head. However, a nonlinear relationship between the age and the probability of owning the primary residence might exist (Alba and Logan 1992, Painter, Gabriel, and Myers 2001). Immigrant households might be less likely to own their primary residence than otherwise similar German households, since household heads with migration background are on average younger than German households heads.[3]

2.2 The Assimilation Process

Empirical evidence on the assimilation process of home-ownership rates of immigrant households towards home-ownership rates of comparable native households in Germany does not exist. Clark, Deurloo, and Dieleman (1997) compare the process of moving to home-ownership of immigrant households in Germany and the US, utilizing data from the SOEP and the *Panel Study of Income Dynamics*. They

[1] Bauer, Dietz, Zimmermann, and Zwintz (2005) summarize the empirical evidence for Germany.

[2] In addition, Chiteji and Stafford (1999) argue that discrimination by financial institutions may partly explain why immigrants face higher credit barriers.

[3] Descriptive statistics are presented in Appendix-Table 2.

demonstrate that the marital status and the household composition as well as income and the number of earners represent decisive factors in the process of moving to home-ownership in both countries. Moreover, their results indicate that tax benefits in Germany enabled low-income families to move to home-ownership. However, Clark, Deurloo, and Dieleman (1997) do not examine differences between native and immigrant households.

Numerous studies have investigated the economic assimilation of immigrants, focusing on labor market related outcomes such as wages and employment status. In his work on earnings assimilation of immigrants, Borjas (1985) demonstrates that the cross-sectional estimate of the parameter of years since migration proposed by Chiswick (1978) implicitly assumes that the average socioeconomic characteristics of successive immigration cohorts are time-invariant. He shows that when comparing more established and recent immigrants in a cross-section regression the duration effect is exaggerated. However, the model proposed by Borjas (1985) is based on the assumption that an age profile observed at one point in time defines the future path of a cohort as it becomes older (Myers and Lee 1998). Since the age profile in Borjas' model is derived from the cross-sectional age, his model does not permit a variation of age profiles at different points in time. In the context of home-ownership, such an assumption implies, for example, that the average housing demand of *60*-year-olds in 1984 equals that of *60*-years-olds in 2004 (Myers, Megbolugbe, and Lee 1998).

Pitkin and Myers (1994) demonstrate that neglecting these profiles may lead to biased results in the context of housing demand, caused by differences in the productivity or the permanent income of different generations. Myers and Lee (1996) propose a *dual cohort analysis* of home-ownership rates which permits a comparison of age-adjusted immigrant cohorts in relation to natives who are at the same stage of the life cycle. Comparing the *1980 and 1990 Public Use Microdata Samples*, they estimate the change in home-ownership over time for immigrant and native households to interpret differences between the two groups as net of period change. Since aging and period effects are represented by changes over time for native households, differences between immigrant and native households of the same birth cohort may be interpreted as duration effects, net of period and aging effects.

2.3 Housing Quality

In addition to home-ownership, a few studies investigate differences in the housing quality and the subjective opinion of household members towards housing conditions. Utilizing data from the *1980 Census Public Use Microdata Samples*, Krivo (1995) analyzes home-ownership, living space and housing costs of Hispanic households in the US. He finds that Hispanic households have lower home-ownership rates and less living space than comparable native households, while the influence of immigrant characteristics on housing costs is weak.

Using data from the SOEP (1985-1998), Drever and Clark (2002) examine the housing conditions of immigrant households. They consider home-owners and renters to analyze the determinants of rent levels, housing types and different adequacy of space measures. They demonstrate that the housing conditions of immigrant households remain below the conditions of native households over the sample period. In addition, they find that immigrants are more likely to move into large apartment complexes which are geographically and socially isolated.

3 Empirical Strategy and Description of Data

In the empirical analysis of this paper, home-ownership disparities between native-born and foreign-born households in Germany are being investigated, utilizing data from the German *Socio-Economic Panel* (SOEP). The SOEP is a representative longitudinal survey including German and immigrant households which started in 1984. In 2004, about 22,000 persons in nearly 12,000 households were sampled. In this paper, data is retrieved from the waves 1984 to 2004.[4] Since less than two percent of the foreign-born population lives in East-Germany, the analysis focuses

[4]The data used in this paper was extracted from the SOEP Database provided by the DIW Berlin (http://www.diw.de/soep) using the Add-On package SOEP Menu v2.0 (Jul 2005) for Stata(R). SOEP Menu was written by Dr. John P. Haisken-DeNew (john@soepmenu.de). John P. Haisken-DeNew and Markus Hahn supplied the SOEP Menu Plugins used to ensure longitudinal consistency. The SOEP Menu generated DO file to retrieve the SOEP data used here and any SOEP Menu Plugins are available upon request. Any data or computational errors in this paper are my own. Haisken-DeNew (2005) describes SOEP Menu in detail.

on households residing in West-Germany. Immigrants are defined as foreign-born individuals who immigrated to Germany since 1948 (including foreign-born persons who received German citizenship after immigration). This definition does not comprise ethnic migrants (i.e. persons who possess German nationality since birth and immigrated to Germany) or the second generation of immigrants (mainly persons with foreign nationality who were born in Germany).

Figure 1 reports the home-ownership rates of foreign-born households who immigrated before and after 1973 and compares them to the home-ownership rates of the native-born population.[5] While home-ownership rates of native households are relatively stable over the sample period, the rates of immigrant households are increasing, indicating a convergence of foreign-born households towards the home-ownership rates of native households over time. However, although the home-ownership rate of more established immigrant households increases from 16.3% in 1984 to 34.5% in 2004, the home-ownership gap still amounts to 10.7 percentage points in 2004. Moreover, while more recent immigrant households were able to increase home-ownership between 1984 and 1995, their average home-ownership rate declined from 26.8% in 1995 to 24.1% in 2004.

