Explaining the Black-White Homeownership Gap: The Role of Own Wealth, Parental Externalities and Locational Preferences

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Abstract

African Americans in the United States are considerably less likely to own their homes compared to Whites. Differences in household income and other socio-economic and demographic characteristics can only partially explain this gap and previous studies suggest that the 'unexplained' gap has increased over time. In this paper we use the Panel Study of Income Dynamics (PSID) intergenerational data, which provides information on household wealth, parental characteristics and macro-location choice. We find that African-American households are 6.5 percent less likely to own if only traditional explanatory variables are controlled for. However, the black-white homeownership gap disappears if differences in own and parental wealth and in the preferred macro-location type are accounted for.

JEL classification: D81, J62, J71, R21, R31.
Keywords: Homeownership, housing tenure choice, location choice, wealth effects, intergenerational effects.

1 Introduction

African-American (black) households in the United States are much less likely to own their homes compared to Caucasian (white) households.[1] Roughly three out of four white households own their home, while the same is true for less than half of all black households. Moreover, the racial difference in homeownership has widened notably over the last two decades. According to the Current Population Survey, the homeownership gap between Blacks and Whites has increased by 2.5 percentage points to 27.1 percent between 1985 and 2005. These observations raise the important question of how this (increasing) gap can be explained.

Past research, which has mainly focused on disparities in demographic and socio-economic characteristics as determinants of the housing tenure choice (i.e., the decision whether to own or rent the home), can only partially explain the large homeownership gap between Blacks and Whites. Moreover, the 'unexplained' gap appears to have increased over time. Painter et al. (2001) investigate the housing tenure choice in the Los Angeles metropolitan area in 1980 and 1990. They find that even when controlling for income, education and immigrant status, the gap has more than doubled between 1980 and 1990, to 11 percentage points. While earlier studies (Wachter and Megbolugbe 1992 and Yinger 1986) argue that a portion of the gap may be due to differences in access to housing finance, as pointed out in Painter et al. (2001), it is unlikely that access differentials between Blacks and Whites have worsened over time.[2] Moreover, using data from the Survey of Consumer Finance from 1983 to 2001, a recent study by Gabriel and Rosenthal (2005) suggests that credit barriers account for no more than 5 percentage points of the roughly 25 percentage point (or higher) homeownership differential between Blacks and Whites.

In this paper we explore the hypothesis that the unexplained black-white homeownership gap may be due to differences in household wealth, parental externalities (e.g., gifts to meet downpayment constraints) and the preferred 'macro-location' type (i.e., the degree of urbanization of the place of residence). All these variables are frequently omitted in housing tenure choice studies. Using intergenerational data from the Panel Study of Income Dynamics (PSID) we are able to *jointly* control for all three sets of variables. We identify an 'unexplained' gap of 6.5 percent when household wealth, parental externalities and macro-location type are not

[1] Subsequently we refer to African-American households as 'Blacks' or 'black households' and we refer to Caucasian households as 'Whites' or white households.

[2] For example, as part of the Financial Institution Reform, Recovery and Enforcement Act, Congress requires Fannie Mae and Freddie Mac to increase the purchase of primary-market loans to minority and low-income borrowers and neighborhoods.

controlled for. When we estimate a standard binary logit model we find that this remaining gap can be explained by differences in own and parental wealth and in the preferred macro-location type. Current parental income does not appear to have any significant impact. We find that the 'unexplained' homeownership gap shrinks to less than half the size if the household's own wealth is properly controlled for. Parental wealth has a statistically significant additional impact on housing tenure outcomes but the additional effect is quantitatively relatively small with 0.4 percentage points. The remaining gap of roughly 1.5 percent can be entirely explained by different macro-location choices and the corresponding locational differences in the relative cost of homeownership. In fact, when controlling for macro location choices, the gap changes the sign, although the effect is statistically insignificant. When we reestimate the final model specification separately for black and white households we find that the coefficients on the macro-location type variables are statistically significantly different for the two groups, with black households being comparably less likely to own in highly urbanized locations.

Our main findings are essentially unchanged when we address endogeneity concerns related to the household's own wealth and the parents' wealth. Instrumental variable estimates confirm that the household's own wealth has a causal positive effect on the probability of homeownership, however, we cannot identify any statistically significant causal effect of parental wealth. Nevertheless, our instrumental variable estimates imply a black-white homeownership gap of essentially zero. Finally, we estimate a multinomial logit model, assuming that households simultaneously choose their housing tenure and macro-location. Overall, these estimates confirm our finding that the black-white homeownership gap can be explained by differences in own and parental wealth and in the macro-location choice of households.

Our paper proceeds as follows. Section 2 reviews the related literature. Specifically, we discuss the role of own wealth, parental externalities and location in determining homeownership outcomes. Section 3 describes the data, in particular, our measure of household wealth. Section 4 outlines the empirical specifications and the strategy to identify household wealth and reports results. We derive conclusions in Section 5.

2 Determinants of Housing Tenure Outcomes

Owner-occupied and renter-occupied housing provide dissimilar benefits to households. Whether households prefer owning over renting depends on a number of factors. Below we first

briefly outline the main *relative* advantages and disadvantages of homeownership compared to renting. Next, we discuss the role of household wealth, parental externalities and locational preferences in detail.

2.1 The Main Determinants of Housing Tenure Outcomes

In the United States homeownership offers important income related tax benefits. While owner-occupiers can deduct mortgage interest payments from income taxes, the same is not true for landlords. Similarly, in contrast to landlords who have to pay taxes on rental income, homeowners do not have to pay taxes on imputed rents. Both types of tax benefits imply lower relative user costs for owner-occupied housing and consequently a greater likelihood that a particular housing unit is owner-occupied (Rosen 1979). Given that both types of homeownership-subsidies are income tax dependent, all else equal, the likelihood that a household becomes a homeowner should increase with income. Moreover, the positive effect of income on homeownership attainment is reinforced by the fact that mortgage lenders (and secondary mortgage market institutions that securitize the mortgages) require that the mortgage applicant's annual income exceeds a certain share of the purchase price of the home. Both the 'income constraint' and the 'income tax effect' imply that the positive impact of income on homeownership may be non-linear (increasing at a decreasing rate).[3]

Homeownership offers other advantages as well. A homeowner can be interpreted as a landlord who rents to herself or himself implying that incentives of landlords and tenants are aligned. Hence, homeownership reduces the so called maintenance problem which arises from the fact that rental contracts cannot explicitly provide for all possible contingencies (Henderson and Ioannides 1983). Similarly, homeowners – in contrast to tenants – can capture the benefits of neighborhood and property improvements. Homeownership provides property rights to alter the home however the occupier sees fit, generating greater benefits for the user, especially over the long-run. Finally, homeownership provides a hedge against rent and other consumption risks (Ortalo-Magne and Rady 2002 and Sinai and Souleles 2005).

Homeownership also has a number of disadvantages compared to renting. To begin with, in contrast to corporate and institutional investors single owner-occupiers typically cannot adequately diversify their housing investment risk (see for example Henderson and Ioannides

[3] Moreover, all else equal, households with more uncertain incomes should be less likely to own their homes. Haurin (1991) and Robst et al. (1999) provide evidence consistent with this proposition.

1983 and Bruecker 1997 for the theoretical argument and Hilber 2005 for empirical evidence consistent with the argument). Owner-occupiers also face much higher relocation costs compared to renter-occupiers. This is because of transaction costs associated with the purchase and sale of properties. Haurin and Gill (2002) estimate these transaction costs of selling a home for the United States as the sum of 3 percent of the house value and 4 percent of household earning. As a consequence, the expected duration in the property (which is negatively related to the annualized transaction cost) should be expected to determine to a significant extent whether households choose to own or rent. Using a unique military dataset, Haurin and Gill provide direct evidence that expected length of stay (of military personnel at the assigned bases) and transaction costs of selling a property are very important determinants of the housing tenure decision. For most households, however, the *expected* duration in the property – which is mainly determined by the household's life-cycle status – is not known in advance, at least not to researchers, and needs to be proxied by demographic and socio-economic characteristics. In fact, numerous studies demonstrate that demographic and socioeconomic characteristics of households can explain to a large extent housing tenure decisions of households (e.g., Eilbott and Binkowski 1985 using aggregated data or Gyourko and Linneman 1996 using disaggregated data).

The set of household specific control variables in empirical housing tenure choice studies also typically includes dummy variables for the race of the household. Household race may affect housing tenure outcomes for at least two reasons. Firstly, housing tenure outcomes may be affected by racial discrimination (Kain and Quigley 1972). Discrimination may occur at various stages in the process leading to homeownership including discrimination by real estate brokers or mortgage lenders. Yinger (1995) provides a review of such discriminatory behavior along with estimates of their cost. Munnell et al. (1996) provide empirical evidence on the discrimination by mortgage lenders.[4] Secondly, different racial groups may differ, for example, in their preferences for homeownership or in their expected duration in a property (i.e., their mobility) and hence in their relative demand for homeownership.

Summing up the above discussion, we can express the housing tenure choice of household *i* in reduced form as:

$$\Pr\left(own_i = 1\right) = f\left(X_i, y_i, R_i\right) \tag{1}$$

[4] Ladd (1998) provides a survey on this topic.

where $\Pr(own_i)$ denotes the likelihood that household *i* owns, X_i is a vector of demographic and socio-economic characteristics of household *i* (including age and marital status but not wealth), y_i denotes the household income and R_i is a vector of dummy variables for the different racial groups.

A number of empirical studies have estimated tenure choice equations similar to equation (1), mainly relying on Census micro data or data from the American Housing Survey (AHS). Consistently these studies find that black households are less likely to own compared to white households (e.g., Painter et al. 2001, Gabriel and Rosenthal 2005). One drawback of using Census micro data or AHS data is that these data sources only provide very crude proxy measures for *household wealth* (e.g., household income, age, dividend and interest income) and do not provide any information on *parental characteristics*. We discuss the effects of these variables on homeownership outcomes in turn.

