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Does the ethnic gap in homeownership vary by income? An analysis on Dutch survey data

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ABSTRACT

Lower levels of homeownership among immigrant populations have frequently been related to the particular financial constraints that immigrant households can face. Various problems have been raised with this explanation for the ethnic gap in homeownership rates. This paper responds to these criticisms by sensitizing the financial constraints explanation to the possibility of differential effects of ethnicity depending upon level of income. The hypothesis that the ethnic gap is stronger for lower income groups is tested through logistic analyses of the housing tenure of Turkish and Moroccan immigrants and a comparison group of native citizens in the Netherlands. High-income Turks are revealed to have comparable rates of homeownership to high-income natives, whereas in low-income groups a large ethnic gap exists. The ethnic gap in homeownership among low-income groups could not be explained by other financial constraints (education, couple's earning status, parental resources). Housing preferences and discrimination are possible explanations for this ethnic gap among low-income households.

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1. Introduction

Studies for the US and Europe consistently report that ethnic – and for the US racial – minority groups are less often homeowners than majority native born (Alba & Logan, 1992; Bianchi *et al.*, 1982; Constant *et al.*, 2009; Coulson & Dalton, 2010; Dawkins, 2005; Harrison & Phillips, 2003; Kain & Quigley, 1972; Krivo, 1986; Kullberg, 2011; Magnusson & Özüekren, 2002; Straszheim, 1975, Wilson, 1979; Zorlu *et al.*, 2014). The ethnic gap in homeownership can be large – for example, Moroccans in the Netherlands are 47 per cent points less often homeowners than native Dutch (Kullberg, 2011) –, and may have important consequences. It may strengthen already existing economic inequalities between immigrants and native born populations since homeowners profit in comparison to persons in private or social rented housing financially in the longer run due to wealth accumulation, lower payments for housing, and favorable tax treatment (Charles & Hurst, 2002). Panel analyses for the US report that homeownership is even the main driver of the increasing racial wealth gap over the life course (Shapiro *et al.*, 2013). The ethnic gap in homeownership may also strengthen

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ethnic differences in social well-being as homeowners enjoy greater social status (Saunders, 1990), improved neighborhood conditions (Rossi & Weber, 1996), and greater psychological and physiological well-being (Rohe and Stegman, 1994) than tenants.

Several explanations for the lower homeownership rates of immigrants and racial minority groups have been put forward, often in conjunction: greater financial constraints (Charles & Hurst, 2002; Coulson & Dalton, 2010; Mayer & Engelhardt, 1996), distinct demographic characteristics (a more unstable family structure; Charles & Hurst, 2002; Clark & Dieleman, 1996; Quigley & Weinberg, 1977), greater housing market constraints (more expensive and less attractive housing options; Coulson 1999; Dawkins, 2005; Struyk, 1976), ethnic discrimination in the housing and credit market (Aalbers, 2007; Leahy, 1985; Munnell *et al.*, 1996; Ross & Tootell, 2004; Yinger, 1986), and lower preferences for homeownership (Alba & Logan, 1992; Constant *et al.*, 2009). Although there exists variation in the relative strength of these explanatory factors (DeSilva & Elmelech, 2012), in general financial constraints appear to have the most consistent and powerful role in explaining immigrants' lower homeownership rates. This is because ethnic and racial minority groups consistently have fewer financial resources at their disposal than native born populations, and because financial resources have strong positive effects on homeownership. Yet, even with similar financial resources (or constraints), an ethnic gap in homeownership remains. This finding led researchers to conclude that financial constraints are an important but not sufficient explanation of the ethnic gap.

In this study, I would like to shed new light on the role of financial constraints in explaining the ethnic gap in homeownership by investigating whether there exists an interactive effect of ethnicity by income. The 'standard' approach in decomposing the ethnic gap is to assume that the determinants of this gap have the same influence across population groups. That is, it is assumed that the income effect is equal for immigrants and native born; or, in other words, that the ethnic gap in homeownership is as large for higher and lower income groups. However, it is questionable whether this assumption holds (cf. Alba & Logan, 1992). In particular, one may expect a smaller ethnic gap in higher than lower incomes (which is the same as saying that the income effect is greater for immigrants). One argument for this expectation is that mortgage lenders may risk losing money by not granting mortgage applications from high-income immigrant households; mortgage applications from low-income immigrant households, on the other hand, may be less often granted than those of low-income applicants from native households due to observed or perceived higher failure rates in mortgage payments. A few empirical studies – all for the US – seem to suggest such an interactive effect of ethnicity (or race) and income. Gyourko *et al.* (1999) and Herbert *et al.* (2015) show smaller racial differences in homeownership among higher incomes and more wealthy groups, and Wilson (1979), Krivo (1986), and Alba & Logan (1992) display a stronger income effect for racial and ethnic minority groups than for the native born. Yet, these studies have not tested the interactive effect of ethnicity by income (or wealth) explicitly. If we were indeed to find the interactive effect, this would be an important finding because it would nuance the persistently observed economic gap between ethnic minority groups and native populations (for higher income groups, there may be less of an ethnic gap in wealth), as well as the financial constraint explanation (financial constraints may after all explain the ethnic homeownership gap in higher incomes).

Next to testing for an interactive effect of ethnicity and income on homeownership, I assess empirically why – if at all – an ethnic gap in homeownership would be larger among

lower than higher incomes. I analyze per income group to what extent housing market constraints (degree of urbanization) and additional income-related constraints (respondent's education, couple's earning status, parental resources) can account for the ethnic gap in homeownership. The analyses are based on nationally representative survey data for the Netherlands, including native born Dutch persons and oversamples of two major non-western immigrant groups in the Netherlands, Turks, and Moroccans. These immigrant groups have originally migrated to the Netherlands – from the 1960s on – as lowly educated ‘guest workers’ and are after a history of family re-unification and formation the largest (each about 350,000 persons), and on average economically worse off immigrant groups in the Netherlands (Kullberg, 2011).