The home-ownership rates of native and immigrant households by age group given in Figure 2 indicate that aging effects may have a substantial influence on the home-ownership probability, with older household heads being more likely to own their primary residence than younger household heads. Again, while the home-ownership rates of native households do not vary substantially over the sample period, an increase in home-ownership can be observed for immigrant households. Moreover, Figure 2 exhibits substantial differences in the home-ownership patterns between the sample periods before and after 1995. Particularly, while the home-ownership rate of immigrant household heads between 18 and 45 years rises from 12.4% to 25.3% between 1984 and 1995, it drops again to 20.7% in 2004. In contrast, the home-ownership rate of older immigrants rises moderately by 6.3% over the period 1984-1995 and increases from 25.3% in 1995 to 35.5% in 2004.

[5]The year 1973 constitutes a fundamental regime switch which was caused by the oil crises and the beginning of a recession in Germany. As a result of the economic changes, the recruitment of guest workers was restrained (Fertig and Schmidt 2001).

Both Figures 1 and 2 indicate substantial differences in the home-ownership rate of different immigration and age cohorts before and after 1995. A substantial part of these differences might be due to a change in the sample design. In 1994 and 1995, two additional sub-samples of immigrant households were appended to the sample of the SOEP (Frick and Haisken-DeNew 2005). In the empirical analysis, structural differences in home-ownership patterns before and after 1995 are taken into account by considering changes between 1984 and 1995 as well as between 1995 and 2004 separately. Since the law on tax benefits for home-owners was introduced in 1996, a comparison of these two periods might also permit inferences about the effect of tax benefits on the capacity of immigrant households to acquire their primary residence.

The home-ownership rates by age and period of immigration are presented in Table 1. Similar to Figure 1, the sample means in Table 1 denote that home-ownership rates have increased over the sample period for both natives and immigrants. Dividing the sample into household heads aged below and above 45 years reveals that home-ownership rates of immigrant and native households differ substantially between age groups, with older household heads having higher home-ownership rates than younger household heads. Moreover, comparing different migration cohorts, it turns out that more established immigrants seem to be more likely to own their primary residence than recent immigrants. In addition, dividing the sample of immigrant households into two age groups exhibits substantial differences between young and old household heads at different points in time. These results highlight the necessity to take into account both structural changes in the housing market and changes in the age profile of immigrant and native households over time while analyzing the effect of immigrants' duration of residence in the host country on the home-ownership probability. For that reason, particular attention will be paid to differences between age, period and duration effects in the empirical part of this paper.

3.1 Home-ownership Gap and Assimilation

To investigate the determinants of the home-ownership probability, a binary Probit model is estimated, using the ownership status as dependent variable. After

restricting the cross-sectional sample of 2004 to household heads and excluding all observations with missing values on one of the variables used in the analysis, the data set of the first model specification contains 3,685 home-owners and 4,029 renters. The following underlying relationship is assumed:

$$P(H_h) = \alpha_0 + M_h(\mathbf{C}_h\alpha_1 + \mathbf{D}_h\alpha_2 + \mathbf{X}_h\alpha_3) + \mathbf{X}_h\alpha_4 + \varepsilon_h, \quad h = 1, ..., N_{2004}, \quad (1)$$

where H_h is binary outcome variable for home-ownership. M_h represents a dummy-variable for immigrant households, $\mathbf{C}_h$ is a vector of country of origin dummies and $\mathbf{D}_h$ indicates the year of immigration of the respective immigration cohort. The vector α contains the parameters to be estimated. The error term ε is assumed to be distributed normal, $\varepsilon \sim N(0, \sigma_\varepsilon^2)$.

The explanatory variables $\mathbf{X}_h$ comprise socioeconomic, demographic and household composition characteristics as well as contextual factors.[6] Socioeconomic characteristics (education, employment status and income) represent individual-specific explanatory variables, which are usually utilized in empirical investigations on home-ownership (Coulson 1999). Moreover, indicator variables for different age levels are considered because the relationship between the age of the household head and the outcome variables might be nonlinear. In order to investigate possible effects of the household composition, the household size and indicator variables for the marital status are included in the regression equation. Finally, contextual factors control for regional disparities which might influence the housing demand. Since the SOEP does not include information about regional market prices of proprietary and since housing prices usually depend on the population density of the location, district size information are used as proxy variables for housing prices.

Equation (1) further includes year of immigration dummies, indicating whether the observed household immigrated between 1948 and 1973 or between 1974 and 1983. Native households and immigrant households who arrived after 1983 represent the reference group.

The estimates comprise different specifications which differ in the number of explanatory factors employed. Additionally, the migrant dummy is divided into several region of origin dummies in some cases. Four different specifications of

[6] Appendix-Table 1 contains a description of all variables.

equation (1) are estimated. Specification (1a) includes socioeconomic characteristics, region of origin dummies and immigration cohort dummies. In addition to the set of variables considered in specification (1a), specification (1b) also controls for district sizes. Specification (1c) is similar to specification (1b). However, instead of region of origin dummies, a single dummy variable for immigrant households is employed. Finally, specification (1d) includes the same set of explanatory variables as specification (1c) and interaction terms.

The empirical framework of Myers and Lee (1996) is applied to identify the effect of the duration of residence of immigrant households in Germany on the home-ownership probability. In contrast to Myers and Lee (1996), differences in the relative importance of the determinants of home-ownership between native and immigrant households are taken into account by including interaction terms between the control variables and a migrant dummy into the model. In the empirical investigation, differences in the home-ownership patterns before and after 1995 are taken into account by analyzing changes between the cross-sectional cohorts of the years 1984 and 1995 as well as 1995 and 2004. The following empirical model, which is based on a comparison of two cross-sectional samples, is estimated:

$$\begin{aligned} P(H_{ht}) &= \mu + \beta_0 T_{ht} + \widetilde{\mathbf{X}}_{ht}\beta_1 + \sum_j \beta_{2j} Y_{1hj} + \sum_j \beta_{3j} Y_{1hj} T_{ht} \\ &+ M_h \left[\widetilde{\mathbf{X}}_{ht}\gamma_1 + \sum_k \gamma_{2k} Y_{2hk} + \sum_k \gamma_{3k} Y_{2hk} T_{ht} + \sum_j \sum_k \gamma_{4jk} Y_{1hj} Y_{2hk} \right] + \eta_{ht}, \\ & t = 1, 2, \quad h = 1, ..., N_t, \end{aligned} \tag{2}$$