2.2 The Role of Household Wealth

Household wealth may affect tenure outcomes for two reasons. Firstly, downpayment requirements prevent wealth constrained households from obtaining a mortgage. Secondly, owner-occupiers with limited wealth are more likely to be forced to overinvest in housing from an optimal portfolio allocation point of view, all else equal, reducing the relative demand for homeownership. This effect is reinforced by the fact that households with limited wealth typically have to highly leverage their housing investments. Both theoretical arguments imply that wealth may have a non-linear positive effect on homeownership propensities (increasing at a decreasing rate).

A few empirical studies investigate the role of wealth for housing tenure outcomes. Linneman and Wachter (1989) were the first to provide direct parameterization of the impacts of borrowing constraints. Using the Federal Reserve Board's 1977 Survey of Consumer Credit and the 1983 Survey of Consumer Finances (SCF) they show that both income and wealth constraints reduce homeownership propensities and that the impact of the latter is stronger. Moreover, their results imply that the impact of borrowing constraints has decreased in the early 1980s, possibly as a result of mortgage market innovations. In a follow-up study, using the same data as in the earlier study but adding data from the 1962 Survey of Financial Characteristics of Consumers, Gyourko et al. (1999) find that the racial disparities in ownership outcomes are small for

households that are wealth unconstrained but are substantial for wealth constrained households with white households owning at higher rates than equivalent minority households. Similarly, Duca and Rosenthal (1994), using the 1983 SCF demonstrate that borrowing constraints have a significant negative effect on homeownership rates. Moreover, the negative impact of borrowing constraints on homeownership appears to be stronger for younger and non-white families.

2.3 The Role of Parental Externalities

A few studies highlight the role of parental externalities for housing decisions. Engelhardt and Mayer (1994) document that about one in five first-time home buyers receives assistance from relatives in making the downpayment, with the average gift being roughly one-half of the total downpayment. These findings imply that parental gifts may be important in relaxing downpayment constraints and allow otherwise constrained households to purchase a home. Mayer and Engelhardt (1996) provide further supporting evidence. Charles and Hurst (2002), using data from the PSID, demonstrate that differences in income, family structure, and in the ability and willingness of parents to provide downpayment support are the primary reasons for the fact that mortgage applications of black households are almost twice as likely as those of comparable white households to be rejected. They also document that 27 percent of white households but only 7 percent of black households that purchased a home had help with their downpayment from their families. These findings imply that omitting parental wealth as an explanatory variable of the housing tenure choice potentially causes a serious omitted variable bias. The extent of parental support may not only be related to parental wealth but also to their income. Parents who still earn or have a high income from pensions may be more willing or more at ease to help their offspring to overcome downpayment and liquidity constraints.

2.4 The Relative Supply of Owner-Occupied Properties and the Role of Location

With a few exceptions previous housing tenure choice studies have focused on the demand side, that is on the housing consumers' relative demand for owner-occupied versus renter-occupied space. However, a focus on the demand side alone ignores that it is the property developers and owners of existing properties (i.e., the suppliers) who effectively determine the tenure status of properties. Not all property developers and owners have the same cost functions. Moreover, because the relative marginal cost of providing owner-occupied (versus renter-occupied) space can differ across property types and locations, one would expect that in general

equilibrium, all else equal, the housing consumers' tenure decisions are affected by their locational preferences and corresponding locational choices.

In this context, Linneman (1985) points out that building types and locations differ in their inherent 'relative landlord production efficiency'. Landlords (who typically own numerous units in a building or several buildings) have comparative production efficiency advantages in terms of maintaining the housing units and solving a number of free-rider problems with respect to common facility maintenance compared to owner-occupiers.[5] These relative landlord production efficiency advantages tend to be much greater in highly urbanized locations with predominance of high-rise and low-rise buildings and close proximities between managed properties than in suburbanized or rural areas.[6] Not surprisingly, homeownership rates are typically very high in rural and suburban areas but relatively low (sometimes in the single digit numbers) in highly urbanized places. Empirically, the housing type has been demonstrated to be a quantitatively very important determinant of the homeownership status of properties (see for example Hilber 2005).

Locations differ not only in their housing stock but also in their housing investment risk. House prices in more urbanized places tend to be much less stable (more uncertain) than in suburban or rural places. In this context, Hilber (2005) argues that, all else equal, properties in neighborhoods with high levels of externality risks (i.e., high levels of variation in junk and litter in the street, in street noise, in neighborhood noise and in neighborhood crime) should be less likely to be owner-occupied. Empirical evidence from the AHS strongly supports this proposition. In fact, Hilber's findings imply that the phenomenon of particularly low homeownership rates in inner cities can essentially be explained by the particularities of the housing stock (i.e., a large share of high- and low-rise buildings) and by high levels of various neighborhood externality risks.[7]

Acknowledging the importance of the role of locational choices in housing tenure decisions, a few empirical studies have estimated multinomial logit models by either assuming that households simultaneously choose their location and housing tenure or by assuming a certain

[5] Linneman (1985) lists a number of specific reasons for why landlords are expected to have a greater production efficiency including superior credit ratings, greater political influence which yield lower tax assessments, maintenance cost efficiencies and economies associated with processing a landlord's credit application compared to that of a homeowner.

[6] Landlords can facilitate the internalization of externalities in densely located areas by reducing the bargaining costs associated with dealing with neighbors within and outside the structure (Linneman 1985).

[7] Turner (2003) provides further evidence at the MSA level, suggesting that housing investment risk has a negative impact on homeownership propensities.

'tree structure' in the decision process. Gyourko et al. (1999) estimate a multinomial logit model that treats central city versus suburban location as a choice variable in addition to tenure status. Their findings imply that while controlling for wealth constraint status eliminates minority-white tenure choice differences among the unconstrained, location differences remain for this group and also for the group of constrained households. As Gyourko et al. (1999) point out; one limitation of their data set is the fact that their location information is extremely limited. They therefore point to the PSID as a data source that provides both detailed wealth and more detailed location information.

In a similar vein, Deng et al. (2003) investigate whether racial differences in residential location outcomes are among the factors contributing to the large racial differences in homeownership rates in the Philadelphia metro area. More specifically, the empirical analysis is based on 1985 AHS data for the MSA of Philadelphia and considers the influence of neighborhood location options on homeownership endogenously based on a nested multinomial logit specification.[8] That is, tenure choice is modeled such that the homeownership decision is made while considering alternative subsets of neighborhood options. Their empirical findings suggest that African–American residential location outcomes are associated with lower than expected racial differences in homeownership suggesting that after controlling for neighborhood, racial differences in homeownership are larger than originally assumed and endowments (measured by various types of household income) explain less than half of the larger homeownership differences.

Finally, Dawkins (2005) uses PSID data to study the contribution of residential location towards the black-white gap in first time homeownership *transitions*, that is, the fact that black households wait longer to transition into first-time homeownership than white households. Using time duration models Dawkins finds that various residential location characteristics, particularly those associated with the supply of affordable owner-occupied housing, affect racial gaps in first-time homeownership transitions. However, most of the gaps in homeownership transitions would be eliminated if Blacks and Whites had similar household characteristics.

[8] One limitation of using the 1985 AHS is that it does not provide direct information on the household's own wealth (nor does it provide any information on the characteristics of the household's parents). Moreover factors that may contribute to the black-white homeownership gap may have changed since the mid 1980s.

2.5 Specification of Empirical Model

As outlined above, the *relative* demand for owner-occupied (compared to renter-occupied) space may be mainly determined by demographic and socio-economic characteristics of the housing consumers (including household income and wealth) and their parents (via parental externalities). Additionally, the relative demand may be affected by location-specific differences in the level of housing investment risk (highly urbanized places tend to more risky than suburban or rural locations). The *relative* supply of homeownership on the other hand may be mainly determined by location specific differences in relative landlord production efficiency advantages (that is, the provision of housing by landlords can be expected to be more cost-efficient in highly urbanized locations with predominance of high-rise and low-rise buildings and close proximities between managed properties).

In reduced form we can express the equilibrium probability that household *i* in location *j* owns as:

$$\Pr\left(own_{ij}=1\right)^{*} = f\left(X_i, R_i, y_i, w_i, y_i^P, w_i^P, u_j\right) \tag{2}$$

where w_i, y_i^P, w_i^P and u_j denote the wealth of household *i*, the income and wealth situation of household *i*'s parents and the degree of urbanization in location *j*. The latter variable is expected to capture location-specific differences in the relative landlord production efficiency and in the level of housing investment risks.[9]

From the housing consumer's point of view, the above considerations imply that the household's locational preferences and the corresponding (revealed) macro-location choice (i.e., living in a highly urbanized environment versus living in a smaller city or a rural area) affect the relative user cost of homeownership and hence the housing tenure decision. In other words, equation (2) assumes that the *macro*-location choice is exogenous to the housing tenure choice. We deem this to be a reasonable assumption. This is not to say that location choices are per se exogenous to housing tenure decisions. Rather, similar to Deng et al. (2003) we conjecture that *micro*-location (neighborhood) choices and tenure choices may be simultaneously determined. However, we maintain that households typically choose their macro-location because of

[9] In the empirical analysis below we distinguish between six macro-location types that differ in their degree of urbanization: type 1: 'size of largest city in county of residence is 500,000 or more'; type 2: 'size is 100,000 to 499,999'; type 3: 'size is 50,000 to 99,999'; type 4: 'size is 25,000 to 49,999'; type 5: 'size is 10,000 to 24,999'; type 6: 'size is under 10,000'. Unfortunately the PSID does not provide any information on the housing type – an alternative and perhaps better proxy measure for the relative landlord production efficiency – of the panelists' homes.

employment related reasons (i.e., farmers choose to live in rural areas while high-tech specialists or hedge fund managers typically choose to live in highly urbanized locations such as the Bay Area or the New York metro area) independent of their housing tenure choice. Similarly, it seems reasonable to assume that elderly households make their macro-location choices based on their preferences for certain lifestyles (i.e., living in the mountains or in dry desert-like climate versus living in a large city) and not conditional on their tenure choice. Nevertheless, acknowledging the possibility that households may simultaneously choose the housing tenure and macro-location and acknowledging the possibility of "sorting on unobservables", we also report results of a multinomial logistic model that assumes that households have a choice between twelve different housing tenure-location options (owning vs. renting in six macro-location types). See Section 4.4 below.