The findings of this study for the Netherlands on the interactive effect of ethnicity and income may be exemplary for countries with similar policies of promoting homeownership. In the Netherlands during the 1980s, it became clear that the relatively large social housing sector was too costly. Mortgaged homeownership was therefore promoted, and this did not only occur through tax deduction of interest payments, but also through state protection of mortgage payments (institutionalized in the National Mortgage Guarantee system¹) and the absence of wealth transfer and down-payment requirements in financing homeownership. This all translated in comparatively high per capita mortgage debts in the Netherlands (Norris & Winston, 2012). In countries as the US and Ireland, a similar combination of favorable treatment of homeownership and income-based mortgage financing existed. Despite differences in other market characteristics (such as a comparatively large social housing sector in the Netherlands), these country similarities may have been responsible for “the striking regularities in the process of housing choice” that have been observed for the US and the Netherlands, among which a comparably strong effect of current household income on tenure (Clark & Dieleman, 1996, p. xxi). The Dutch housing market may therefore show a similar interactive effect of ethnicity and income on tenure as was implicated for the US (a smaller ethnic, respectively, racial gap in higher than lower incomes). In other, more conservative financing systems in which mortgaging requires additional wealth transfers, such as in Austria and Germany with its system of ‘Bausparen,’ the ethnic homeownership gap in higher incomes may be larger (high-income immigrants have accumulated and inherited less wealth than high-income native born) and an interactive effect of ethnicity and income may be less likely.

2. Theory and hypotheses

As stated above, there exist several explanations of the ethnic gap in homeownership: financial constraints, demographic differentials, housing market constraints, discrimination, and differential preferences. While these explanations have been confronted with each other when accounting for ethnic and racial gaps in homeownership (cf. DeSilva & Elmelech, 2012), the explanations cannot be used independently to derive hypotheses on the interactive effect of ethnicity and income. For example, why discrimination would make for a larger ethnic gap in lower than higher incomes cannot be understood without referring to the role of financial resources in housing tenure. Therefore, I choose to make use of a more general theory of housing tenure in which both preferences for housing, and (several types of) constraints play a role (Alba & Logan, 1992; Quigley & Weinberg, 1977; Straszheim, 1975).

The general logic of the presented theory of housing tenure is that of rational choosing actors who want to maximize profits and minimize losses. Prime actors with regard to housing tenure are tenants who may apply for a mortgage for an owned home and lenders who assess creditworthiness of the applicant and provide a mortgage or not. Other actors on the housing market may be real estate agents and private or corporate sellers of houses. However, as most houses are not owned outright in the Netherlands, lenders' role in assessing applicants' financial creditworthiness may be decisive.

I assume that given the long-run economic benefits of homeownership (lower future housing payments, wealth accumulation, and tax deduction of income), people have – at similar current housing costs – a preference for ownership over renting a dwelling (Heskin, 1983; Straszheim, 1975). Furthermore, given that homeownership needs to be financed and lenders evaluate applicant's creditworthiness by financial resources, I expect that the odds of homeownership will primarily be determined by these resources (or constraints). In particular, I expect that current household income has a strong, positive effect on the odds of homeownership (*Hypothesis 1*). Studies for the US have indeed observed that current household income is a relatively strong predictor of homeownership – stronger than wealth (Henderson & Ioannides, 1987) –, and also observed that it could account for the ethnic gap in homeownership more than other financial constraints such as wealth or stability of income (Charles & Hurst, 2002; Munnell *et al.*, 1996; Painter & Lee, 2009; Rossi & Weber, 1996). In the Netherlands, current income may also be a strong determinant of homeownership (cf. Clark & Dieleman, 1996). Until recently, the absence of down-payment requirements, the possibility to fully finance the house through a mortgage without using own wealth, the strong tax deduction of interest payments, and the National Mortgage Guarantee system stimulated potential buyers – all but the poorest part of the population – not to save for an own house, but to obtain a mortgage through current income. This shows by relatively large mortgage debts per capita and a high share of mortgaged homeownership (Norris & Winston, 2012).

Further, I expect that ethnic differences in homeownership will be smaller in higher income groups than in lower income groups (*Hypothesis 2*), which implies a negative interactive effect of immigrant status by income. An economic argument for a smaller ethnic gap in higher income groups may be that lenders do not face additional costs in granting mortgage applications of high-income immigrants. High-income applicants of any race and ethnic origin more easily meet minimum financial mortgage requirements than low-income applicants, and their high current income may serve as a signal of future creditworthiness.² High-income applicants are in addition a financially attractive party ('slam dunks') for lenders and banks because these parties can gain more from selling expensive mortgage products. Lenders would actually pay a 'tax' or 'premium' (Becker, 1957) if they avoid or discriminate ethnic minorities in a market where lenders cross-sell banking products to mortgage borrowers.

In contrast, in lower income groups ethnic differences in homeownership are presumably larger than in higher income groups (which is the same as H2). This can be expected for several reasons. A first reason is that if current income is not high enough to meet loan qualification criteria, lenders may assess additional financial factors for a loan application, such as household wealth, parental (wealth) transfers, and stability of income (job history and prospects) of the applicant(s) (Charles & Hurst, 2002). Since immigrants in lower income groups may 'score lower' on these additional financial factors than native born

in lower incomes (immigrants are less wealthy and less often have stable jobs than native born), immigrants in this group may be less often homeowners (Shapiro *et al.*, 2013). Empirically, I test this explanation by investigating the extent to which additional financial criteria (parental wealth, spouses' educations, and couple's earning status) can account for the ethnic gap in lower (and higher) income groups. I also add an indicator of a couple's financial problems. Although these financial problems may not always be observed by lenders, people experiencing such problems may self-select by not applying for a mortgage.³ Again, the 'lower score' of immigrants on this financial aspect (they are financially more often distressed than native born, for example because of remittances) may explain the ethnic gap in lower incomes.