where T_{ht} is a year indicator of household h at time t, denoting structural differences between the decades. $\widetilde{\mathbf{X}}_{ht}$ represents nearly the same control vector of socioeconomic, demographic and household composition characteristics as defined in equation (1). In contrast to $\mathbf{X}_h$, the vector $\widetilde{\mathbf{X}}_{ht}$ does not contain indicator variables for different age levels. Instead, Y_{1hj} comprises birth cohort dummies of different age groups. The following age categories are used: $j = (40-54, 55-70)$ in 1984; with each birth cohort being eleven years older in 1995. Similarly, the age cohorts in the second sample period are $j = (40-54, 55-70)$ in 1995 and nine years older in 2004. In both periods, the reference group is defined as the cohort below 40 years. The parameter vector β_3 represents the effects of the interaction terms between year and

birth cohort dummies (aging effects). Immigration cohort dummies, which exhibit the period of immigration are included in Y_{2hk} with $k = (1948-1973, 1974-1983)$. γ_3 and γ_4 reflect the effects of immigration cohorts at different points in time (duration effects) and at different stages of their life cycle (age-at-arrival effects), respectively. To compare the two immigration cohorts to a reference group consisting of native households, the sample of foreign-born households is restricted to respondents who immigrated to Germany before 1984.

In the empirical analysis, three different specifications of equation (2) are estimated for each of the two samples. In specification (2a), control variables and interaction terms are not considered. Specification (2b) takes control variables (as defined by the vector $\widetilde{\mathbf{X}}$ in equation (2)) into account, while both control variables and interaction terms are included in specification (2c). While the pooled sample of the years 1984 and 1995 contains 7,963 household-year observations of 4,144 native and 1,214 immigrant households, the sample of the cohorts surveyed in 1995 and 2004 includes 10,373 household-year observations of 7,035 native and 1,092 immigrant households.

3.2 Housing Quality

To investigate differences in the housing quality between native and immigrant home-owners, gross and net housing values per square meter and imputed rent levels per square meter are being utilized as outcome measures of the housing quality. The analysis of the housing quality gap is restricted to the year 2002, because this is the only wave the SOEP contains information about housing values. Moreover, since gross housing values reported in the SOEP were surveyed separately for each individual within a household, housing values are aggregated to the household level. Net housing values are defined as the difference between gross housing values and the financial burden of the house.

Since housing values were self-assessed by each respondent, the outcome measures based on housing value information might be unreliable. For that reason, imputed rent levels were constructed to obtain an alternative housing quality measure which does not result from the subjective estimation of respondents. The calculation of

imputed rent levels is based on the opportunity-cost approach proposed by Frick and Grabka (2001, 2003). Particularly, a regression model of the gross rent actually paid by main tenants is estimated to assign imputed rent levels to otherwise comparable home-owners. The regression model contains indicator variables of living space, length of occupancy, district size, the year of construction of the building and household income levels. Finally, all relevant costs (operation costs, maintenance reserves and interest payments) are deducted from imputed gross rents.[7]

To identify differences in the housing quality between native and immigrant home-owners, linear regression models are being estimated. After restricting the sample to persons who own their primary residence and excluding all observations with missing values on one of the variables used in the analysis, the data set contains 2,785 observations of Germans and 229 observations of immigrant households. The following linear regression models are estimated for housing values per square meter and imputed rent levels per square meter, respectively:

$$\sinh^{-1} v_h = d_0 + M_h(d_1 + \mathbf{P}_h d_2) + \mathbf{P}_h d_3 + \vartheta_h, \quad h = 1, ..., N_{2002}, \tag{3}$$

$$\ln r_h = e_0 + M_h(e_1 + \mathbf{P}_h e_2) + \mathbf{P}_h e_3 + \xi_h, \quad h = 1, ..., N_{2002}, \tag{4}$$

where $\sinh^{-1} v_h$ is the inverse hyperbolic sine (IHS) transformation of the (gross or net) housing value per square meter of household h.[8] r_h represents the imputed rent level per square meter. d and e denote the parameters to be estimated; ϑ and ξ are the error terms of the two regression models. $\mathbf{P}$ contains socioeconomic characteristics (education, employment status and income), demographic characteristics (quadratic functions of age and migrants' years since migration and a gender dummy), household composition characteristics (marital status and household size) and contextual factors (district size dummies and indicator variables of the year the

[7] A value of 1.50 Euro per square meter was assumed for operation costs and maintenance reserves. See Frick and Grabka (2001) for a calculation of interest payments and further details.

[8] Due to the large number of households with zero gross housing values and zero or negative net housing values, the IHS transformation is employed to obtain a log-normally distributed dependent variable. The IHS transformation is given by $\sinh^{-1} v = \log(\theta v + (\theta^2 v^2 + 1)^{1/2})/\theta$, where θ is set to 1 in the following analysis. $\sinh^{-1} v$ approximates $\log(v)$ for positive values that are not too small and $-\log(v)$ for negative values that are small enough (Cobb-Clark and Hildebrand (2002)).

household moved into the dwelling, the year in which the house was built and the need of partial or major renovation).

A potential problem which arises when analyzing the housing values provided by the SOEP is a selection problem caused by reporting errors. Particularly, a substantial part of the observed households in the sample (13.4%) reports a housing value of zero. For that reason, a Heckman model is applied to control for selectivity bias, using reporting errors in the amount of monthly net income, I, as an instrument for reporting errors in the housing value. Income reporting errors may be considered as a valid instrument because they are expected to be strongly associated with reporting errors in the housing value. At the same time, it seems unlikely that a systematic relationship between income reporting errors and housing values exists. The Heckman model may be written as follows:

$$z_h^* = f_0 + M_h(f_1 + \mathbf{P}_h f_2) + \mathbf{P}_h f_3 + f_4 I_h + \tau_h = \mathbf{W}_h f + \tau_h, \tag{5}$$

$$v_h^* = g_0 + M_h(g_1 + \mathbf{P}_h g_2) + \mathbf{P}_h g_3 + \mu\hat{\lambda}_h + \omega_h, \tag{6}$$

