The Transition to Home Ownership and the Black-White Wealth Gap

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Differences in housing wealth account for a large proportion of the wealth gap between black and white Americans, but a joint analysis of the various factors likely to generate differences in home ownership, by race, has never been attempted. Our paper fills this void. By following a sample of black and white renters over time, we are able to separately study racial differences in the likelihood of applying for a mortgage as well as racial differences in the likelihood that a mortgage application is accepted. We find that blacks are less likely than otherwise comparable whites to become homeowners chiefly because they are less likely to apply for mortgages in the first place. Additionally, we find strong evidence that black applicants are almost twice as likely as comparable white households to be rejected, even when credit history proxies and measures of household wealth are included. In analyzing the transition into home ownership, we account for potential racial differences in rental markets. We find that differences in rental market outcomes do not explain any of the black/white gap in applications. We present suggestive evidence that the racial difference in application rates can be explained by differences in the role that families play in helping to generate mortgage down payments.

1 Introduction

The large disparity in wealth between black and white American families has been the subject of much recent discussion and research.[1] Why blacks have so much less wealth than whites remains an unsolved question, but the final answer will undoubtedly come from one of two sources. Since wealth is a function of the level and the timing of earned income received over the lifecycle, a portion of the gap can likely be attributed to racial differences in these streams. And, since the efficiency with which savings are converted into wealth depends on the particular savings instrument used, some of the racial wealth gap probably derives from racial differences in the ownership of particular instruments, and differences in the returns that the various instruments yield.[2]

Historically, home ownership has been a particularly important vehicle for accumulating wealth.[3] Because the equity held in their home represents the largest component of non-annuitized wealth for most Americans, it is almost certainly the case that the racial wealth gap hinges significantly on racial differences in home ownership rates and home values. Accounting for the large gap in wealth between black and white American families therefore necessarily entails learning about the extent and sources of racial home ownership differences.

This paper represents an attempt to address these issues. Specifically, it analyzes the transition into home ownership by 1996 for a sample of blacks and whites who are renters in 1991. Apart from the fact that we examine home ownership in the 1990's, our work extends the small, existing literature on race and home-ownership in three distinct

[1] See Blau and Graham (1990), Oliver and Shapiro (1995), Smith (1995), Hurst, Luoh and Stafford (1998), and Barsky, Bound, Charles, and Lupton (2000).

[2] Racial differences in wealth held as of a given age can also come from differences in preferences, differences in expected length of life, or differences in probabilities of consumption shocks associated with illness and family dissolution.

[3] Hurst, Luoh and Stafford (1998) document that over a third of total household non-pension wealth is in real estate and that most households have an overwhelming majority of their non-pension wealth in home equity.

ways. First, we use panel data from the *Panel Study of Income Dynamics (PSID)* to follow the same individuals over time and analyze their *transition* from renter to home-owner status. The use of longitudinal data allows us to isolate the causal relationship between a rich set of explanatory variables and home ownership much better than can be done with cross sectional data, for which endogeneity bias is likely to be a major concern. Second, using a new data supplement from the *PSID*, ours is the first study to decompose and separately study the two constituent parts of race differences in home owning outcomes - differences between blacks and whites in the propensity to take steps to initiate home ownership; and racial differences in the likelihood that a mortgage application is accepted by a lending institution.[4] Also, within these two broad categories, we are able to separately test among many competing explanations as to the cause of a black/white home ownership differential.

Third, we analyze two important determinants of home ownership which to this point have been ignored in the literature. We discuss how differential outcomes in the rental market affect home ownership transitions. If households face differential treatment in the rental market, this should have a direct impact on the decision to purchase a home. Additionally, we study whether differences in less formal credit channels (i.e., family assistance in down payments) can be a possible explanation for the observed gap in home ownership.