A second reason for a relatively large ethnic gap in homeownership in lower incomes may be discrimination in the housing and credit market (Aalbers, 2007; Leahy, 1985; Munnell *et al.*, 1996; Ross & Tootell, 2004; Yinger, 1986). Next to direct financial criteria as income and wealth, lenders may use additional, indirect criteria in assessing financial creditworthiness of low-income applicants. One of these additional criteria may be race or ethnicity. The 'rational' is already stated: lenders may have to work harder and make additional costs to get mortgage applications of low-income immigrants funded. They may signal immigrant status as a future credit problem if immigrants fail or are perceived to fail mortgage payments relatively often (Tootell, 1996). This kind of discrimination is indirect, or statistical. Redlining, a practice by which mortgage officers were warned of payment problems in black areas in the US, may serve as an illustration. Lenders may also have blunt ethnic prejudices and discriminate directly. That is, even if immigrants do not fail pay mortgages payments disproportionately (and all else being equal), lenders may grant mortgage applicants of lower income immigrants less often than of lower income native born (Leahy, 1985). In the analyses, I cannot test the discrimination explanation empirically (a 'remaining' ethnic gap may be due to discrimination, but also to preferences or unobserved financial or housing constraints), yet the explanation becomes more likely as financial and housing conditions fail to account for the ethnic gap in homeownership. Note, however, that in the Netherlands – as in other countries – discrimination by race or ethnicity is not legal and mortgage lenders or real estate agents risk fines when discriminating. In addition, the Dutch housing market is strongly regulated, excluding discriminatory practices to a large extent (Boelhouwer & Hoekstra, 2009). Therefore, discrimination may be an important, yet not prime mechanism through which the ethnic gap in homeownership arises. Qualitative group interviews with Turkish and Moroccan renters and homeowners in the Netherlands suggests a low amount of ethnic discrimination as the interviewees hardly perceive discrimination on the housing and credit market (Kullberg *et al.*, 2009), yet other research does show ethnic discrimination in the Dutch housing market through redlining by ethnicity (Aalbers, 2007).

A third reason for a larger ethnic homeownership gap in lower than higher incomes may lie in housing market constraints (Coulson, 1999; Dawkins, 2005). Low-income immigrants in the Netherlands more often live – due to affordable social housing, employment opportunities, and ethnic enclaves – in urban areas than low-income native born (Zorlu *et al.*, 2014). Since owner-occupied housing prices are also higher in more urban areas, (low-income) immigrants may be less often homeowners than (low-income) native born. An argument against this housing constraint explanation is that tenants are free to acquire homeownership outside urban areas. Yet, most people – immigrants and native born alike – share a preference to live close to other members and to facilities of their community and

are locally oriented, which makes local housing prices a tenure constraint. In the analyses, I test the explanation by investigating the extent to which the degree of urbanization of one's place of residence can account for the ethnic gap in lower (and higher) income households.

A fourth and final reason for a relatively large ethnic gap in homeownership in lower incomes may be ethnically distinct preferences for long-term financial commitments, including homeownership (Alba & Logan, 1992; DeSilva & Elmelech, 2012). Although I assume that at equal costs people prefer homeownership over renting, some groups may prefer homeownership less than others. Socialization with homeownership is in this respect an important mechanism (Lersch & Luijkx, 2015). Turks and Moroccans in the Netherlands experience lower levels of parental homeownership than Surinamese immigrants, western immigrants and the native Dutch, and this may have lowered their homeownership aspirations (Zorlu *et al.*, 2014). A lower commitment by immigrants to the host country may also weaken preferences for homeownership (Constant *et al.*, 2009). This may hold stronger for low- than high-income immigrants, as high-income immigrants have self-selected by investing in a (permanent) living in the host country. As with the discrimination explanation, I cannot test the preference explanation directly because the data do not contain information on preferences for homeownership. Yet, the preference explanation becomes more likely if financial and housing conditions fail to account for the ethnic gap in homeownership.

The above hypotheses imply that homeownership rates of Turks and Moroccans are generally – aggregated over low- and high-income groups – lower than those of native Dutch. The above-outlined explanations can be used to argument this ethnic difference: (a) Turks and Moroccans generally have a lower current household income than native born Dutch, and also 'score lower' on additional financial indicators; (b) Turks and Moroccans may be discriminated on the housing market; (c) Turks and Moroccans more often live in urbanized areas than native born; (d) Turks and Moroccans may have lower preferences for homeownership. Thus, I expect – to express it in statistical terms – that there will exist a main effect of ethnicity on homeownership, showing lower odds of tenure for non-western immigrant groups than native born Dutch (*Hypothesis 3*). The in the data observed characteristics (financial resources and housing conditions) may account partly for this ethnic gap.

3. Data, measures, and method

3.1 Data

To test the hypotheses, I use data from the first wave of the Netherlands' Life Course Survey (NELLS; De Graaf *et al.*, 2010b). For the description of the data and sampling method, I rely on van Zantvliet *et al.* (2014, p. 4) and on De Graaf *et al.* (2010a). NELLS is a large-scale Dutch panel survey designed to provide insight into social cohesion, norms and values, and inequality. The survey contains large oversamples of Turks and Moroccans and a reference group of native Dutch. A two-stage stratified sampling method was used. In the first stage, 31 municipalities stratified by region and degree of urbanization were randomly selected. The four largest cities in the Netherlands were added to this selection to obtain a nationally representative sample of Turkish and Moroccan groups. In the second stage, individuals aged 15–45 years were randomly selected from the population registry based on their age and their own and parents' country of birth. In this stage, individuals of Turkish and Moroccan descent were oversampled. The respondent can be any person in the household,

not only the as main person considered household member as this introduces gender bias in migrant samples. The first wave was conducted between 2008 and 2011 and consisted of a face-to-face interview and a self-completion questionnaire. The overall response rate was 52 per cent (46 per cent for Moroccans, 50 per cent for Turks, and 56 per cent for others), which is comparable with previous (ethnic-based) surveys for the Netherlands. In total, 5312 respondents were interviewed, including some other non-Western and Western immigrants.

The strengths of the NELLS survey data are the large oversamples of immigrants and the extensive set of variables, including homeownership. Not many surveys like these are around. However, NELLS also has some weaknesses. The face-to-face questions were administered in Dutch, and this may, due to selective non-response (households with language issues less often participate), have overestimated homeownership among immigrant groups (assuming a negative effect of language issues on homeownership). In addition, direct measures of household wealth, parental wealth transfers, and financial support to non-household members are missing, which may be a limitation when explaining the ethnic gap in homeownership. However, these weaknesses are not likely to affect the major outcomes of this study. Language problems during interviews were in most instances solved by the help of household members and explicit refusals for interviewing because of language problems were limited (De Graaf *et al.*, 2010a). Also, test analyses did not show an effect of (the by interviewer assessed) language problems on immigrants' odds of homeownership. Further, I include indirect measures of parental transfers (parents on benefits) and financial support (financial problems) in the analyses (see below). These characteristics cannot account well for the ethnic gap in homeownership, and do not interact by immigrant status.