$$z_h = 1 \text{ if } z_h^* > 0; 0 \text{ otherwise.} \tag{7}$$

$$\sinh^{-1} v_h = v_h^* z_h, \quad h = 1, ..., N_{2002}, \tag{8}$$

where v_h^* is a latent endogenous variable with observed counterpart v_h. z_h^* is a latent variable with associated indicator function z_h, reflecting whether v_h^* is positive. The error terms are assumed to follow a bivariate normal distribution with means 0, variances $\sigma_\tau = 1$, σ_ω and correlation coefficient ρ. In equation (5), the selection bias correction term $\mu\hat{\lambda}_h$ is added, where $\mu = \sigma_\omega\rho$ and $\hat{\lambda}_h$ is the estimate of the inverse Mills ratio $\phi(-\mathbf{W}_h f)/(1-\Phi(-\mathbf{W}_h f))$. ϕ and Φ denote the standard normal distributed and the cumulative normal distributed density function, respectively. In the following, two specifications with and without interaction terms (Specifications (3a) and (3b)) are estimated for the models defined by equations (3), (4) and (5)-(8), using gross and net housing values per square meter as dependent variables.

4 Empirical Results

This section reports the estimates from different specifications of the binary Probit models (1) and (2) as well as the OLS and Heckman models (3), (4) and (5)-(8).

Table 2 reports the marginal effects and its associated standard errors of four different model specifications of equation (1). To derive a marginal effect for categorical variables, a discrete change from 0 to 1 is considered.

The first specification of Table 2 includes socioeconomic, demographic and household composition characteristics as well as interaction terms of the region of origin and the immigration cohort of foreign-born households. In specification (1b), district size effects are taken into account additionally. Differences within the group of immigrants are considered in specifications (1c) and (1d) by including indicator variables for different source regions. The marginal effects of these indicators denote that immigrant households are significantly less likely to own their primary residence than comparable native households. Since the results of an adjusted Wald test reveal that the effects of the different source region indicators are not significantly different from each other, the factors are summarized to a single indicator variable for immigrant households in specifications (1c) and (1d).

In specification (1d) all explanatory variables are interacted with the immigrant dummy. While the marginal effect of the immigrant dummy in specification (1c) indicates that the home-ownership probability of immigrant households is 25.8% lower than that of comparable native households, this effect becomes insignificant after controlling for interaction terms of immigrant households, suggesting that the home-ownership gap may be explained by differences in the returns to observable factors between native and immigrant households.

Independent of the model specification, there is evidence for a positive relationship between the age of the household head and the home-ownership probability. However, the differences between the marginal effects of the cohorts between 55-64 years and above 65 years are relatively small and the oldest cohort comprises more age groups than younger age cohorts, suggesting that home-ownership probabilities are increasing at a declining rate. Additionally, the education level of the household head turns out to have a significantly positive effect on home-ownership, confirming the findings of the existing literature (Alba and Logan 1992, Krivo 1995, Coulson 1999). Particularly, the marginal effects in specifications (1b)-(1d) suggest that an additional year of education increases the home-ownership probability by 1.4%.

While the probability to own a house or apartment increases if the household head is married, single parent households are less likely to own their primary residence than single households without children. Surprisingly, the employment status of the household head does not affect the home-ownership probability, indicating that home-ownership might not be affected by changes in the employment status in the short run. Furthermore, the monthly gross income of the household turns out to be a strong predictor of home-ownership, indicating that households with relatively high income levels are more likely to own a house or apartment than low-income households. The marginal effect of the interaction term of household income in specification (1d) suggests that income seems to be relatively more important for the ownership decision of immigrant households. Moreover, household size effects differ significantly between native and immigrant households, denoting that relatively large immigrant households might not have the same ability to acquire their primary residence as comparable native households.

The estimates of the district size characteristics in specifications (1b)-(1d) reveal significantly negative effects of the population density of the location on the home-ownership probability, reflecting higher house prices in areas where the housing demand is high. Moreover, the significantly positive effects of the interaction terms of district sizes given in specification (1d) reveal that immigrant households residing in urban areas are more likely to own their primary residence than comparable native households. These effects are consistent with the findings of Coulson (1999) and Painter, Yang, and Yu (2003) who argue that the home-ownership gap between native and immigrant households is caused by the concentration of immigrant households in metropolitan areas.

The estimates presented in Table 2 are based on a sample which comprises inheritors and households who did not inherit their primary residence. Since 21.4% of the native and only 5.0% of the immigrant home-owners in the sample reported that they inherited their primary residence, alternative Probit regressions were estimated, restricting the sample to non-inheritors. However, the estimates resulting from this sample do not change the results qualitatively. For that reason, Table 2

includes only the estimates of the unrestricted sample.[9]

Table 3 contains the estimates of equation (2) for the years $t_1 = (1984, 1995)$ and $t_2 = (1995, 2004)$, respectively. In all cases, relatively old household heads have a significantly higher probability to own a house or apartment than the reference cohort. The marginal effects of the interaction terms between year indicators and the respective age cohorts reveal that aging effects are only significantly positive for household heads between 40 and 55 years in specifications (2b) and (2c) of the sample period 1995-2004, indicating that aging effects do not have a substantial influence on the home-ownership probability in most cases. Moreover, the estimates reveal a significant home-ownership gap between different immigration cohorts and natives. However, the marginal effects of the immigration cohort dummies differ substantially between the three specifications presented in Table 3, indicating the importance of controlling for both additional explanatory variables and interaction terms. The marginal effects of specification (2c) denote that the home-ownership probabilities of the immigration cohorts arriving before and after 1973 are about 30% lower than those of comparable native households.

The estimates of specification (2c) reveal that the duration of residence of immigrant households in Germany does not influence their home-ownership probability, indicating that a long-term economic assimilation between German-born and foreign-born households does not take place. Moreover, since duration effects are insignificant in the sample period after 1995, the results imply that the law on tax benefits for home-owners did not contribute significantly to the long-term economic assimilation of immigrant households between 1996 and 2004. Finally, the age-at arrival of immigrant household heads turn out to be a strong predictor of the home-ownership probability. In most cases, older household heads are less likely to own their primary residence than the reference group.