We can illustrate the above considerations graphically if we assume that households differ in their (unobserved) idiosyncratic preferences for homeownership and suppliers of housing in their (unobserved) idiosyncratic relative landlord production efficiency. Figure 1 depicts the aggregated demand for and supply of owner-occupied relative to renter-occupied housing. Given the particular nature of the 'good' homeownership, the 'quantity' of the good is expressed as the fraction of local housing units that are owner-occupied (i.e., the homeownership rate). The 'price' is the (unobserved) price premium of homeownership compared to renting, Δp^O. (The price premium Δp^O can be positive or negative.) An increasing price premium Δp^O increases the share of property owners that self-occupy (or sell to buyers who self-occupy) (i.e., positive slope of the supply curve) and decreases the share of housing consumers that choose homeownership over renting (negative slope of the demand curve). The equilibrium homeownership rate is determined by the interaction of relative demand and supply.

Figure 1: Relative Demand for and Supply of Homeownership

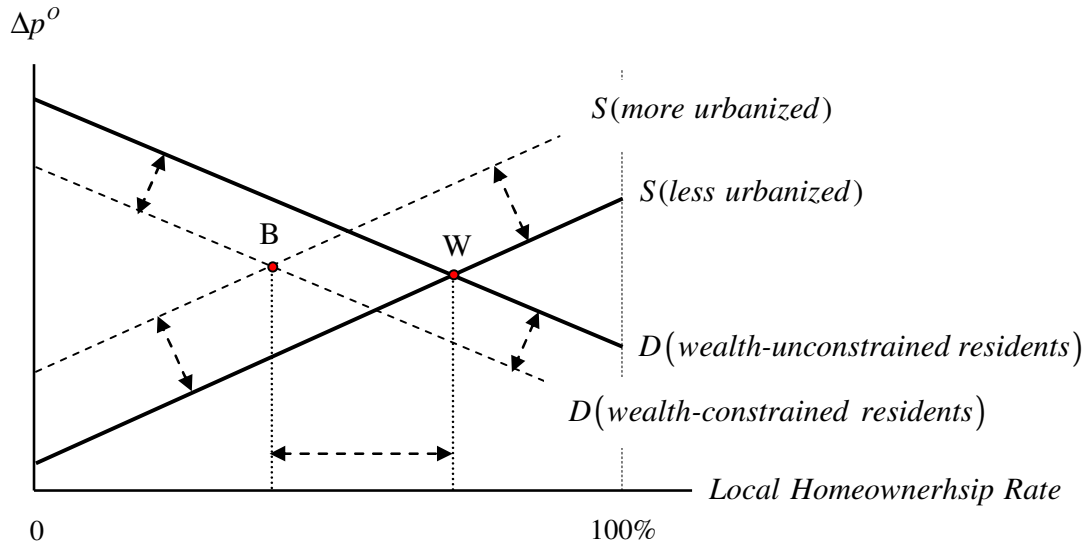

Figure 1 depicts the equilibrium outcomes for two different stylized settings. Consider first the relative demand and supply curves that interact at point W. This setting depicts a less urbanized area with single detached housing (lower differential marginal cost of homeownership) and wealthier local residents (strong relative demand for homeownership). In our data sample this corresponds quite well to the group of white households. The second setting depicts the demand and supply curves of a more urbanized location with low-rise and high-rise buildings that consists of less wealthy households (weaker demand for and less supply of owner-occupied housing). This setting corresponds better to the group of black households. The equilibrium homeownership rate in the less wealthy urbanized location (point B) is much lower than that in the wealthier suburban location (point W).

Overall, the above considerations suggest that the homeownership status of properties (and the corresponding housing tenure of households) is to a large extent determined by location specific factors. Because black and white households may differ in their preferences for certain location types (or are forced to live in certain location types due to constraints) it is imperative that we control for location. We outline our empirical specification and, in particular, how we control for locational choices in Section 4 below. Next we describe the data used in the empirical analysis.

3 Description of Data

Our intergenerational data is derived from the Panel Study of Income Dynamics (PSID), a nationally representative longitudinal survey of about 5,000 families that the University of Michigan's Survey Research Center has conducted annually since 1968. The PSID is a large scale survey and is an ideal dataset for exploring connections between generations. It contains extensive economic and socio-demographic information about families and their relatives. Among other information, the survey asks the households about their race, age, marital status, number of children, educational attainment as well as about their earned labor and asset income, transfer payments received, a variety of housing information (including whether the home is owner-occupied or renter-occupied) and the macro-location type, that is, the size of the largest city in the county of residence (a measure for the degree of urbanization or relative landlord production efficiency, respectively).

Because the PSID is a longitudinal survey that has followed families and their offspring since 1968, it contains household social and economic information over different stages of their lives. This enables us to obtain information about two generations of a given family in the same dataset including the current income and total net wealth of the household head's parents.[10] It should be noted in this context that parents and their children are separate records in the PSID; the same information is available for both parents and children as they are considered to be different households.

One important advantage of using PSID data, for the purpose of our study, is the fact that household wealth is calculated precisely (based on survey information) and is conceptually neutral as to whether a household owns or rents. Specifically, our measure of wealth is the *total net wealth* including all relevant assets net of liabilities.[11] In terms of home equity, estimates of the value of property assets are included on the asset side, while the remaining mortgage principal is deducted. So if a household purchases a house with a downpayment of $50,000, this is equivalent to still having the $50,000 on the bank account, in terms of our measure of total net

[10] See Chiteji and Stafford (2003) for more discussion about how to construct an intergenerational data set using the PSID.

[11] In 2001 (as well as in 1984, 1989, 1994 and 1999) the PSID asked households extensive questions about their wealth. For the measure of wealth, the household's holdings include real estate (first home, second home, rental real estate, land contract holdings etc.), cars, trucks, motor homes, boats, farm business, stocks, bonds, mutual funds, saving and checking accounts, money market funds, certificate of deposit, government saving bonds, Treasury bills, IRAs, bond funds, cash values of life insurance policies, valuable collections for investment purposes, and rights in a trust or estate. Deducted from all these holdings are outstanding mortgage principal, debt on credit cards, and other debt on the above listed assets. For details see: Juster *et al.* (1999).

wealth. Of course, to the extent that (leveraged) home equity is a better (or worse) investment compared to alternative investments, owning or renting affects the *future* wealth situation of a household.[12] Moreover, even if owning and renting an identical property itself is wealth-neutral, homeownership provides a mechanism for 'automated' or 'forced' savings since borrowers typically pay back a small share of the principal with each mortgage payment, potentially increasing household wealth of homeowners relative to renters in the long-run. Another reason why one might be concerned about the endogeneity of household wealth is due to the possibility that (unobserved) omitted variables determine both wealth and the propensity to own a house, causing a bias and leading to inconsistent estimates. Our empirical specifications control for numerous demographic and socio-economic characteristics. Table 4 lists the full set of controls (along with the omitted categories), which include information on household income and wealth, standard demographic variables, education level, employment status, occupation type (as proxy for permanent income), the number of years since the (young) household first formed the own household and parental income and wealth. This broad list of controls may somewhat alleviate the concern of omitted variable bias.[13] Nevertheless, in order to fully address all potential endogeneity and related omitted variable issues, we instrument for household wealth in our empirical analysis below. The identification strategy is described in Section 4.3 and corresponding results are summarized in the same section.

Our regression sample consists of households with household heads who are at least 25 years old by 2000. We put an age restriction on our sample because we want individuals who are mature enough for homeownership to be a reasonable option for them. We exclude the few households in the PSID intergenerational sample that are non-White and non-Black as our focus is on the black-white homeownership gap. This exclusion reduces the regression sample size from 1015 to 983 observations, consisting of 298 black households and 685 white households.

A first look at the PSID longitudinal data provides some interesting insights that are consistent with our propositions that household wealth and locational preferences (and the corresponding relative cost of homeownership) may be important factors in explaining the black-white homeownership gap. Consistent with the hypothesis that the widening black-white

[12] It is not per se clear however, whether home equity is a better or worse investment than say stocks. If financial markets are perfect then risk-adjusted returns should be similar across investment categories.

[13] For example, one might be worried that education levels determine both wealth and the propensity to own (because of the institutional understanding gained through schooling). However, education levels are one of our many controls in the empirical analysis below.

homeownership gap (see Table 1) may be partly the result of differences in household wealth, Table 2 reveals that the black-white total wealth gap has indeed been increasing between 1984 and 2001, both in nominal and real terms. Similarly, consistent with the proposition that the widening homeownership gap may be partly explained by differences in macro-locational choices, Table 3 reveals that black households are significantly more likely than white households to live in a county where the size of the largest city exceeds 50,000 residents. While the suburbanization trend is observable for both racial groups, the gap in locational choices has been increasing consistently between 1985 and 2001. Finally, consistent with the hypothesis that differences in parental wealth may partially explain the black-white homeownership gap, Table 4 (which summarizes statistics for our base regression sample for 2001, separately for the group of black households and white households) reveals that the parental wealth gap between black and white households is very substantial.[14] The table also reveals that black households in our regression sample have much lower levels of homeownership attainment (36 percent versus 65 percent), lower labor income, lower levels of educational attainment and lower marriage rates. However, on average, black households in our sample have more children.

A final note concerns the interpretation of our intergenerational data (i.e., our focus on children of households from a nationally representative sample) and the corresponding empirical analysis. If we would run our analysis using the full sample of the PSID, our results would basically be cross-sectional in nature. However, since we use a subsample of children of PSID households who formed their own household, our analysis essentially becomes a transitional one.[15] Similar to Dawkins (2005) we are asking among newly formed households what is the likelihood that they will have transitioned into homeownership given their family background and given events that have occurred in their life such as educational attainment or labor market success.[16] One implication of the interpretation of our study as a transitional analysis is the importance to control for the time since a household head first formed an own household. In our empirical analysis below we therefore include the 'number of years since a household head first formed an own household' as an additional control variable. In fact, in our empirical analysis

[14] The PSID does not allow us to compute this information over a longer-period of time as parental information only becomes available during the later years of the PSID.