The sample of analysis consists of Turkish, Moroccan, and native Dutch couples. I focus on couples only – either cohabiting or married – because very few Turks and Moroccans buy a house when living single. I exclude respondents younger than 18 (age not available for the partner) and couples in which both partners are not employed. The latter group is infrequent in the data and homeownership rates among them are very low. A further restriction is that I analyze couples living independently from their parent(s). Although quite often people move from their parental home to owning a dwelling with another person, the survey does not contain income information for parents and thus not allows to compute a valid household income estimate for dependent persons. A final restriction is that I analyze ethnic homogenous couples only. Ethnically mixed couples (mostly native-immigrant couples) are infrequent in the data (12 per cent) and cannot meaningfully be distinguished as a separate 'ethnic group' in the analyses, and assigning them to a specific ethnic (homogenous) group is arbitrary.⁴ The above selections leave me with 2132 couples; 443 Moroccans, 471 Turks, and 1218 native Dutch. The data are weighted by ethnic group to the national sex-age-region-urbanization distribution.

3.2 Measures

The dependent variable *homeownership* is measured by the question whether one's current dwelling is owned (coded as 1) or rented (coded as 0). There is no information on the price of the owner-occupied dwelling, so my analyses refers to owning a dwelling of any price.

Ethnicity of the respondent and the partner is measured by the country of origin of the parent(s). I follow the official definition of Statistics Netherlands. If one of his or her parents is from Turkish or Moroccan origin, the respondent/partner belongs to the Turkish,

respectively, Moroccan ethnic group (there were no Turk-Moroccan parents). For native Dutch the requirement is that both parents are born in the Netherlands and this is irrespective of the person's own country of birth.

The income-related independent variables in the analyses are household income, respondent's education, partner's education, couple's earning status, parental resources, and financial problems.⁵ *Household income* is measured by the question what the net monthly income of the respondent and the partner in sum is (self-completion). There are 16 income categories: the upper cut-off points of the 16 categories are €150, €300, €500, €999, €1499, €1999, €2499, €2999, €3499, €3999, €4499, €4999, €5499, €5999, €6999, and €7000 or more. 12 per cent of the respondents answered with a 'don't know' or 'does not want to answer,' and this share of missing answers on income is about equal for the distinguished ethnic groups. The missing answers were recoded into a dummy variable indicating whether information on household income is missing. Analysis of homeownership by income indicates that the homeownership rate does not linearly increase with income, but in a stepwise fashion. Homeownership rates are around 20 per cent for the first five income categories (up to €1499), 46 per cent and 61 per cent for the sixth and seventh income category (up to €2499), and 80 per cent for the eighth to sixteenth category (€2500 and higher). With the exception of the middle category, homeownership rates are remarkably constant within the low and high-income categories. Since I want to split the analyses by income group, I decide to measure income with these three income groups (low, medium, high).⁶

Respondent's education and *partner's education* are measured by the highest completed level of education. Categories are from low to high: (1) 'less than primary school,' (2) 'primary school,' (3) 'secondary school, low vocational,' (4) 'secondary school, low general,' (5) 'tertiary, vocational,' (6) 'secondary school, high,' (7) 'tertiary, vocational high,' (8) 'tertiary, university.' Educations completed abroad distinguished only primary, secondary, and tertiary education and were assigned to the lowest corresponding category within the Dutch ranking. *Couple's earning status* is measured by the respondent's and partner's employment status and distinguishes dual earner couples (both work for pay for more than 30 h a week) from other couples (single earners and 'one-and-half' earners).⁷ *Parental resources* are measured by whether the respondent's parents' main source of income was from social benefits when the respondent was between age 12 and 14 (question not asked for partner). Social benefits include unemployment benefit, health or disability benefit, social assistance, and pensions. When respondents had parents whose main income source was from employment, enterprising, savings, or wealth, they scored a zero on this variable.⁸ *Financial problems* are measured by the question whether the respondent had experienced any of the following events in the past three months: (a) not being able to replace broken things, (b) had to borrow money for necessary expenditures, (c) late payment for rent/mortgage, or gas/water/light, or telephone bill, (d) creditor/bailiff at one's door. I do not use a fifth item in the list ('difficulty in making ends meet') since relatively many higher incomes report having so, and including this item raises the share of people with financial problems above known poverty thresholds. Since most respondents report – if any – just one of the four financial problems mentioned, I construct a dummy variable (having any of the four problems or not) instead of a count.

Urbanization is a measure for the local housing conditions, in specific the supply of housing in larger cities (more expensive owner-occupied housing, less family dwellings) and the overrepresentation of non-western immigrants in cities. It is measured as the level

Table 1. Descriptive statistics (means; standard deviations between brackets; $N = 2132$)

	Moroccans ($N = 443$)	Turks ($N = 471$)	Native Dutch ($N = 1218$)
Owning a house (0–1)	0.21	0.55	0.84
Age (18–49)	34.04 (5.94)	34.35 (6.29)	34.69 (6.59)
No. of children (1–5)	2.09 (1.28)	1.83 (1.03)	1.36 (1.18)
Income low (0–1)	0.25	0.18	0.04
Income medium (0–1)	0.39	0.38	0.23
Income high (0–1)	0.22	0.31	0.63
Income missing (0–1)	0.14	0.13	0.10
Education (1–8)	3.40 (2.17)	4.25 (1.99)	5.52 (1.65)
Education partner (1–8)	4.44 (1.96)	4.52 (1.83)	5.60 (1.54)
Dual earner (0–1)	0.16	0.25	0.35
Parents on benefits (0–1)	0.10	0.09	0.04
Financial troubles (0–1)	0.28	0.34	0.11
Urbanization (1–4)	3.35 (0.73)	3.43 (0.78)	2.19 (1.10)

Source: NELLS Wave 1; own computations on weighted analytical sample.

of urbanity of the place of one's dwelling and distinguishes the following categories: (1) rural area, (2) smaller cities, (3) cities, (4) four largest cities (treated as an interval variable).