The estimates of gross and net housing values per square meter are given in Table 4. While the effect of the immigration status on the gross housing value per square meter of the OLS model is significantly positive at the 10%-level in specification (3a), it becomes insignificant after controlling for socioeconomic characteristics

[9]Estimates not presented in this paper are available from the author upon request.

and control variables of native and immigrant households separately. Moreover, the estimates of the selection model as well as the OLS estimates of net housing values reveal that differences in the housing value per square meter between native and immigrant households are insignificant, indicating that the housing conditions of immigrant households do not differ substantially from those of comparable native households. The estimates of the imputed rent level per square meter support these findings, indicating that the housing value per square meter represents a reliable outcome measure for the housing quality. Finally, the influence of the instrument variable on the probability of reporting positive housing values is highly significant in all cases, suggesting that the reporting error in the monthly amount of net income may be considered as a valid instrument for reporting errors in the housing value. To test the validity of the instrument, the effect of reporting errors in the monthly amount of net income on positive housing values was estimated in a separate regression model. The estimates demonstrate that income reporting errors have no significant effect on the housing value, supporting the validity assumption of the instrument.

5 Conclusions

This paper examines the economic performance of immigrant households in Germany using home-ownership as an indicator of long-term economic well-being. Empirical evidence on the home-ownership gap between native and immigrant households is generated by examining the determinants of the home-ownership status. In addition, a double cohort method is applied to investigate the extend to which the duration of residence in Germany affects the home-ownership probability of immigrant households. Finally, in order to gain an understanding of disparities in the housing quality between native and immigrant home-owners, differences in the housing value and the imputed rent level are being analyzed.

The estimates of a binary Probit model reveal that immigrant households are less likely to own their primary residence than comparable native households, while differences in the home-ownership probability between immigrant households from

different regions of origin are not significant. Moreover, the results exhibit that the probability of immigrant households to own a house or apartment is 25.8% lower than the corresponding probability of comparable German households. This effect becomes insignificant after controlling for interaction terms of immigrant households, suggesting that the home-ownership gap may be explained by differences in the model parameters between native and immigrant households. Additionally, the estimates of district size characteristics reveal significantly negative effects of the population density of the location on the home-ownership probability, reflecting a lower housing demand in areas where the cost of home-ownership is high. Moreover, the findings indicate that the home-ownership gap might partly be attributed to the concentration of immigrant households in metropolitan areas.

The results of the cohort model reveal that an assimilation process in home-ownership between native and immigrant households does not take place. Since the estimates of the sample period 1995-2004 provide no evidence for a long-run economic assimilation between native and immigrant households, the findings suggest that the law on tax benefits for home-owners introduced in 1996 did not contribute significantly to the long-term economic assimilation of immigrant households in Germany. Age-at arrival effects of immigrant households turn out to be strong predictors of the home-ownership probability. In most cases, older household heads are less likely to own their primary residence than the reference group.

The estimates of housing values and imputed rent levels exhibit that differences in the housing quality between native and immigrant households are not significant. The effects of the immigration status on the gross housing value and the imputed rent level are even significantly positive (at a 10%-significance level) if interaction terms of immigrant households are not considered. However, differences in both housing values and imputed rent levels become insignificant after controlling for socioeconomic and housing characteristics of native and immigrant households separately. Moreover, the estimates of the selection model reveal that housing value disparities are insignificant, even if interaction terms are not taken into account.

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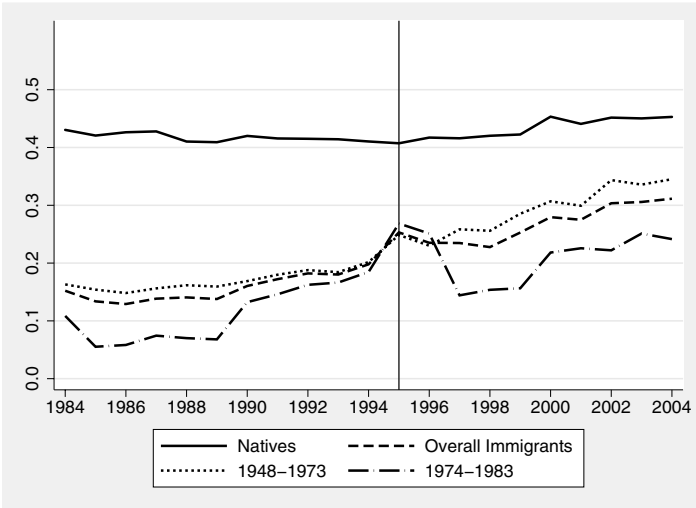