Previewing our results, we find that for our sample of 1991 renters, whites were much more likely than blacks to become home-owners by 1996, even after controlling for key variables such as the level of income and wealth in the years around 1991. Despite the fact that blacks mortgage applicants were 85% more likely than whites to be rejected, negative treatment by financial institutions was not the main source of

[4]There have been some attempts to address the latter of these topics but, as discussed in Section 3, our work extends the literature on racial differences in mortgage access in many directions.

the difference in transitions. Instead, blacks became homeowners at a much lower rate than whites because they were so much less likely to apply for mortgages in the first place. Blacks were 20% less likely than whites to initiate a mortgage application, but this gap accounted for 89% of the gap in transitions. We also find that it is only with respect to whether they get a loan at all that black and whites mortgage applicants appear to be treated differently. We find no evidence of a difference, by race, in the terms of the loan for persons whose applications were successful.

Our data offer little support for the proposition that the rental market is the source of the application differential, as analysis of rental prices reveals only modest difference in rents paid by black and white households. Moreover, direct inclusion of controls for rents paid at the beginning of the sample period in the mortgage application regressions does little to reduce the racial application gap. We argue that part of the applications gap may be due to a greater anticipated probability of application rejection by blacks. We speculate as well that differences across the races in the degree to which applicants can rely on family for help in financing their down payments may also play a role in the applications gap. While only suggestive, our evidence on this latter point is quite strong, as we document large racial differences in the role of family assistance between blacks and whites who became homeowners.

The remainder of the paper is organized as follows. In the next section, we review the basic determinants of households' decisions to transition into home ownership. In Section 3, we relate our work to the previous literature. We describe and summarize data used in the analysis in Section 4. Section 5 presents our results, and then we conclude.

In the next section, we present a simple description of home ownership designed to help organize subsequent empirical work. There is nothing novel in the presentation, as the essential features of the home buying process are well understood.

2 Buy or Rent: A Review of a Familiar Problem

Consider a set of decision-makers who are contemplating whether to buy their own homes. As with all purchases, they will differ not only with respect to their valuations of the benefits provided by the owning a home, but also with respect to what we might terms their "constraints" - their capacity to purchase housing given their individual valuations. To speak of possible differences in valuations, one must have a notion of the functions home ownership serves. Two come immediately to mind.

First, because housing prices appreciate, a home purchase marks a form of savings. Blacks and whites might differ in this valuation, all else equal, because of racial differences in the expected returns of housing, as well as in *other* wealth generating instruments.[5] The second function served by home ownership, since most homeowners live in the house they purchase, is to provide a flow of housing services. Our data do not allow us to explore whether housing brings different investment returns to blacks and whites. Instead, we focus on why there might be systematic differences in valuation, by race, for the housing services brought by home owning; and whether there are differences, by race, in the capacity to obtain the funds necessary to execute a purchase.

Consider first the issue of possible differential valuation for the housing services brought by home owning. Since housing is a service which must be consumed somewhere, persons considering buying a home will generally be renting at the time they

[5]For example, if blacks and whites are not equally well informed about the stock market, or if employer-provided pension plans are not equally offered across races, there will be a systematic difference in the valuation for home ownership as a wealth generating instrument. Also, rates of return from home owning may differ systematically by race because of racial segregation in housing markets. Given that blacks and whites have different incomes, on average, housing values might appreciate differently in the two communities, causing the attractiveness of housing as an investment vehicle to differ between blacks and whites as well. Coate and Vanderhoff (1993), using data from the American Housing Survey, find that single-family home appreciation *does* depend primarily on income and population growth in the local real estate market, but that the race of the home owner is not important to the appreciation process, once controlling for income and location.

are making the decision. The value of the housing benefits from home owning is thus a relative one: people buy a home if their anticipated gains from renting are small *relative* to those from owning. What factors might generate systematic variation across races in these relative valuations?

One possibility is the fact that renters only commit to use and pay for housing services for short intervals. Individuals who are leery of long-term commitments either because they are more mobile, have more fragile relationships or face greater job insecurity, may be less anxious to move into their own homes. For households with more variable income streams or more unstable family structures or both, renting is a much easier way to adjust the flow of housing services relative to purchasing a home outright. To the extent that blacks and whites differ with respect to the volatility of their work experiences and the stability of their families, we might expect to see a racial difference in the propensity for homeownership.