Control variables in the analyses are the demographic variables *age* (of the respondent) and the *number of children*. Age of the partner is missing. The number of children refers to own children and stepchildren living in the household during the interview (topped off by five).

Table 1 lists descriptive statistics of the analytical sample by ethnic group. Differences in sample means between Turks and Moroccans on the one hand and native Dutch on the other hand, are statistically significant, except for age and scoring a missing value on household income.

3.3 Method

I use simple binary logistic regression models to analyze the odds of being a homeowner versus a renter. I report logits (log-odds ratios) as effect parameters, but also display average marginal effects (AME) for the central ethnicity variable. AME coefficients are unbiased estimates of the effect of a variable on the odds and allow for a comparison of effect sizes between models and between sub-samples. Logits are biased in this respect since a change in a parameter may occur even if a newly added parameter is unrelated to the original parameter. The reason for this is increased model variance (Mood, 2010). Logits are still valuable to report as they allow to compute odds (chance of homeownership divided by chance of renting) and the likelihood of homeownership for given values on independent variables in the model. All models are estimated in Stata 13 and use the ethnic-group specific sampling weight.⁹

4. Results

Figure 1 displays the homeownership rates by income and ethnic group. Three observations can be made. First, it stands out that within each income category – whether low, medium, or high – Turkish and Moroccan immigrants are less often homeowners than native born Dutch. This can also be seen in Table 1 where ethnic differences in homeownership rates are listed irrespective of income; while 84 per cent of the native Dutch owns a house, these shares

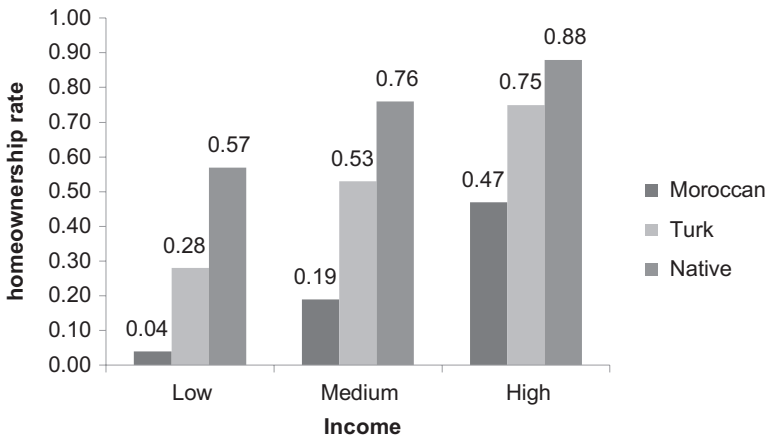


Figure 1. Share of homeowners by income and ethnic group (observed rates).

are 55 for Turks and 21 for Moroccans. The differences in sample means are large – native Dutch odds of being a homeowner are four times those of Moroccans – and statistically significant (F -test = 400.1, $df = 2$, $p < 0.01$), as was expected (H3). Such large ethnic differences have earlier been observed for the Netherlands (Kullberg, 2011; Kullberg *et al.*, 2009), and seem larger than racial and ethnic differences observed for the US. Coulson & Dalton (2010), for example, report a 20 percentage point difference in homeownership between whites and blacks and between whites and Hispanics in the US. An explanation for the relatively large ethnic homeownership gap in the Netherlands may be its more recent immigration history placing non-western immigrants at a lower financial position and greater cultural distance to the native Dutch population.

A second observation from Figure 1 is that there seems to be a large income effect on homeownership. For each ethnic group, homeownership rates increase substantially and statistical significantly with income (F -test whole sample = 221.1, $df = 2$, $p < 0.01$), which is in line with H1. Third, the figure displays the expected interactive effect of ethnicity and income on homeownership (H2). One can see that the income effect is larger (steeper rise in bars with income) for Moroccans and Turks than for native born. This unequal income effect results in a distinct ethnic gap per income group: the ethnic gap is smaller in higher income groups. In the high-income group, the difference in rates between Moroccans and native Dutch is 41 percentage points, and between Turks and native Dutch 13 percentage points; in the low-income group these numbers are, respectively, 53 and 29 percentage points. So, especially Turks in the high-income group own houses close to the native Dutch rate.

Table 2 reports logistic regressions of homeownership. These regression models test whether the suggested interactive effect of ethnicity and income is statistically significant and exists net of important background variables. In addition, the models test to what extent income and other financial-related and housing market factors can account for the ethnic gap in homeownership.

Model 1 reports that the earlier observed ethnic differences in homeownership exist net of age and the number of children. In fact, including the number of children increased the ethnic differences compared to a model not including this factor (latter model not shown here). This can be understood from the larger family size of Turkish and Moroccan

Table 2. Logistic regressions of homeownership: main effects for full sample (log-odds ratios; standard errors between brackets; average marginal effects in square brackets; $N = 2132$)

	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	0.013 (0.352)	-1.378** (0.408)	-2.445** (0.479)	-1.762** (0.500)	-1.306** (0.533)
Moroccan	-3.182** (0.158)	-2.849** (0.162)	-2.735** (0.166)	-2.310** (0.183)	-3.244** (0.366)
	[-0.643]	[-0.553]	[-0.517]	[-0.426]	
Turks	-1.583** (0.134)	-1.251** (0.144)	-1.040* (0.153)	-0.560** (0.174)	-1.294** (0.323)
	[-0.303]	[-0.222]	[-0.177]	[-0.091]	
Native Dutch	Ref.	Ref.	Ref.	Ref.	Ref.
Age	0.042** (0.011)	0.032** (0.011)	0.035** (0.011)	0.036** (0.011)	0.037** (0.012)
No. of children	0.184** (0.058)	0.286** (0.062)	0.337** (0.065)	0.312** (0.066)	0.331** (0.067)
Income low		Ref.	Ref.	Ref.	Ref.
Income medium		1.078** (0.199)	0.960** (0.205)	0.942** (0.212)	0.391 (0.318)
Income high		2.125** (0.204)	1.878** (0.223)	1.841** (0.228)	1.149** (0.311)
Income missing		1.278** (0.226)	1.100** (0.235)	1.056** (0.241)	0.973** (0.272)
Education			0.092* (0.036)	0.101** (0.036)	0.098** (0.036)
Education partner			0.131** (0.039)	0.153** (0.039)	0.156** (0.040)
Dual earner			-0.163 (0.160)	-0.119 (0.162)	-0.112 (0.160)
Parents on benefits			0.325 (0.244)	0.299 (0.242)	0.289 (0.247)
Financial problems			-0.503** (0.155)	-0.524** (0.157)	-0.539** (0.159)
Urbanization				-0.367** (0.067)	-0.353** (0.066)
Moroccan x income medium					0.833 (0.432)
Moroccan x income high					1.447** (0.424)
Turk x income medium					0.787** (0.385)
Turk x income high					0.993** (0.398)
Pseudo loglikelihood	-1060.1	-987.8	-964.6	-947.2	-939.5
Pseudo R^2	0.235	0.287	0.304	0.317	0.322