FIGURE 1: **Home-ownership Rates by Period of Immigration, 1984-2004**

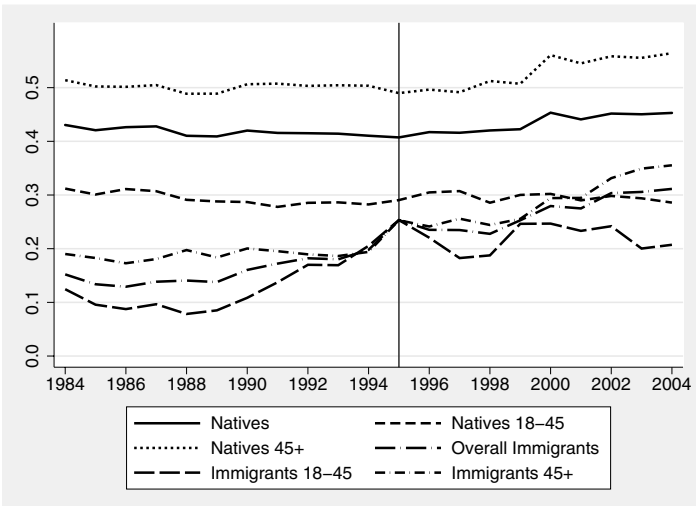

FIGURE 2: **Home-ownership Rates by Age, 1984-2004**

TABLE 1: **Home-ownership Rates by Age and Period of Immigration**

	All			**Age < 45 yrs.**			**Age ≥ 45 yrs.**		
	1984-90	**1991-97**	**1998-04**	**1984-90**	**1991-97**	**1998-04**	**1984-90**	**1991-97**	**1998-04**
Natives	0.420	0.414	0.442	0.286	0.283	0.285	0.502	0.499	0.542
	(0.004)	(0.004)	(0.003)	(0.005)	(0.006)	(0.005)	(0.005)	(0.006)	(0.004)
	[24024]	[27900]	[54319]	[10386]	[13472]	[23482]	[13638]	[14428]	[30837]
Immigrants	0.178	0.209	0.243	0.097	0.148	0.164	0.242	0.243	0.296
	(0.009)	(0.009)	(0.007)	(0.009)	(0.013)	(0.009)	(0.015)	(0.013)	(0.010)
	[7746]	[9049]	[10769]	[3889]	[4055]	[4814]	[3857]	[4994]	[5955]
Immigrants									
Period of									
Immigration									
1948 - 1963	0.258	0.343	0.400	0.221	0.563	0.570	0.267	0.318	0.388
	(0.018)	(0.024)	(0.029)	(0.035)	(0.069)	(0.135)	(0.021)	(0.025)	(0.029)
	[1885]	[1547]	[1068]	[329]	[176]	[62]	[1556]	[1371]	[1006]
1964 - 1973	0.096	0.138	0.263	0.091	0.139	0.256	0.103	0.138	0.264
	(0.009)	(0.009)	(0.014)	(0.011)	(0.014)	(0.026)	(0.016)	(0.011)	(0.016)
	[4620]	[4397]	[3346]	[2714]	[1684]	[936]	[1906]	[2713]	[2410]
1974 - 1983	0.083	0.190	0.209	0.055	0.159	0.169	0.137	0.246	0.268
	(0.014)	(0.025)	(0.015)	(0.015)	(0.029)	(0.019)	(0.028)	(0.048)	(0.026)
	[914]	[1336]	[1583]	[720]	[1102]	[1120]	[194]	[234]	[463]
1984 - 1990		0.069	0.184		0.064	0.175		0.078	0.196
		(0.010)	(0.012)		(0.011)	(0.014)		(0.022)	(0.021)
		[1109]	[2375]		[763]	[1463]		[346]	[912]
1991 - 1997			0.112			0.097			0.135
			(0.015)			(0.017)			(0.028)
			[1225]			[756]			[469]

Notes: Standard deviations in parenthesis. Number of observations in brackets.

TABLE 2: **Determinants of Home-ownership, Probit Estimates (2004)**

	Spec. (1a)		Spec. (1b)		Spec. (1c)		Spec. (1d)	
HOME-OWNERSHIP	**dF/dx**	**S.E.**	**dF/dx**	**S.E.**	**dF/dx**	**S.E.**	**dF/dx**	**S.E.**
Household-specific characteristics:								
Age 35-44	0.161***	0.033	0.176***	0.034	0.176***	0.034	0.194***	0.035
Age 45-54	0.287***	0.033	0.294***	0.034	0.294***	0.034	0.305***	0.034
Age 55-64	0.447***	0.029	0.467***	0.028	0.467***	0.029	0.502***	0.028
Age 65+	0.539***	0.029	0.556***	0.029	0.556***	0.029	0.567***	0.030
Education (Yrs.)	0.006	0.004	0.014***	0.004	0.014***	0.004	0.014***	0.004
Married	0.168***	0.023	0.157***	0.023	0.158***	0.023	0.153***	0.025
Single Parent Household	-0.122***	0.043	-0.111**	0.044	-0.111**	0.044	-0.138***	0.046
Employed	0.016	0.027	0.002	0.028	0.002	0.028	-0.010	0.031
Household Income$\times 10^3$	0.038***	0.005	0.040***	0.006	0.041***	0.006	0.036***	0.006
Household Size	0.086***	0.011	0.072***	0.011	0.072***	0.011	0.089***	0.012
District size:								
District Size I			-0.128***	0.028	-0.129***	0.028	-0.131***	0.030
District Size II			-0.163***	0.029	-0.164***	0.029	-0.173***	0.031
District Size III			-0.203***	0.030	-0.204***	0.030	-0.204***	0.032
District Size IV			-0.312***	0.023	-0.313***	0.023	-0.320***	0.024
District Size V			-0.363***	0.022	-0.363***	0.022	-0.377***	0.022
Immigrant					-0.258***	0.041	-0.224	0.169
Interaction terms:								
Immigrant $\times$								
Region of Origin: OECD	-0.208***	0.067	-0.223***	0.065				
Region of Origin: CEE	-0.283***	0.033	-0.270***	0.036				
Region of Origin: Turkey	-0.286***	0.067	-0.254***	0.073				
Region of Origin: Ex-Yugoslavia	-0.231**	0.104	-0.208	0.128				
Region of Origin: Other	-0.260***	0.039	-0.248***	0.041				
YOM $\leq$ 1973	0.093	0.120	0.150	0.131	0.163	0.115	0.215**	0.097
YOM 1974-1983	-0.004	0.087	0.033	0.092	0.048	0.068	0.100*	0.058
Age 35-44							-0.155*	0.094
Age 45-54							-0.148	0.092
Age 55-64							-0.317***	0.052
Age 65+							-0.211**	0.089
Education							0.008	0.010
Married							-0.105	0.074
Single Parent Household							0.040	0.137
Employed							0.049	0.078
Household Income$\times 10^3$							0.047***	0.017
Household Size							-0.065***	0.022
District Size I							0.107	0.112
District Size II							0.160	0.112
District Size III							0.071	0.123
District Size IV							0.188*	0.110
District Size V							0.293**	0.115
Pseudo R^2	0.1941		0.2397		0.3326		0.3417	
Wald-Statistic (χ^2)	800.16		954.78		1161.83		1358.06	

Notes: Number of observations: 7,714. * significant at 10%; ** significant at 5%; *** significant at 1%. Weighted estimation using weights provided by the SOEP.