[15] We are thankful to Stephen L. Ross for pointing out this interpretation to us.

[16] Our focus on households, who have relatively *recently* transitioned into homeownership also somewhat alleviates reversed causality concerns related to the above described phenomenon that 'forced savings' through homeownership affect household wealth in the *long-run*.

below the control is statistically insignificant in all specifications when household age is controlled for (not inconsistent with the main findings in Dawkins, 2005).[17]

4 Empirical Analysis

In the empirical analysis that follows we assess to what extent the traditionally 'unexplained' black-white homeownership gap may be explained by differences in household wealth, parental externalities and locational preferences. We first outline our model specification, the estimation method and the empirical strategy. Next, we report our main results. In a third step we propose an identification strategy for the wealth variables and summarize the results of the corresponding instrumental variable estimates. Finally, we discuss an alternative multinomial-model specification and present results.

4.1 Estimation Method and Empirical Strategy

We estimate the probability that a household owns its residence using a standard binary maximum-likelihood logit model as described in equation (3):

$$\Pr\left(own_{ij}=1\right)=\frac{1}{1+e^{\left(Z_{ij}\beta\right)}} \tag{3}$$

where $\Pr\left(own_{ij}=1\right)$ is the probability that household *i* in location *j* owns its housing unit, Z_{ij} is a vector of explanatory variables and β is the corresponding vector of logistic regression coefficients.

Our empirical strategy is as follows. We start by estimating a traditional tenure choice model as outlined in equation (1) whereas $\left(X_i, y_i, R_i\right) \in Z_{ij}$. This specification omits a number of variables that can be expected to determine a household's housing tenure choice; the household's own wealth, parental externalities and locational preferences. As discussed above, in our sample, black households, on average, are much less wealthy and live in more urbanized locations compared to white households. Similarly, the parents of black households are, on average, less wealthy and have lower incomes compared to parents of white households. Hence, we expect the

[17] If we drop the age category dummies then the 'household formation'-variable becomes statistically significant.. The results with respect to our variables of interest ('household head is black' variable and wealth variables) remain virtually unchanged if we exclude the control. However, in order to be consistent with the interpretation of our study as a transitional one, we keep the control.

addition of these variables to reduce the 'unexplained' black-white homeownership gap. Below, we investigate the impact of each of the variables on homeownership propensities and test whether the black-white gap still persists when we *jointly* control for the additional variables.

More specifically, we proceed as follows. In a first step we add the household's own wealth w_i as an explanatory variable, both in a linear and non-linear way. Next, we test the additional impact of parental externalities. These externalities include the effects of parental wealth and parental income. In a subsequent step we estimate the additional impact of differences in the households' locational preferences and the corresponding locational differences in the relative cost of providing homeownership. The final specification corresponds to the reduced form equation (2). We summarize the results of our various binary logit estimates in Section 4.2. Detailed results are reported in Tables 5 to 7. In Section 4.3 we address endogeneity concerns related to the household's own wealth and parental wealth. We first describe the identification strategy. Next we summarize the results that are reported in detail in Table 8. Quantitative effects for all specifications are documented in Table 9. Finally, we perform a sensitivity analysis to test to what extent our results may be affected by our assumption that the macro-location choice is exogenous to the housing tenure decision. Specifically, we estimate a multinomial logistic model that assumes that households can simultaneously choose the housing tenure and macro-location type. The methodology and results are summarized in Section 4.4. Detailed results are reported in Tables 10 and 11.

4.2 Results of Binary Logit Estimates

Our base specification is a traditional tenure choice equation as outlined in equation (1). The results, which are reported in column (1) of Table 5, essentially confirm the findings of previous tenure choice studies. In particular, the coefficient of the dummy variable for black households, which measures the 'unexplained' black-white homeownership gap, is negative and highly statistically significant at the 1 percent level. The coefficient implies that controlling for demographic and socio-economic characteristics (excluding wealth), a black household's probability of owning is 6.5 percentage points lower than that of a white household (see Table 9 for details on how this quantitative effect is calculated). This 'unexplained' black-white homeownership gap is similar in magnitude to 'unexplained' gaps identified in earlier studies. For example, Gabriel and Rosenthal (2005), using the SCF, estimate a gap of about 8 percentage

points, also for 2001. The coefficients on the demographic and socio-economic controls (income, employment status, age, marital status, children, education and occupation type) have the expected signs and – with a few exceptions – are statistically significant at least at the 5 percent level. See Table 5 for details.

Column (2) of Table 5 reports results for a specification that includes the household's own wealth w_i as an explanatory variable. As expected, an increase in household wealth increases the probability of homeownership. The effect is not only statistically significant (at the 5 percent level) but also quantitatively important. An increase of household wealth by 10 percent (measured at the sample mean) increases the likelihood of homeownership by 3.1 percent. As expected, controlling for total household wealth reduces the 'unexplained' black-white homeownership gap substantially to just 2.2 percentage points (that is, household wealth explains almost two third of the 'unexplained' gap). However, the dummy variable for black households in the sample is still highly statistically significant with a p-value of 0.03.

Column (3) of Table 5 captures total household wealth in a non-linear way by including two category dummy variables (between \$10,000 and \$50,000 and above \$50,000; below \$10,000 is the omitted category) as explanatory variables.[18] As expected, households with wealth above \$50,000 are significantly more likely to own (all else equal) than households with wealth between \$10,000 and \$50000. The latter category in turn is significantly more likely to own than households with wealth below \$10,000. Both category dummy variables are statistically significant at the 1 percent level. The estimated coefficients imply that an increase in own wealth from below \$10,000 to above \$50,000 increases the likelihood of homeownership by 31 percentage points. The coefficient on the dummy variable for black households still has a negative sign but is now no longer statistically significant at the 10 percent level. The implied black-white homeownership gap is 1.9 percentage points. The fact that the pseudo R^2 increases from 0.35 (column 2) to 0.44 (column 3) and that the percentage of correct predictions increases from about 81 to 83 percent suggests that the latter specification is a better fit and that one ought to control for wealth non-linearly. Overall the results suggest that household wealth is a very important determinant of housing tenure outcomes and omitting it may cause a serious omitted

[18] We use category dummies to capture the non-linear effect of wealth rather than interaction effects. Ai and Norton (2003) demonstrate that interaction effects in nonlinear models such as logit models do not equal the marginal effect of the interaction term, can be of opposite sign and its statistical significance is not calculated by standard software. Programs are available (in STATA) that can be used to compute correct interaction effects but only for exactly two variables and no squared or other non-linear terms.

variable bias. It should also be noted that results are very similar if the specification reported in column (3) of Table 5 is replicated for the full set of households in the PSID. Results are reported in Appendix Table A1, first for the full sample, then for the samples of black households and white households separately. Similar to the results reported in column (3) of Table 5, the coefficient on the 'household head is black' variable is statistically insignificant and quantitatively not meaningful.[19] This result implies that our estimates for the intergenerational dataset may be representative for the entire population.

Table 6 tests to what extent parental externalities explain the remaining black-white homeownership gap. Column (1) of Table 6 differs from column (3) of Table 5 only in that we additionally control for parental wealth w_i^P, again, using the same category dummy variables as for the children. Consistent with Engelhardt and Mayer (1994), Mayer and Engelhardt (1996) and Charles and Hurst (2002) who demonstrate that parental gifts are important in relaxing downpayment constraints, we find that having wealthier parents increases the likelihood that households own their homes. Our parameter estimates imply that the only thing that matters is that the parents have accumulated some wealth (above $10,000), somewhat surprisingly, whether parents have wealth between $10,000 and $50,000 or more than $50,000 has no distinguishable effect on the offspring's homeownership propensity, although the latter effect is statistically significant at the 1 percent level, while the former effect is only significant at the 5 percent level. Importantly, when we control for parental wealth, the dummy variable for being Black remains statistically insignificant and the implied black-white homeownership gap is further reduced, although, in a quantitative sense, the gap remains marginally meaningful with 1.5 percentage points. Colum (2) of Table 6 additionally adds the parents' household income y_i^P as a control, again as category dummies. The coefficients on the two category dummy variables are insignificant in a statistical sense implying that parental income – in contrast to parental wealth – does not matter for the offspring's housing tenure choice. The parameter estimates of the dummy variable for black households and the category dummy variables for parental wealth remain virtually unchanged.

[19] We also estimated the specification reported in column (1) of Appendix Table A1 separately for each macro-location type. Our variable of interest ('household head is black') is completely statistically insignificant in all but one case ('locations where the population size of the largest city in the county of residence is 50,000-99,999'). Results are available from the authors upon request.

Finally, in Table 7 we additionally control for a household's revealed macro-location choice assuming that the household chooses the macro-location prior to/independently of the housing tenure decision, that is, assuming that the macro-location is an exogenous explanatory variable of the housing tenure decision. (In Section 4.4 below we test whether our results hold if we assume that households choose housing tenure-macro-location combinations, that is, make simultaneous housing tenure and macro location choices.)

First we report results for our favorite empirical specification in column (1) of Table 7. The specification is identical to equation (2) except that we drop the parents' income as our previous results suggest that this variable has no independent impact on the panelists' homeownership outcomes. We control for the macro-location choice by using dummy variables for the various macro-location types provided by the PSID. We omit the 'least urban' macro-location type – counties of residence that do not contain a city with more than 10,000 inhabitants – from our regression. Households in these places, all else equal, should be most likely to own their home. Hence, we predict that the coefficients on the remaining macro-location type dummies have a negative sign and that the absolute values of the coefficients increase in magnitude with greater degree of urbanization. We indeed find that all else equal households are least likely to own in the most urbanized macro-location type (counties of residence that contain at least one city with 500,000 or more inhabitants), followed by the second most urbanized macro-location type. Both effects are statistically highly significant (at the 1 percent level). The effects of the remaining three included macro-location types are insignificant in statistical terms. The finding implies a non-linear negative effect of the degree of urbanization on homeownership outcomes; relative landlord production efficiency advantages and housing investment risks seem to matter most in highly urbanized settings. Our variable of interest 'household head is black' remains insignificant in a statistical sense. Moreover the variable becomes virtually meaningless in a quantitative sense as well. In fact, the coefficient on the 'household head is black' variable changes the sign, implying that, all else equal (controlling for own and parental wealth and macro-location type), black households have a 0.6 percentage point higher probability of owning their home than white households.