* $p < 0.05$, ** $p < 0.01$.

Source: NELLS Wave 1; own computations on weighted analytical sample.

households (cf. Table 1), and the positive effect of the number of children on homeownership (Table 2). Family size, thus, suppresses ethnic homeownership differences. Model 2 tests the effect of household income and the extent to which income can account for the ethnic gap in homeownership. As was expected (H1) and indicated by Figure 1, the effect of income is positive and significant. People with a medium net household income, from €1500 to €2499 a month, have a ((exp(1.08)=) 2.9 higher odds of being a homeowner than people with a low income (reference group), and people with a high net household income of €2500 and up, have a ((exp(2.13)=) 8.4 higher odds. People reporting a missing value on income (12 per cent of the sample) have a ((exp(1.28)=) 3.6 higher odds of being a homeowner than people with a low income, and thus own at a somewhat higher rate than the medium income group. The income effect is relatively large in size, which also supports H1: the AME coefficient for the high-income group (0.37) is lower in size than the effect of being Moroccan (AME is -0.55), yet larger in size than the effect of being Turk (AME is -0.22) and the for scale standardized AME coefficients for age and the number of children (coefficients not shown here). In addition, income is able to explain part of the ethnic gap in homeownership. Inclusion of income reduces the AME coefficient for Moroccans from -0.64 (Model 2) to -0.55 (Model 3), a reduction with 9 percentage points or 14 per cent relatively. For Turks, the reduction from -0.30 to -0.22 amounts to a reduction in effect size of 8 percentage points, or a 27 per cent relative reduction. Thus, a sizeable part of why immigrants own homes less often than native Dutch is due to income, especially for Turks. Yet, it is to be noted that the ethnicity effects remain significant, so that including (a main effect of) income is not sufficient to account for the ethnic gap.

Model 3 adds other income-related factors – partners' educations, couple's earning status, parents' benefit status, and financial problems – to further account for the ethnic gap in homeownership. Respondent's and partner's education both increase the odds of homeownership, and financial problems decrease the odds. Couple's earning status and parent's benefit status do not matter net of income, yet it has to be noted that dual earner couples do have a higher odds of homeownership than other couples (single earners and one-and-half earners) once income is omitted (result not shown in table). The ethnicity effects in Model 3 further reduce in size compared to Model 2, but the change is more modest than when including current income. For Moroccans the AME changes from -0.55 (Model 2) to -0.52 (Model 3), a 3 percentage points change, and for Turks from -0.22 to -0.18 , a 4 percentage points change. Therefore, the additional income-related factors account only to a small extent for the ethnic homeownership gap, and the gap remains statistically significant.

Model 4 of Table 2 adds urbanization as a measure of housing conditions. The degree of urbanization negatively affects the odds of homeownership, which may be an expression of the relatively expensive owner-occupied housing in urban areas. Including urbanization in the model reduces the ethnic gap quite substantially. For Moroccans the AME changes from -0.52 (Model 3) to -0.43 (Model 4), a 9 percentage points change or 17 per cent relative change, and for Turks from -0.18 to -0.09 , a 9 percentage points change or 50 per cent relative change. These changes indicate that compared to the other factors, urbanization has the greatest power in explaining the ethnic homeownership gap.¹⁰ Yet, even then the ethnic gap remains statistically significant and not fully accounted for. This indicates that other, non-observed financial or housing conditions, ethnic discrimination, or differential preferences may account for the ethnic gap as well.

Model 5 of Table 2 tests whether the earlier suggested interactive effect of ethnicity by income (cf. Figure 1) is statistically significant. The increased model fit and the model parameters display that the interaction effect is indeed significant. As predicted, ethnic differences in homeownership are larger in lower than higher incomes (H2). For the high-income group the effect of being a Moroccan ($-3.24 + 1.45 = -1.79$) or Turk ($-1.29 + 0.99 = -0.30$) is significantly less negative than for the reference group of low incomes (effect for Moroccans is -3.24 ; effect for Turks is -1.29). For the high-income group, the difference in homeownership between Turks and native Dutch proves even not significant when the same model is run using high incomes as the reference group. Noteworthy is that the estimated probabilities of homeownership by ethnicity and income (probabilities not shown here) have the same pattern as observed in Figure 1, which indicates that the observed pattern is not 'distorted' by including background variables. Additional analyses showed that the interactive of ethnicity and income was robust to modeling other 'ethnic interactions' (with income-related factors and urbanization), because these other interactions were not significant. This raises confidence that it is income that interacts with ethnicity and not another homeownership determinant.¹¹

The above interactive pattern raises the question why the ethnic gap in homeownership is larger in lower income couples. I theorized that this may be due to the fact that for lower incomes factors additional to current household income – other financial constraints (such as spouses' educations and parental wealth transfers), housing market constraints (urbanization), discrimination, and housing preferences – may be more important for homeownership than for higher incomes, and to the fact that low-income immigrants 'score lower' on these additional factors (more constraints and lower preferences) than low-income native Dutch. Table 3 reports logistic regressions of the tenure choice by income group to test this conjecture with respect to financial and housing market constraints. I choose to report for two income groups only – (a) low and medium income (termed: lower), and (b) high-income – because this simplifies analyses and because the above findings display that it is the high-income group that stands out with respect to the ethnic gap in homeownership. Model A1 and B1 estimate the ethnicity effects including control variables for the lower and high-income group, respectively. The model estimates again show that the ethnicity effect is larger within lower income groups (Model A1) than within high incomes (Model B1).