TABLE 3: **Home-ownership Gap and Assimilation, Natives and Immigrants – Probit Estimates**

	1984-1995						1995-2004					
	Spec. (2a)		Spec. (2b)		Spec. (2c)		Spec. (2a)		Spec. (2b)		Spec. (2c)	
HOME-OWNERSHIP	dF/dx	S.E.	dF/dx	S.E.	dF/dx	S.E.	dF/dx	S.E.	dF/dx	S.E.	dF/dx	S.E.
Natives:												
Year = 1995	0.098***	0.020	0.090***	0.024	0.098***	0.024						
Year = 2004							0.096***	0.022	0.074***	0.025	0.077***	0.025
Birth Cohort												
30-44	0.364***	0.024	0.317***	0.028	0.320***	0.028	0.277***	0.029	0.209***	0.032	0.209***	0.032
45-64	0.319***	0.026	0.431***	0.029	0.451***	0.029	0.356***	0.028	0.411***	0.032	0.416***	0.032
Aging effect												
1995: 40-54 to 51-65	-0.112***	0.026	-0.010	0.033	-0.007	0.033						
1995: 55-70 to 66-81	-0.140***	0.027	-0.039	0.036	-0.043	0.036						
2004: 40-54 to 49-63							0.006	0.031	0.106***	0.037	0.110***	0.037
2004: 55-70 to 64-79							-0.082***	0.029	0.014	0.036	0.015	0.036
Immigration Cohort												
$>$ 1973	-0.194	0.132	-0.126	0.158	-0.333***	0.080	0.008	0.123	-0.023	0.133	-0.306***	0.113
$\leq$ 1973	-0.189***	0.048	-0.209***	0.053	-0.299**	0.118	-0.059	0.078	-0.048	0.068	-0.313***	0.108
Duration effect												
1995: $>$ 1973	0.185	0.164	0.112	0.198	0.143	0.159						
1995: $\leq$ 1973	0.123**	0.052	0.148**	0.071	0.063	0.052						
2004: $>$ 1973							-0.093	0.106	-0.153	0.105	-0.095	0.103
2004: $\leq$ 1973							0.072	0.050	0.031	0.051	-0.021	0.050
Age-at-arrival effect												
40-54, $>$ 1973	-0.348***	0.048	-0.353***	0.029	-0.317***	0.054	-0.290***	0.064	-0.275***	0.069	-0.292***	0.058
40-54, $\leq$ 1973	-0.175***	0.059	-0.110	0.080	-0.194***	0.048	-0.202***	0.067	-0.203***	0.062	-0.179***	0.062
55-70, $>$ 1973	0.069	0.258	-0.070	0.224	-0.206	0.140	-0.106	0.164	0.028	0.178	-0.118	0.136
55-70, $\leq$ 1973	-0.166**	0.077	-0.146*	0.087	-0.292***	0.051	-0.170**	0.081	-0.141	0.097	-0.160**	0.074
Control Variables	No		Yes		Yes		No		Yes		Yes	
Interaction Terms	No		No		Yes		No		No		Yes	
Pseudo R^2	0.0613		0.2257		0.2331		0.0669		0.2294		0.2351	
Wald-Statistic (χ^2)	342.31		792.13		864.70		394.22		1051.74		1122.98	
N	8073		8073		8073		10931		10931		10931	

Notes: See notes to Table 2. Standard errors are adjusted to take repeated observations of households into account.

TABLE 4: **Housing Quality Gap, OLS and Heckman Estimates (2002)**

	Spec. (3a)		Spec. (3b)	
	Coef.	**S.E.**	**Coef.**	**S.E.**
Gross Housing Value per Square Meter				
I. OLS				
Immigrant	1.0712*	0.5630	0.7989	2.9938
Socioeconomic characteristics and				
control variables	Yes		Yes	
Interaction terms	No		Yes	
R^2	0.046		0.054	
II. Heckman Selection Model				
Immigrant	-0.2270	0.1985	0.0098	0.9739
Participation Equation				
Income reporting error	0.7087***	0.1308	0.7086***	0.1309
Immigrant	-0.1376	0.8880	6.5163***	2.4231
Socioeconomic characteristics and				
control variables	Yes		Yes	
Interaction terms	No		Yes	
Wald-statistic (χ^2)	378.25		467.42	
ρ	0.013	0.081	0.033	0.048
σ	0.625***	0.046	0.623***	0.046
Net Housing Value per Square Meter				
I. OLS				
Immigrant	-0.7125	0.9071	-5.4690	4.3306
Socioeconomic characteristics and				
control variables	Yes		Yes	
Interaction terms	No		Yes	
R^2	0.068		0.076	
II. Heckman Selection Model				
Immigrant	-0.8466	0.8465	-1.4908	1.9179
Participation Equation				
Income reporting error	0.6909***	0.1306	0.6945***	0.1302
Immigrant	-0.6683	0.7346	0.0370	2.7176
Socioeconomic characteristics and				
control variables	Yes		Yes	
Interaction terms	No		Yes	
Wald-statistic (χ^2)	332.35		432.66	
ρ	0.055**	0.023	0.073***	0.024
σ	0.815***	0.061	0.806***	0.060
Imputed Rent per Square Meter				
OLS				
Immigrant	0.2482*	0.1307	0.6210	0.6800
Socioeconomic characteristics and				
control variables	Yes		Yes	
Interaction terms	No		Yes	
R^2	0.308		0.316	

Notes: See notes to Table 2. Number of observations: 3,014.