Next, we report results separately for the group of black households (column 2) and white households (column 3). This sample split allows us to assess whether the explanatory variables have a differential impact for the two groups. Note that the estimated specification differs from

that reported in column (1) only in that the dummy variable 'household head is black' is dropped. Note also that the sample sizes of the two groups are quite different (298 black households versus 685 white households). Hence, statistical significance levels are not directly comparable. Generally, the estimated parameter values are quite different for the two groups. For example, the household's own income and wealth and the parent's wealth appear to be more important in determining homeownership outcomes for the group of black households. These findings are consistent with Wachter and Megbolugbe (1992) and Gyourko et al. (1999) who also find that African-American homeownership rates are significantly more responsive to changes in income and wealth. Moreover, the findings are consistent with Charles and Hurst (2002) who find that white households are much more likely to receive help with their downpayment from their families. However, it should be noted that the null hypothesis of equality of the corresponding parameter estimates for the two groups can only be rejected with 90 percent confidence in one case ('household income is more than $75,000'). The degree of urbanization has a stronger impact on homeownership propensities for black households. Table 9 reveals that the move from a 'rural' location to a 'highly urbanized' location reduces the likelihood of homeownership of a black household by 13.7 percentage points but that of a white household only by 2.8 percentage points. The hypothesis of joint equality of the macro-location type dummies between the two groups can be rejected with 95 percent confidence. This result is consistent with the view that more liquidity and downpayment constrained black households react more sensitively to relative user cost differences between owner-occupied and rental housing. It is however also consistent with the view that redlining by lenders in predominately black inner city neighborhoods prevents black households from attaining homeownership.

4.3 Endogeneity of Wealth, Identification Strategy and Results of TSLS-Estimates

The results reported in the previous section are based on the assumption that household wealth and parental wealth are truly exogenous determinants of a household's tenure choice. As discussed in Section 3, our measure of total net household wealth (of children or parents) is supposedly neutral to whether a household owns or rents in the sense that the current value of the home is added to our measure of wealth while the remaining mortgage principal is deducted. Nevertheless, as discussed in Section 3, the exogeneity assumption is questionable.

In order to address the endogeneity concerns we apply an instrumental variable technique that allows us to identify the exogenous portion of household (own) and parental total net wealth.

The identification strategy exploits the fact that the saving propensity of children (and hence their wealth situation) is to a significant extent determined by mimicking their parents' behavior. For example, Chiteji and Stafford (1999) demonstrate that the parents' portfolio choices are effective predictors of the portfolio choices of the children. Parents who held stocks when younger are more likely to go on to have children who go on to hold stocks as young adults. In a similar vein, Charles and Hurst (2003) estimate the age-adjusted elasticity of child wealth with respect to parental wealth before the transfer of bequests. While finding a significant level of intergenerational fluidity, they also find strong evidence that parents do pass on human capital and saving propensities to their children. As instruments we use predetermined characteristics of the parents which affect the parents' saving propensity and – through the intergenerational link – are expected to be correlated with the saving propensity of the children. At the same time, the predetermined parental characteristics act on the housing tenure choice of the children only through the predicted wealth variable and can be expected to be unrelated to the disturbance term. Specifically, our list of instrumental variables includes the occupation of the *parents* (or more precisely: the *household head* of the parents) when young (measured in 1976), the parents' education level, parental (in)stability measured by a dummy variable for whether the parents live in a different state than when young, and 25 year-lagged parental income (measured in 1976).[20] One might be concerned to use parental income as an instrumental variable to identify current wealth, even when using a 25 year lag (arguably income shocks could be persistent two and a half decades later). Hence, we report results for two different specifications; with past parental income as instrument ('broad' set of instruments) and without ('narrow' set of instruments). We apply our identification strategy using a standard TSLS-estimator.[21]

We report results of the TSLS-estimates in Table 8. However, we begin by reporting results for the corresponding OLS-estimate in column (1). The estimated specification is identical to that reported in column (1) of Table 7 (our preferred specification) with one exception: we use log-transformed measures of wealth instead of a set of dummy variables for different wealth

[20] That is we measure parental income at a point in time when all offspring (i.e., the households in our transitional sample) are still living with their parents (i.e., have not formed an own household yet).

[21] We also estimated an IV-probit model (with endogenous regressors) using Newey's two-step estimator. (The standard conditional maximum-likelihood estimator does not lead to convergence.) Results are qualitatively very similar to the ones reported for the TSLS-estimator. Specifically, a household's own wealth has a statistically significant causal positive effect on the likelihood of homeownership, while the causal effect of parental wealth is statistically insignificant. The coefficient on our key variable of interest 'household head is black' is also statistically insignificant. Results are available from the authors upon request.

categories. Using log-transformed measures of our two wealth variables (i.e., own wealth and parental wealth) captures the idea that wealth has a non-linear positive effect on the probability of homeownership (increasing at a decreasing rate), at the same time, using the log transformed variable instead of several category dummies reduces the number of endogenous regressors that need to be separately identified. The results are qualitatively very similar to those reported in column (1) of Table 7, namely, our variable of interest 'household head is black' is statistically insignificant and the implied black-white homeownership gap is less than 1 percentage point. Columns (2) and (3) of Table 8 report results of the TSLS-estimates using the 'broad' and the 'narrow' sets of instruments. Overall, the results for both columns are similar and consistent both with the OLS estimate (column 1) and the logit estimates reported in the previous tables. Specifically, the coefficient on the variable of interest 'household head is black' is statistically insignificant in both columns and the implied homeownership gap is negligible in both cases (0.02 percentage points and 0.4 percentage points respectively). The other two variables of interest are our two instrumented wealth variables (a household's own wealth and parental wealth). In both specifications (columns 2 and 3), the coefficient on the household's *own wealth* variable is highly statistically significant, consistent with all other specifications reported earlier. Moreover, the size of the coefficient increases compared to the OLS-estimate. The implied quantitative (causal) effects are quite large. The effect of a change in own wealth from $10,000 to $50,000 increases the likelihood of homeownership by 10.6 percentage points and 10.5 percentage points respectively, compared to 6.7 percentage points based on the OLS-estimate.[22] In contrast to the household's own wealth, the coefficient on the (instrumented) *parental wealth* variable is not statistically significant in either of the two specifications, suggesting that parental wealth may not have a causal effect on the homeownership status of the children. Finally, the TSLS-estimates reported in columns (2) and (3) of Table 8 do not only suggest that the causal effect of a household's own wealth on the probability of homeownership may be greater than suggested by OLS-estimates, they also imply that household income has no independent effect on homeownership, when the endogeneity of wealth is accounted for.

The final four columns (4) to (7) of Table 8 report results for the specifications with the broad and the narrow set of instruments separately for the group of black households and the

[22] Note that the relevant quantitative effects for 'changes in wealth' reported for Tables 5 to 7 are not directly comparable with those reported for Table 8. The quantitative effects are for a change in own wealth from *below* $10,000 to *above* $50,000 in the former case and from (precisely) $10,000 to (precisely) $50,000 in the latter case.

group of white households. Interestingly, while the positive effect of the household's own wealth on homeownership is statistically significant in all cases, the coefficients are now somewhat larger for white households than for black households. This is in contrast to the findings reported in columns (2) and (3) of Table 7 where wealth was assumed to be exogenous. However, it should be noted that exactly like for Table 7, the hypothesis of equality of the corresponding parameter estimates of the wealth variables for the two groups cannot be rejected with 90 percent confidence in any case. The results reported in columns (4) to (7) further imply that parental wealth has no statistically significant causal effect on the housing tenure choice of the children independent of whether the group of black or white households is considered. When estimating the TSLS-specifications separately for the two groups, among the income variables only the coefficient on the variable 'household income is more than 75,000' is statistically significant (at the 1 percent level) but only for the group of black households. Tests of the hypothesis of equality of the parameter estimates of this variable can be rejected with 90 percent confidence in the specification with the 'broad' set of instruments but not in the specification with the 'narrow' set of instruments (84 percent confidence). Finally, Table 8 also reports Hansen J-statistics, which provide a test of overidentifying restrictions for the TSLS-estimates. The joint null hypothesis that the instruments are valid instruments (i.e., uncorrelated with the error term; excluded instruments are correctly excluded from the estimating equation) cannot be rejected in any of the specifications at any reasonable level of confidence.

4.4 Results of Multinomial Logit Estimates

In the empirical analysis above we assume that households choose their macro-location independent of their housing tenure. However, it is conceivable that macro-location types and the housing tenure are simultaneously determined. To address this concern we also estimate a multinomial logit model, which parameterizes a choice between 12 outcome categories (rent in macro-location type 1; own in macro-location type 1; … ; rent in macro-location type 6; own in macro-location type 6):

$$\Pr\left(Y_i = j\right) = \frac{e^{\left(Z_i\beta_j\right)}}{\sum_{k=1}^{12} e^{\left(Z_i\beta_k\right)}}.^{23} \qquad (4)$$

[23] For a definition of the six macro-location types see the notes in Table 10.

The subscript j runs from 1 to 12, corresponding to the 12 outcome categories. Z_i is a vector of explanatory variables and β_j are the corresponding sets of coefficients, corresponding to each outcome category j.

Table 10 reports the estimated coefficients of the multinomial logit model for our variable of interest 'household head is black' transformed to 'relative risk ratios' e^{β_j} and corresponding (transformed) robust standard errors.[24] We also report test statistics of the null-hypothesis that the relative risk ratios are equal for the two tenure choices within each macro-location type category. The hypothesis of equality cannot be rejected at the 10 percent level in any of the cases, implying that the 'household head is black' variable may not have a statistically significant differential impact on own/rent outcomes within each macro-location type (all else equal).