The next models, Model A2 and B2, add income-related factors (partners' educations, couple's earning status, parents on benefits, and financial problems). These factors account for the ethnic gap in lower incomes to only a small extent (for Moroccans 8 per cent, for Turks 20 per cent) and the proportion that is explained is not larger than for high incomes (for higher incomes, the numbers are 7 per cent for Moroccans and 27 per cent for Turks), which rejects the conjecture made above. The last models of Table 3, Model A3 and B3, add urbanization as an explanatory factor. This factor can account for the ethnic gap within the lower incomes relatively well, in particular for Turks. For lower income Turks the gap to lower income native born decreases by 45 per cent when including urbanization (cf. model A3–A2) and for lower income Moroccans 14 per cent. Yet, urbanization has an equally strong effect in accounting for the ethnic gap in high incomes; the reduction in the ethnicity effects for this group is 18 per cent for Moroccans and 45 per cent for Turks (cf. model B3–B2). Note that within the group of high incomes, Turks do not differ significantly from native born when income-related factors and urbanization are controlled for. That is, we are able to fully explain their homeownership gap to native born with these factors. Yet, for



Table 3. Logistic regressions of homeownership by income group (log-odds ratios; standard errors between brackets; average marginal effects in square brackets; $N = 1880$)^a

	Low and medium income ($N = 865$)						High income ($N = 1015$)		
	Model A1	Model A2	Model A3	Model B1	Model B2	Model B3	Model B1	Model B2	Model B3
Intercept	-0.299 (0.484)	-1.719** (0.628)	-0.918 (0.677)	-0.317 (0.634)	-1.232 (0.801)	-0.881 (0.805)			
Moroccan	-3.151** (0.237)	-3.017** (0.240)	-2.590** (0.267)	-2.370** (0.279)	-2.244** (0.288)	-1.931** (0.305)			
Turks	[-0.628]	[-0.584]	[-0.497]	[-0.418]	[-0.389]	[-0.323]			
	-1.330** (0.193)	-1.103** (0.203)	-0.628* (0.243)	-1.104** (0.259)	-0.859** (0.289)	-0.484 (0.307)			
	[-0.298]	[-0.239]	[-0.134]	[-0.154]	[-0.113]	[-0.060]			
Native Dutch	Ref.	Ref.	Ref.	Ref.	Ref.	Ref.			
Age	0.033* (0.014)	0.039** (0.015)	0.035* (0.015)	0.055** (0.020)	0.056** (0.020)	0.061** (0.020)			
No. of children	0.169* (0.080)	0.251** (0.085)	0.227** (0.087)	0.449*** (0.127)	0.461** (0.133)	0.437** (0.132)			
Education		0.103* (0.048)	0.108* (0.049)		0.068 (0.063)	0.076 (0.063)			
Education partner		0.143** (0.054)	0.158** (0.055)		0.102 (0.071)	0.139* (0.070)			
Dual earner		-0.046 (0.285)	-0.051 (0.291)		-0.137 (0.215)	-0.100 (0.214)			
Parents on benefits		0.638* (0.312)	0.569 (0.309)		-0.087 (0.364)	-0.032 (0.367)			
Financial problems		-0.667** (0.196)	-0.700** (0.199)		-0.463 (0.302)	-0.454 (0.300)			
Urbanization			-0.336** (0.098)			-0.316** (0.100)			
Pseudo loglikelihood	-464.8	-446.3	-439.6	-404.5	-399.6	-393.9			
Pseudo R^2	0.219	0.250	0.261	0.152	0.162	0.174			

^aExcluding respondents with missing values on income.

* $p < 0.05$, ** $p < 0.01$.

Source: NELS Wave 1; own computations on weighted analytical sample.

Turks and Moroccans in lower incomes and for Moroccans in high incomes, a substantial gap in homeownership to the native Dutch population remains.

5. Conclusion and discussion

This study focused on the question whether the ethnic homeownership gap that has been observed for Europe and the American continent – lower ownership rates of non-western immigrants than of native majority populations –, differs by income group. Using survey data from the Netherlands on two of the major non-western immigrant groups (Moroccans and Turks) and a comparison group of native Dutch, I showed that within higher income groups the ethnic gap is substantially smaller than within lower income groups. Among high-income Turks, homeownership rates are even close to that of the high-income native Dutch population. This interactive effect of ethnicity and income on homeownership has not been studied before for European countries. Studies for the US did report a similar interactive pattern of smaller homeownership differences within higher incomes when comparing racial minority groups (blacks, Hispanics) with the majority white population (Alba & Logan, 1992; Gyourko *et al.*, 1999; Herbert *et al.*, 2015; Krivo, 1986; Wilson, 1979). Yet, these studies did not statistically test the interactive effect, nor did the studies test the factors contributing to the interactive pattern.

The current study's central finding of a smaller ethnic homeownership gap within higher incomes has implications for the literature on immigrant integration and immigrant homeownership. First, the persistently observed economic gap of ethnic minority groups to majority native populations may be nuanced. The relatively weak ethnic differences in homeownership rates within higher income groups imply less of an ethnic wealth gap than earlier assumed, the more homeownership is a strong determinant of (future) wealth accumulation. The smaller ethnic homeownership gap in higher incomes also supports an assimilation perspective on immigrant acculturation as with economic success members of minority groups show similar behavioral patterns – including long-term financial commitments – as successful native born people (Massey, 1985). Second, the interactive effect nuances existing evidence on the role of financial constraints in accounting for the ethnic and racial gap in housing tenure. Previous studies found that financial constraints were a major but not sufficient explanation for the gap (Charles & Hurst, 2002; Constant *et al.*, 2009; Munnell *et al.*, 1996; Painter & Lee, 2009; Rossi & Weber, 1996). My study for the Netherlands and studies for the US on racial homeownership by income suggest that this picture needs to be revised since among higher incomes the homeownership gap of immigrants and racial minority groups to the native population is smaller. Thus, for part of the population – the higher incomes – financial constraints and in particular current income are after all able to explain almost entirely the existing ethnic and racial differences in homeownership, and other factors including ethnic segregation and discrimination seem to matter less.