Appendix

TABLE A.1: **Definition of Variables**

Variable	Description
Owner of House	1 if respondent is owner of the dwelling he/she lives in; 0 otherwise.
Household Size	Number of persons in household.
Housing Value	Gross value of house, apartment in real 2000 Euro.
Burden	Financial burden of house, apartment in real 2000 Euro.
Net Value	Housing value - burden in real 2000 Euro.
Income reporting error	1 if respondent reports positive amount of monthly net income; 0 otherwise.
Imputed Rent	Predicted opportunity costs of ownership.
Immigrant	1 if respondent immigrated to Germany since 1948; 0 otherwise.
Age	Age of respondent in years.
Age 18-34	Age of respondent between 18 and 34 years (control category).
Age 35-44	Age of respondent between 35 and 44 years.
Age 45-54	Age of respondent between 45 and 54 years.
Age 55-64	Age of respondent between 55 and 64 years.
Age 65+	Age of respondent 65 years or older.
Education	Education of respondent in years.
Female	1 if respondent is female; 0 otherwise.
Married	1 if respondent is married; 0 otherwise.
Single Parent Household	1 if respondent is not married and number of children in household > 0; 0 otherwise.
Employed	1 if respondent is currently employed; 0 otherwise.
Household Income	Monthly household gross income (in real 2000 Euro).
District Size I	0/1-variable; $\geq 5,000 < 20,000$ inhabitants in the district of the household.
District Size II	0/1-variable; $\geq 20,000 < 50,000$ inhabitants in the district of the household.
District Size III	0/1-variable; $\geq 50,000 < 100,000$ inhabitants in the district of the household.
District Size IV	0/1-variable; $\geq 100,000 < 500,000$ inhabitants in the district of the household.
District Size V	0/1-variable; $\geq 500,000$ inhabitants in the district of the household.
District Size VI	0/1-variable; $<$ 5,000 inhabitants in the district of the household (control category).
Year House was Built	Year house was built ($<$ 1919, 1919-1948, 1949-1971, 1972-1980).
Partial Renovation	1 if partial renovation of domicile is necessary; 0 otherwise.
Major Renovation	1 if major renovation of domicile is necessary; 0 otherwise.
Occupancy: $<$ 5 years	Duration of residence in domicile: 1 if less than 5 years; 0 otherwise.
Occupancy: 5-12 years	Duration of residence in domicile: 1 if between 5 and 12 years: 0 otherwise.
YOM	Year of migration.
YSM	Years since migration.
Region of Origin: OECD	0/1-variable; member states of the OECD, Israel and Singapore; 0 otherwise.
Region of Origin: CEE	0/1-variable; Central and Eastern European (CEE) countries: Romania, Poland, Hungary, Bulgaria, Czech Republic, Ukraine, Belarus, Slovenia, Slovakia, Estonia, Latvia, Lithuania; 0 otherwise.
Region of Origin: Turkey	0/1-variable; country of origin: Turkey; 0 otherwise.
Region of Origin: Ex-Yugoslavia	0/1-variable; country of origin: Ex-Yugoslavia; 0 otherwise.
Country of Origin: Other	1 if other country of origin; 0 otherwise.
Year 1995	1 if year = 1995; 0 otherwise.
Year 2004	1 if year = 2004; 0 otherwise.
Birth cohorts in 1984:	
Age 18-39	0/1-variable; age of respondent in 1984 between 18 and 39 years (11 years older in 1995; control category).
Age 40-54	0/1-variable; age of respondent in 1984 between 40 and 54 years (11 years older in 1995).
Age 55-70	0/1-variable; age of respondent in 1984 between 55 and 70 years (11 years older in 1995).
Birth cohorts in 1995:	
Age 18-39	0/1-variable; age of respondent in 1995 between 18 and 39 years (9 years older in 2004; control category).
Age 40-54	0/1-variable; age of respondent in 1995 between 40 and 54 years (9 years older in 2004).
Age 55-70	0/1-variable; age of respondent in 1995 between 55 and 70 years (9 years older in 2004).
Immigration cohorts:	
pre-1974	1 if respondent immigrated to Germany before 1974; 0 otherwise.
1974-1983	1 if respondent immigrated to Germany between 1974 and 1983; 0 otherwise.
Aging effect	Birth cohort $\times$ Year.
Duration effect	Immigration cohort $\times$ Year.
Age-at-arrival effect	Birth cohort $\times$ Immigration cohort.

TABLE A.2: **Descriptive Statistics (2002)**

	Germans		Immigrants	
Variable	**Mean**	**Standard Deviation**	**Mean**	**Standard Deviation**
Overall sample				
Owner of House, Apartment	0.455	0.008	0.241	0.019
Household Size	2.055	0.018	2.821	0.072
Age	52.194	0.292	48.557	0.652
Education (Yrs.)	12.120	0.045	11.534	0.122
Female	0.417	0.008	0.296	0.021
Married	0.486	0.008	0.692	0.022
Single Parent Household	0.044	0.003	0.048	0.010
Employed	0.628	0.008	0.645	0.022
Household Income	2548.78	41.313	2313.91	97.230
District Size I	0.228	0.007	0.183	0.015
District Size II	0.169	0.006	0.193	0.017
District Size III	0.096	0.005	0.135	0.016
District Size IV	0.188	0.006	0.234	0.019
District Size V	0.192	0.007	0.206	0.020
Apt. in 3-4 Unit Building	0.124	0.005	0.142	0.015
Apt. in 5-8 Unit Building	0.205	0.007	0.315	0.020
Apt. in 9+ Unit Building	0.146	0.006	0.229	0.019
High Rise	0.013	0.002	0.025	0.007
Region of Origin: OECD			0.226	0.019
Region of Origin: CEE			0.246	0.019
Region of Origin: Turkey			0.192	0.017
Region of Origin: Ex-Yugoslavia			0.115	0.014
YOM $\leq$ 1973			0.356	0.021
YOM 1974-1983			0.175	0.017
YOM 1984+			0.469	0.022
N	8023		1201	
Sample of home-owners				
Gross Value of House, Apartment	310816.959	6188.120	301213.950	18440.140
Financial Burden of House, Apartment	47162.241	2329.980	78779.038	9211.453
Gross Value - Burden	263654.718	5976.479	222434.912	17361.423
Year House was Built: before 1919	0.136	0.009	0.155	0.033
Year House was Built: 1919-1948	0.106	0.007	0.091	0.028
Year House was Built: 1949-1971	0.297	0.012	0.331	0.051
Year House was Built: 1972-1980	0.186	0.011	0.114	0.026
Partial Renovation	0.189	0.011	0.219	0.036
Major Renovation	0.007	0.002	0.009	0.006
Occupancy: $<$ 5 years	0.158	0.011	0.273	0.039
Occupancy: 5-12 years	0.248	0.012	0.367	0.047
N	2785		229	