We subsequently use the relative risk ratios from Table 10 to compute *implied* homeownership rates for the two groups of black and white households (in each of the six macro-location categories). Table 11 reports these implied homeownership rates (in addition to the *actual* homeownership rates). We estimate the implied homeownership rates using the 'method of recycled predictions'. That is we first pretend that all households in our sample are black but hold their other characteristics constant. We then calculate the probability of each of the twelve outcomes. Next we pretend that all households in our sample are white, still holding all other characteristics constant. Again, we calculate the probability of each outcome. Finally, we compute the implied homeownership rates as the weighted average homeownership rate in each location type category. The black-white differences in the implied homeownership rates – also reported in Table 11 – are the differences due to race, holding all other characteristics constant. Table 11 reveals that similar to our binary logit estimates, the black-white homeownership gap decreases substantially, from 29 percentage points (actual gap) to just 2 percentage points (implied gap with all controls). Moreover, the implied homeownership rate for black households exceeds that for white households in three of the six categories. Overall, these results tentatively confirm our earlier findings that the black-white homeownership gap becomes more or less insignificant – both in a statistical and quantitative sense – when own and parental wealth and locational choices are accounted for. Stated differently, the suburbanization trend which is more pronounced for the group of white households and the (growing) black-white wealth gap appear

[24] No constraints were imposed. That is, coefficients are not constrained in any way and can vary across macro locations.

to explain to a large extent the (growing) black-white homeownership gap that cannot be explained by traditional variables.

5 Conclusions

In this paper we use the PSID intergenerational data in an attempt to explain the large and widening black-white gap in homeownership attainment. We first estimate a 'traditional' housing tenure choice model, which predicts an 'unexplained' black-white homeownership gap of 6.5 percent (similar to that identified in other recent housing tenure choice studies). When we *jointly* control for differences in own and parental wealth and in macro-location choices, the gap disappears entirely: it becomes insignificant in a statistical and quantitative sense.

Our findings imply that black-white differences in homeownership attainment can be explained by differences in demographic and socioeconomic household characteristics (including wealth), by differences in the wealth situation of the households' parents and by differences in locational choices. The black-white homeownership gap is neither the result of black-white differences in preferences for homeownership nor the consequence of discrimination *purely* based on race (i.e., independent of their income or wealth situation). However, consistent with previous research, our results also tentatively suggest that the various explanatory variables differentially impact the housing tenure outcomes of black and white households. In particular, our findings imply that macro-location types differentially impact homeownership propensities of black and white households. The fact that housing tenure outcomes of African Americans are much more location sensitive compared to those of Whites may be due to the fact that African Americans are, on average, much less wealthy and are therefore less able to diversify the inherent housing investment risk that tends to be highest in inner city locations. Future research may be able to disentangle whether the observed black-white 'differences in the responsiveness to changes in income and wealth' are the result of rational choices (i.e., different sensitivities and preferences between the two groups) or whether low income and low wealth form greater obstacles towards attaining homeownership for the group of black households, possibly as a result of discrimination on mortgage markets (in the process of qualifying for a mortgage or as the result of redlining by mortgage lenders in predominately black inner city locations).

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Summary Statistics and Regression Tables

TABLE 1
The Black-White Homeownership Gap in the United States

	Variable: Homeownership rate in %				
	1985	1990	1995	2000	2005
Total	64.3	64.1	64.7	67.2	68.9
Black	44.4	42.6	42.2	47.6	48.8
White	69.0	69.4	70.8	73.6	75.8
Gap	24.6	26.8	28.6	26.0	27.1

Source: Current Population Survey (Bureau of the Census).

TABLE 2
The Black-White Wealth Gap

	Variable: Median total household net wealth in U.S. dollar (nominal)				
	1984	1989	1994	1999	2001
Black	2000	4200	6950	8075	10000
White	46000	57000	78000	87000	96000
Nominal Gap	44000	52800	71050	78925	86000
Real Gap (base period: 1982-84)	42348	42581	47942	47374	48560

Source: 1984-2001 PSID, using 2001 weights, all years with available data. Real values are based on CPI with base period 1982-1984=100 (based on U.S. city average and all items).

TABLE 3
Black-White Differences in Macro-Location Choice

	Variable: Share of U.S. households living in a county where the size of the largest city equals or exceeds 50,000										
	1985	1986	1987	1988	1989	1990	1991	1992	1993	1999	2001
Black	0.88	0.88	0.86	0.85	0.85	0.85	0.83	0.82	0.81	0.74	0.71
White	0.78	0.77	0.76	0.74	0.73	0.73	0.71	0.69	0.67	0.54	0.49
Gap	0.10	0.11	0.10	0.11	0.12	0.12	0.12	0.13	0.14	0.21	0.22

Source: 1985-2001 PSID, using 2001 weights, all years with available data.

TABLE 4
Variable List and Summary Statistics for Base Regression Sample

Variable	Blacks (N=298) Mean	Blacks (N=298) Std. Dev.	Whites (N=685) Mean	Whites (N=685) Std. Dev.
Observed Housing Tenure (in 2001)				
Household is owner-occupier	0.36	0.48	.65	0.48
Household Specific Information (in 2001)				
Age of household head is between 24 and 29 (omitted category)	0.16	0.37	0.24	0.43
between 30 and 34	0.21	0.41	0.24	0.43
between 35 and 39	0.26	0.44	0.22	0.41
between 40 and 44	0.26	0.44	0.20	0.40
45 or older	0.12	0.33	0.096	0.30
Household head has children (no children = omitted category)	0.62	0.49	0.52	0.50
Number of children	1.33	1.35	0.98	1.14
Household head has one child	0.19	0.40	0.19	0.40
two children	0.26	0.44	0.21	0.41
more than two children	0.17	0.38	0.12	0.32
Household income	31505	28566	72244	78873
Median	*24980*		*54850*	
Household has no income (omitted category)	0.11	0.31	0.012	0.11
Household has income but less than 35,000 (omitted category)	0.53	0.50	0.28	0.45
between $35,000 and 74,999	0.28	0.45	.39	0.49
75,000 or above	0.08	0.27	.32	0.47
Total net wealth (incl. home equity, net of liabilities)	24095	62677	228950	1740398
Median	*5000*		*50000*	
Total net wealth (incl. home equity, net of liabilities)				
is less than 10,000 (omitted category)	0.58	0.49	0.28	0.45
between 10,000 and 49,999	0.29	0.45	0.22	0.41
at least 50,000	0.13	0.34	0.50	0.50
Education of household head in number of years	12.6	1.72	13.9	2.30
Household head has less than 12 years of education (omitted cat.)	0.20	0.40	0.095	0.29
finished high school	0.44	0.50	0.27	0.45
has some college education	0.27	0.44	0.26	0.44
finished college	0.06	0.24	0.27	0.44
has at least some postgraduate education	0.03	0.16	0.11	0.31
Household head is married	0.30	0.46	0.56	0.50
Household head has been unemployed/laid off during 2000	0.11	0.31	.045	0.21
Years since household head first formed own household	11.9	6.9	11.8	6.8
Occupation type (*if* employed)				
Professional, Technical, and Kindred Workers	0.12	0.33	0.24	0.43
Managers and Administrators, Except Farm	0.070	0.26	0.20	0.40
Sales Workers	0.023	0.15	0.074	0.26
Clerical and Kindred Workers	0.12	0.33	0.064	0.25
Craftsmen and Kindred Workers	0.097	0.30	0.16	0.36
Operatives, Except Transport	0.12	0.32	0.055	0.23
Transport Equipment Operatives	0.064	0.24	0.050	0.22
Laborers, Except Farm	0.040	0.20	0.022	0.15
Farmers and farm managers (omitted category)	0	0	0.012	0.11
Farm Laborers and Farm Foremen	0	0	0.0029	0.054
Service Workers, Except Private Household	0.13	0.34	0.054	0.23
Private Household Workers	0.010	0.10	0.0029	0.054

TABLE 4—*Continued*
Variable List and Summary Statistics for Base Regression Sample

Variable	Blacks (N=298) Mean	Blacks (N=298) Std. Dev.	Whites (N=685) Mean	Whites (N=685) Std. Dev.
Parental Characteristics in 2001				
Parents' income	17037	28041	56318	106961
Median	*500*		*31929*	
Parents' income				
none (omitted category)	0.46	0.50	0.095	0.29
more than 0 but less than 35,000 (omitted category)	0.37	0.48	0.42	0.49
between 35,000 and 75,000	0.13	0.44	0.25	0.43
more than 75,000	0.05	0.21	0.23	0.42
Parents' total net wealth (incl. home equity, net of liabilities)	56185	73426	533471	1122946
Median	*37885*		*252400*	
Parents' total net wealth (incl. home equity, net of liabilities) is				
less than 10,000 (omitted category)	0.28	0.45	0.088	0.28
between 10,000 and 50,000	0.32	0.47	0.061	0.24
greater than 50,000	0.41	0.49	0.85	0.36
Parents' (HH head) has less than 12 years of education (omitted category: no education at all)	0.54	0.50	0.19	0.39
finished high school	0.26	0.44	0.27	0.44
has some college education	0.12	0.33	0.18	0.38
finished college	0.027	0.16	0.17	0.38
has at least some postgraduate education	0.013	0.12	0.17	0.37
Parents (household head) live in different state than when young	0.37	0.48	0.30	0.46
Parental Characteristics in 1976				
Parents' income	7097	6234	19355	13596
less than 7,500 (omitted category)	0.59	0.49	0.10	0.30
between 7,500 and 14,999	0.30	0.46	0.32	0.47
between 15,000 and 34,999	0.11	0.31	0.50	0.50
greater than 35,000	0	0	0.085	0.28
Parents' occupation type (head) (omitted: not employed)				
Professional, Technical, and Kindred Workers	0.027	0.16	0.22	0.41
Managers and Administrators, Except Farm	0.013	0.12	0.15	0.36
Sales Workers	0.0067	0.082	0.067	0.25
Clerical and Kindred Workers	0.044	0.20	0.020	0.14
Craftsmen and Kindred Workers	0.16	0.37	0.24	0.43
Operatives, Except Transport	0.12	0.32	0.086	0.28
Transport Equipment Operatives	0.10	0.31	0.050	0.22
Laborers, Except Farm	0.13	0.34	0.032	0.18
Farmers and farm managers (omitted category)	0.037	0.19	0.039	0.19
Farm Laborers and Farm Foremen	0.020	0.14	0.0088	0.093
Service Workers, Except Private Household	0.057	0.23	0.041	0.20
Private Household Workers	0	0	0	0
Macro-Location Type				
Size of largest city in county of residence is 500,000 or more	0.28	0.45	0.12	0.32
100,000-499,999	0.28	0.45	0.26	0.44
50,000-99,999	0.11	0.31	0.098	0.30
25,000-49,999	0.067	0.25	0.16	0.37
10,000-24,999	0.12	0.33	0.17	0.38
Under 10,000 (omitted category)	0.15	0.36	0.18	0.38

Notes: The variable list and summary statistics are based on the base regression-sample for 2001. All data is from the PSID 2001. All cash values are in US-dollar ($).