Why do low-income, non-western immigrant groups own houses substantially less often than low-income native citizens? My analyses of factors contributing to the ethnic gap within high- and low-income groups did not provide support for an explanation pointing to greater (additional) financial and housing market constraints for low-income immigrants. These constraints (spouses' educations, couple's earning status, parental benefits, financial

problems, and degree of urbanization) were of equal importance in accounting for the ethnic homeownership gap in lower and higher incomes.

One alternative explanation for the low homeownership rates of low-income immigrants may be ethnic discrimination. Ethnic discrimination by lenders may occur more for lower than higher incomes as lenders would pay a premium by discriminating high-income immigrant applicants. However, direct discrimination on the housing market such as redlining neighborhoods is not likely to be an important explanation for the Netherlands since levels of ethnic neighborhood concentration and segregation are – unlike the US – relatively low. A second alternative explanation may be that low-income immigrants express weak preferences for homeownership. Many Turks and Moroccans in lower income groups in the Netherlands may have a low homeownership aspiration due to a relatively weak orientation toward the host country and a low extent of socialization with homeownership (showing in relatively low parental levels of homeownership; Zorlu *et al.*, 2014). A third alternative explanation is that other, unobserved financial constraints play a role, such as job insecurity or remittances. Turks and Moroccans in lower income groups have more unstable jobs and incomes than native Dutch, and although remittances are not a major part of living expenses, they could still be sizeable (Schans, 2007).

Future studies should investigate more precisely how the large ethnic (and racial) gap in lower incomes can be accounted for by looking into the role of discriminatory practices, homeownership preferences, homeownership rates in the origin country, parental homeownership, remittances, and other financial constraints. The relatively high homeownership rate among high-income immigrant also raises new questions, such as when exactly during their economic career they acquire housing, to what extent their patterns of residence and the quality and price of housing alter over the life time, whether these patterns differ from majority native populations, and whether the patterns have been recent or long-existing. On the one hand, studies for the Netherlands indicate a weakening of the ethnic homeownership gap in recent years: the shares of homeownership among Turks and Moroccans have gone up from 15, respectively, 3 per cent in 1998 to 30 and 15 per cent in 2009, and second generation immigrants from these groups are closing the gap to native Dutch (Kullberg, 2011). This strong change is more likely to reflect a change in attitudes than constraints, since constraints did not change that quickly. On the other hand, residential patterns remain to be ethnically distinct: non-western immigrants more often than native Dutch prefer to live in ethnically mixed neighborhoods, also when out-migrating from neighborhoods with large concentrations of immigrants (Bolt *et al.*, 2008). Such ethnically distinct residence preferences have been noted for the US as well (Clark, 1991, 1992). How these housing patterns differ by income and what the effect is of economic mobility on housing dynamics of immigrants is still not well known (but see Boehm & Schlottmann, 2004).

The findings of my study for the Netherlands on the interactive effect of ethnicity and income on homeownership may be exemplary for countries with similar policies of promoting homeownership, such as the US and Ireland. The favorable treatment of homeownership over other tenure and the income-based mortgaging create cross-national regularities in the determinants of housing tenure (Clark & Dieleman, 1996). Whether the same housing patterns can be observed in housing markets with more conservative mortgage financing, and which other contextual factors influence the ethnic housing patterns are questions for future research.

Notes

- 1 The National Mortgage Guarantee protects borrowers from any residual debt after a foreclosure following a default on their mortgage loan. The provision does not only apply to persons with Dutch citizenship, but to all people with a permanent residence permit. Only few of the Moroccans and Turks living in the Netherlands have a temporary permit and they are by design not in the data because the sample was drawn from population registers.
- 2 Although people with higher incomes buy more expensive houses than people with lower incomes, housing costs as a proportion of household income are lower for higher than lower income groups (Schwartz & Wilson, 2008).
- 3 In the Netherlands, people with sizeable debts are registered and do not qualify for a mortgage. Recently, lenders also survey financial problems in the household.
- 4 Additional analyses show no difference in main study outcomes (ethnicity by income interaction) when including ethnically mixed couples. However, ethnic differences in homeownership become somewhat lower (5 percentage points for Moroccans, 2 percentage points for Turks).
- 5 It may be surprising to view education as an income-related variable, yet note that the educational level of spouses can be seen as a signal for lenders of the lifetime earning potential of the couple and stability of income (Coulson, 1999). An independent (positive) effect of education on homeownership may also be interpreted in another way: higher educated people acquire more information on the housing market and the positive consequences of ownership than lower educated. Yet, this seems a less likely interpretation than the economic one given the advisory role of financial advisors and estate agents on the housing market, who may be of support for lower educated as well.
- 6 I do not opt to use an equivalized household income measure corrected for the number of household members (in most instances: children), since I control for the number of children in the analyses.
- 7 The data-set also contains information on whether the respondent is in a permanent job – which in the Netherlands qualifies for a higher mortgage and oftentimes lower interest rate Netherlands' Life Course Survey, yet this information is not available for the partner. Therefore, I do not include this information.
- 8 I also considered using parental education as a proxy for parental resources, yet among Turks and especially Moroccans most parents have at most completed primary school and variation is too low to analyze this in a meaningful manner. Information on father's job status is missing in the current version of the data.
- 9 The likelihood for weighted Maximum Likelihood Estimation is not a true likelihood as it does not fully account for the 'randomness' of the weighted sampling (<http://www.stata.com/support/faqs/statistics/likelihood-ratio-test>). I therefore report pseudo loglikelihood statistics and pseudo *R*-squares.
- 10 That the reduction in the ethnicity parameter is largest when including urbanization may be due to the fact that urbanization was added to a model already including other explanatory factors so that the ethnic gap was smaller to begin with. Yet, I found the same result when using a decomposition method subtracting variables one by one from the full main effects model (Model 4, Table 2).
- 11 Though not central in his paper, I also tested whether differences in homeownership exist between migration generations (first and second generations) and within the first generation between migrants with a short and longer duration of stay. As with ethnicity, differences were smaller in higher than lower incomes. This underlines the conclusion that ethnicity and migration-specific factors matter less for the 'income-unconstrained' group.

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