TABLE 5

Binary logit estimate of the housing tenure choice (base regression), 2001

Specification	(1) Without Wealth		(2) With Wealth (Linear)		(3) With Wealth (Non-Linear)	
Explanatory Variables	Parameter Estimates	Robust Std. Err.	Parameter Estimates	Robust Std. Err.	Parameter Estimates	Robust Std. Err.
Household (HH) head is black	-0.81 **	0.20	-0.47 *	0.22	-0.26	0.23
Household income is						
between 35,000 and 75,000	0.82 **	0.19	0.65 **	0.20	0.25	0.23
more than 75,000	1.97 **	0.30	1.27 **	0.34	0.83 *	0.36
Total household net wealth (incl. home equity but deduct. liabilities) (in '000)			0.010 *	0.0045		
Total household net wealth is						
between 10,000 and 50,000					1.71 **	0.23
more than 50,000					3.30 **	0.26
Household head is unemployed	-0.85 (*)	0.48	-0.86 (*)	0.48	-0.93 (*)	0.52
Age of household head is						
30-34	0.74 **	0.25	0.58 *	0.24	0.42	0.29
35-39	0.77 **	0.29	0.32	0.30	0.12	0.32
40-44	1.20 **	0.36	0.81 *	0.37	0.74 *	0.37
45 or older	1.56 **	0.43	1.07 *	0.45	0.95 *	0.46
Household head is married	1.02 **	0.20	0.97 **	0.20	1.10 **	0.23
Household has						
one child	0.18	0.24	0.24	0.24	0.29	0.28
two children	0.71 **	0.24	0.72 **	0.24	0.71 **	0.26
three or more children	0.36	0.29	0.44	0.28	0.52 (*)	0.29
Household head has						
finished high school	0.77 **	0.26	0.61 *	0.26	0.56 *	0.28
some college education	0.52 (*)	0.28	0.33	0.28	0.13	0.30
finished college	0.77 *	0.34	0.55	0.35	0.28	0.39
at least some postgraduate education	0.65	0.44	0.33	0.45	0.32	0.48
Years since head first formed own HH	0.011	0.019	0.0081	0.18	-0.0043	0.020
Occupation type dummies (HH head)	*Yes*		*Yes*		*Yes*	
Parental characteristics	*No*		*No*		*No*	
Location type dummies	*No*		*No*		*No*	
Constant	-2.07 **	0.431	-2.03 **	0.40	-2.46 **	0.47
Number of observations	983		983		983	
Log-likelihood	-473.8		-440.3		-378.2	
Pseudo R^2	0.30		0.35		0.44	
Percent correct predictions (all)	76.7%		80.8%		83.2%	
among black households	75.2%		78.2%		81.5%	
among white households	77.4%		81.9%		83.9%	

Notes: Dependent variable: 1 if household is owner-occupier, 0 if household is renter-occupier. ** Indicates significance at the 1 percent level, * indicates significance at the 5 percent level, (*) indicates significance at the 10 percent level. Robust standard errors are in parenthesis. A 0.5 threshold was used to compute the percent of correct predictions.

TABLE 6

Binary logit estimate of the housing tenure choice (including parental characteristics), 2001

Specification	(1) With Parental Wealth			(2) With Parental Wealth and Income		
Explanatory Variables	Parameter Estimates		Robust Std. Err.	Parameter Estimates		Robust Std. Err.
Household head is black	-0.20		0.24	-0.21		0.24
Household income is						
between 35,000 and 75,000	0.23		0.23	0.22		0.22
more than 75,000	0.81	*	0.35	0.81	*	0.36
Total household net wealth is						
between 10,000 and 50,000	1.71	**	0.23	1.73	**	0.23
more than 50,000	3.30	**	0.26	3.30	**	0.26
Parents' household income is						
between 35,000 and 75,000				-0.23		0.27
more than 75,000				-0.032		0.30
Parents' total household wealth is						
between 10,000 and 50,000	0.73	*	0.36	0.75	*	0.37
more than 50,000	0.72	**	0.28	0.76	**	0.30
Years since head first formed own HH	-0.0047		0.21	-0.0060		0.21
Other socioeconomic and demographic variables (unemployment, age, marital status, children, education, occupation)	*Yes*			*Yes*		
Location type dummies	*No*			*No*		
Constant	-3.05	**	0.53	-3.01	**	0.53
Number of observations	983			983		
Log-likelihood	-374.9			-374.5		
Pseudo R^2	0.44			0.44		
Percent correct predictions (all)	83.2%			83.3%		
among black households	81.9%			82.2%		
among white households	83.8%			83.8%		

Notes: Dependent variable: 1 if household is owner-occupier, 0 if household is renter-occupier. ** Indicates significance at the 1 percent level, * indicates significance at the 5 percent level, (*) indicates significance at the 10 percent level. Robust standard errors are in parenthesis. A 0.5 threshold was used to compute the percent of correct predictions.

TABLE 7

Binary logit estimate of the housing tenure choice
(including own and parental household wealth and location type), 2001

Specification	(1) All households		(2) Blacks		(3) Whites	
Explanatory Variables	Parameter Estimates	Robust Std. Err.	Parameter Estimates	Robust Std. Err.	Parameter Estimates	Robust Std. Err.
Household head is black	0.085	0.24				
Household income is						
between 35,000 and 75,000	0.31	0.24	0.48	0.53	0.30	0.29
more than 75,000	1.00 **	0.36	3.28 **	1.05	0.76 (*)	0.41
Total household net wealth is						
between 10,000 and 50,000	1.71 **	0.23	2.12 **	0.42	1.63 **	0.31
more than 50,000	3.49 **	0.29	4.40 **	0.71	3.45 **	0.35
Parents' total household net wealth is between 10,000 and 50,000	0.76 *	0.37	1.46 *	0.65	0.084	0.61
more than 50,000	0.82 **	0.29	0.81	0.63	0.72 (*)	0.39
Years since head first formed own HH	0.031	0.21	0.025	0.045	0.0028	0.028
Size of largest city in county of residence is						
500,000 or more	-1.72 **	0.35	-2.71 **	0.69	-1.24 **	0.45
100,000-499,999	-1.11 **	0.32	-2.87 **	0.60	-0.48	0.41
50,000-99,999	-.0080	0.42	-1.65 *	0.83	0.87 (*)	0.52
25,000-49,999	-0.40	0.38	-1.24	0.99	-0.095	0.44
10,000-24,999	-0.24	0.33	-0.55	0.68	-0.081	0.41
Other socioeconomic and demographic variables (unemployment, age, marital status, children, education)	*Yes*		*Yes*		*Yes*	
Constant	-2.50 **	0.59	-2.78 **	0.92	-2.86 **	0.76
Number of observations	983		298		685	
Log-likelihood	-356.4		-94.9		-239.3	
Pseudo R^2	0.47		0.51		0.46	
Percent correct predictions (all)	84.2%					
among black households	82.9%		83.6%			
among white households	84.8%				84.8%	

Notes: Dependent variable: 1 if household is owner-occupier, 0 if household is renter-occupier. ** Indicates significance at the 1 percent level, * indicates significance at the 5 percent level, (*) indicates significance at the 10 percent level. Robust standard errors are in parenthesis. A 0.5 threshold was used to compute the percent of correct predictions.

TABLE 8
Ordinary Linear Probability and TSLS Estimates of the Housing Tenure Choice, 2001

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Estimator	OLS	TSLS	TSLS	TSLS	TSLS	TSLS	TSLS
Instruments		Broad Set	Narrow Set	Broad Set	Broad Set	Narrow Set	Narrow Set
Sample	All	All	All	Blacks	Whites	Blacks	Whites
Household head is black	-0.029	-0.00077	-0.014				
	(0.035)	(0.046)	(0.054)				
Natural log of total household net wealth (incl. home equity but deduct. liabilities)	0.045 **	**0.072 ** **	**0.071 ** **	**0.041 * **	**0.068 ** **	**0.038 * **	**0.055 (*)**
	(0.0033)	**(0.020)**	**(0.027)**	**(0.017)**	**(0.022)**	**(0.017)**	**(0.031)**
Natural log of parents' total household wealth (incl. home equity but deduct. liabilities)	0.0064 (*)	**0.0020**	**-0.0029**	**0.012**	**0.0016**	**0.019**	**-0.016**
	(0.0034)	**(0.011)**	**(0.017)**	**(0.013)**	**(0.013)**	**(0.016)**	**(0.022)**
Household income is between 35,000 and 75,000	0.092 **	0.041	0.046	0.054	0.050	0.049	0.078
	(0.035)	(0.050)	(0.059)	(0.070)	(0.059)	(0.072)	(0.073)
Household income is more than 75,000	0.18 **	0.090	0.097	0.36 **	0.066	0.36 **	0.12
	(0.045)	(0.080)	(0.10)	(0.096)	(0.093)	(0.095)	(0.12)
Other socioeconomic and demographic variables (unemployment, age, marital status, children, education, mobility, type of occupation, number of years since formed own household)	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Location type dummies	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*	*Yes*
Constant	0.086	-0.034	0.016	-0.023	-0.094	0.064	0.13
	(0.073)	(0.11)	(0.15)	(0.14)	(0.14)	(0.16)	(0.23)
Observations	983	983	983	298	685	298	685
Adjusted R-squared	0.48						
Hansen J-statistic[a]: P-value		0.84	0.69	0.36	0.98	0.27	0.97

Notes: Dependent variable: 1 if household is owner-occupier, 0 if household is renter-occupier. ** Indicates significance at the 1 percent level, * indicates significance at the 5 percent level, (*) indicates significance at the 10 percent level. Robust standard errors are in parenthesis. **Bold** variables are endogenous. The broad set of instruments includes dummy variables for parental household income categories in 1976, dummy variables for the occupation type of the parents (household head) when the household was young (in 1976), dummy variables for the level of education of the parents (household head), and a dummy variable for whether the parents' household head lives in different state than when young. The narrow set of instruments excludes the parental household income category dummies. [a] The Hansen-Sargan test is a test of overidentifying restrictions. The joint null hypothesis is that the instruments are valid instruments (uncorrelated with the error term; excluded instruments are correctly excluded from the estimated equation). The null hypothesis cannot be rejected in any of the specifications reported in columns (2) to (7).

TABLE 9
Marginal Analysis, 2001

Specification	Marginal Effect		Elasticity		Change in % points	
	Effect of race (being Black versus being White) on likelihood that household is owner-occupier					
Table 5 (1) – *no wealth*	-0.20	**	-0.098	**	-6.47%	**
Table 5 (2) – *wealth linear*	-0.074	*	-0.026	*	-2.16%	*
Table 5 (3) – *wealth non-linear*	-0.062		-0.030		-1.93%	
Table 6 (1) – *add parental wealth*	-0.048		-0.024		-1.49%	
Table 6 (2) – *parental wealth + income*	-0.051		-0.025		-1.58%	
Table 7 (1) – *plus macro-location*	0.020		0.0099		+0.60%	
Table 8 (1) – *OLS*	-0.029		-0.016		-0.90%	
Table 8 (2) – *TSLS, broad set of instr.*	-0.00077		-0.00042		-0.023%	
Table 8 (3) – *TSLS, narrow set*	-0.014		-0.0075		-0.42%	
	Effect of change in *own* wealth from *below* \$10,000 to *over* \$50,000 on likelihood that household is owner-occupier					
Table 5 (3) – *wealth non-linear*	0.60	**	0.49	**	+31.2%	**
Table 6 (1) – *add parental wealth*	0.61	**	0.49	**	+31.1%	**
Table 6 (2) – *parental wealth + income*	0.61	**	0.50	**	+31.2%	**
Table 7 (1) – *plus macro-location*	0.64	**	0.52	**	+31.8%	**
Table 7 (2) – same, but Blacks only	0.78	**	0.45	**	+10.8%	**
Table 7 (3) – same, but Whites only	0.60	**	0.44	**	+32.7%	**
	Effect of change in *own* wealth from \$10,000 to \$50,000 on likelihood that household is owner-occupier					
Table 8 (1) – *OLS*	0.045	**	0.67	**	+6.7%	**
Table 8 (2) – *TSLS, broad set of instr.*	0.072	**	1.08	**	+10.6%	**
Table 8 (3) – *TSLS, narrow set*	0.071	**	1.07	**	+10.5%	**
	Effect of change in *parental* wealth from below \$10,000 to over \$50,000 on likelihood that household is owner-occupier					
Table 6 (1) – *add parental wealth*	0.17	**	0.20	**	+12.5%	**
Table 6 (2) – *parental wealth + income*	0.18	**	0.21	**	+13.3%	**
Table 7 (1) – *plus macro-location*	0.20	**	0.23	**	+13.8%	**
Table 7 (2) – same, but Blacks only	0.15		0.25		+6.0%	
Table 7 (3) – same, but Whites only	0.15	(*)	0.15	(*)	+11.6%	(*)
	Effect of change in *parental* wealth from \$10,000 to \$50,000 on likelihood that household is owner-occupier					
Table 8 (1) – *OLS*	0.0064	(*)	0.12	(*)	+1.2%	(*)
Table 8 (2) – *TSLS, broad set of instr.*	0.0020		0.040		+0.4%	
Table 8 (3) – *TSLS, narrow set*	-0.0029		-0.06		-0.6%	
	Effect of move from location with size of largest city in county under 10,000 to 500,000 or more					
Table 7 (1) – *with macro-location*	-0.40	**	-0.11	**	-6.7%	**
Table 7 (2) – same, but Blacks only	-0.36	**	-0.56	**	-13.7%	**
Table 7 (3) – same, but Whites only	-0.28	**	-0.037	**	-2.8%	**

Notes: Marginal effects are for discrete changes of dummy variables from 0 to 1. The marginal effects and elasticities are measured at the means of the independent variables.

TABLE 10
Relative Risk Ratios of 'Household Head is Black Variable', Multinomial Logit, 2001

Category	Explanatory Variable: Household head is black — Relative Risk Ratio		Robust Standard Error	Test on Equality of β_{black} between Equations for each Location Type
Rent in Macro-Location Type 1	3.6	**	1.5	Prob > chi2 = 0.21 †
Own in Macro-Location Type 1	7.0	**	3.6	
Rent in Macro-Location Type 2	2.3	*	0.94	Prob > chi2 = 0.46 †
Own in Macro-Location Type 2	1.7		0.71	
Rent in Macro-Location Type 3	2.9	(*)	1.7	Prob > chi2 = 0.15 †
Own in Macro-Location Type 3	1.1		0.52	
Rent in Macro-Location Type 4	0.62		0.33	Prob > chi2 = 0.37 †
Own in Macro-Location Type 4	1.1		0.52	
Rent in Macro-Location Type 5	0.69		0.34	Prob > chi2 = 0.90 †
Own in Macro-Location Type 5	0.74		0.33	
Rent in Macro-Location Type 6	0.70		0.33	
Own in Macro-Location Type 6 (= Base Category)	0			

Notes: ** Significant at 1 percent level, * significant at the 5 percent level, (*) significant at the 10 percent level. Robust standard errors are in parenthesis. † The null-hypothesis of equality of relative risk ratios cannot be rejected at the 10 percent level. The macro-location types are defined as follows: 1: 'Size of largest city in county of residence is 500,000 or more'; 2: 'size is 100,000 to 499,999'; 3: 'size is 50,000 to 99,999'; 4: 'size is 25,000 to 49,999'; 5: 'size is 10,000 to 24,999'; 6: 'size is under 10,000'.

TABLE 11
Observed and Implied Homeownership Rates based on Multinomial Logit, 2001

Sample	Observed Homeownership Rate — Black	White	Total	Implied Homeownership Rate — Black	White	Total
Macro-Location Type 1	0.26	0.48	0.37	0.51	0.39	0.45
Deviation from Mean	*-0.11*	*0.11*		*0.06*	*-0.06*	
Macro-Location Type 2	0.28	0.60	0.50	0.45	0.53	0.51
Deviation from Mean	*-0.22*	*0.10*		*-0.06*	*0.02*	
Macro-Location Type 3	0.39	0.85	0.70	0.58	0.77	0.71
Deviation from Mean	*-0.31*	*0.15*		*-0.13*	*0.06*	
Macro-Location Type 4	0.50	0.68	0.65	0.71	0.60	0.62
Deviation from Mean	*-0.15*	*0.03*		*0.09*	*-0.02*	
Macro-Location Type 5	0.44	0.66	0.61	0.58	0.58	0.58
Deviation from Mean	*-0.16*	*0.05*		*0.00*	*0.00*	
Macro-Location Type 6	0.53	0.67	0.63	0.66	0.59	0.61
Deviation from Mean	*-0.10*	*0.03*		*0.05*	*-0.02*	
All locations (all households)	0.36	0.65	0.56	0.55	0.57	0.56
Deviation from Mean	*-0.20*	*0.09*		*-0.01*	*0.01*	

APPENDIX TABLE A1
Binary logit estimate of the housing tenure choice, full sample, 2001

	(1)		(2)		(3)	
Household head is black	-0.106					
	(0.095)					
Household income is between 35,000 and 75,000	0.261	*	0.231		0.280	*
	(0.104)		(0.186)		(0.129)	
Household income is more than 75,000	0.838	**	0.964	**	0.747	**
	(0.167)		(0.371)		(0.193)	
Total household net wealth is between 10,000 and 50,000	2.154	**	2.371	**	1.992	**
	(0.096)		(0.149)		(0.130)	
Total household net wealth is more than 50,000	3.569	**	3.585	**	3.567	**
	(0.113)		(0.197)		(0.142)	
Size of largest city in county of residence is 500,000 or more	-1.115	**	-1.585	**	-0.771	**
	(0.135)		(0.202)		(0.195)	
Size of largest city in county of residence is 100,000-499,999	-0.902	**	-1.361	**	-0.626	**
	(0.127)		(0.210)		(0.160)	
Size of largest city in county of residence is 50,000-99,999	-0.392	*	-0.933	**	-0.069	
	(0.165)		(0.283)		(0.200)	
Size of largest city in county of residence is 25,000-49,999	-0.568	**	-0.756	*	-0.429	*
	(0.153)		(0.295)		(0.179)	
Size of largest city in county of residence is 10,000-24,999	-0.234	(*)	-0.582	*	-0.029	
	(0.137)		(0.245)		(0.166)	
Other socioeconomic and demographic variables (unemployment, age, marital status, children, education)	*Yes*		*Yes*		*Yes*	
Constant	-2.633	**	-2.662	**	-2.797	**
	(0.197)		(0.327)		(0.257)	
Number of observations	6105		2023		4082	
Log-likelihood	-2094.0		-781.2		-1288.5	
Pseudo R^2	0.47		0.44		0.45	
Percent correct predictions (all)	86.1%					
among black households	83.3%		83.9%			
among white households	87.6%				87.6%	

Notes: Dependent variable: 1 if household is owner-occupier, 0 if household is renter-occupier. ** Indicates significance at the 1 percent level, * indicates significance at the 5 percent level, (*) indicates significance at the 10 percent level. Robust standard errors are in parenthesis. A 0.5 threshold was used to compute the percent of correct predictions.