If rental markets are competitive, blacks and whites should pay similar rents for similar properties - even if black households, on average, place a higher value on renting. But rental markets may not be competitive. In particular, there is evidence that some landlords engage in discrimination against their black tenants.[6] If blacks are discriminated against, their rents, all else equal, should be higher than whites for a comparable rental unit. These supra-normal rents should, *ceteris paribus*, propel black households *into* homeownership so as to avoid the discriminatory behavior. We are able to address both parts of the problem posed by the rental market in the work below. Because we observe rents paid in the period prior to home purchase, we can determine whether there is differential treatment received by black and white renters. Then, we are able to determine the degree to which the difference in home ownership

[6]See Ondrich, Stricker and Yinger (1999) for examples of discrimination in the rental market. We discuss the literature on discrimination in housing markets in great depth in the next section.

behavior between black and white households is a function of the different rents that the groups pay.

Buying a home means paying up front to the incumbent owner an amount equal to at least the entire discounted stream of anticipated rent she could receive on the house now and in the future. The logic here is straightforward. Because rental property continues to belong to the incumbent homeowner once a lease expires, the homeowner can rent it again for future gains. If the incumbent owner sells the home, she forfeits any future returns from the property, so she must charge a high enough price to make a sale worth her while. The problem with this arrangement is that few people will have on hand such a large amount of savings. In order to buy, a potential homeowner will typically have to borrow a large sum of money. And, in order to safeguard their investment, financial institutions will require a large, fixed down-payment as collateral (usually as high as twenty percent of the purchase price of a house).

Some type of a down payment requirement would exist whether or not financial institutions were more likely to accept loan applications made by members of one particular racial group. We refer to the difference between people in their capacity to generate this fee as a 'down-payment constraint'. Also, even if we suppose that the requirement of a down payment applies equally to all potential borrowers, financial institutions may not be equally likely to accept all mortgage applicants, all else equal. Differences between people in home ownership transitions which can be traced to any such differential treatment in lending markets we will refer to as having been caused by a 'borrowing constraint'.

The well documented difference in wealth between black and white households is the most obvious reason that the down payment constraint may affect blacks and whites differently.[7] Additionally, blacks and whites of the same income and the same

[7]Gyrouko and others have addressed the role of down payment in housing tenure choices. We

level of wealth may not be equally able to meet a down payment requirement if whites can rely on family members and loved ones for substantial down payment assistance. And, anticipating that they will not be able to make the down payment, blacks may be less likely to apply in the first place. This is a type of "endowment" difference, whereby households of similar income and savings differ in their ability to secure help from friends and loved ones.

Our empirical work below provides suggestive evidence on this endowment issue. Specifically, we look at racial differences in the source of down payment for loans for those households who successfully secured a mortgage. The evidence is only suggestive because the data do not allow us to determine whether people who did not apply for loans *would have* received down payment help from friends and family. But since it is reasonable to suppose that the people who *did* apply for loans were those who anticipated that they would have been able to come up with their down payments, racial differences in family assistance for these applicants are likely smaller (or at least not larger) than the differences among the group who did not apply.

To determine the role played by borrowing constraints in generating racial differences in home ownership transitions, we assess the degree to which black and white renters are treated differently when they apply for loans, holding constant relevant observables, including unemployment and credit history. Any racial difference in treatment is a measure of the "direct" effect of the borrowing constraint. Whether banks apply a higher acceptance standard to black because of racial animus, or because of statistical discrimination,[8] the consequence of a higher acceptance threshold for blacks

discuss the contributions of these studies, as well as their limitations, in the next section.

[8]Loosely, statistical discrimination is the process whereby a market agent uses information about a *group* to form an estimate of the likely value of a characteristic for an *individual*. If blacks have higher rates of default than whites, on average, then loan applications by a black and a white potential homeowner will not be assessed the same level of "riskiness" by a bank which statistically discriminates. On average, this bank's behavior may make sense on profit-maximizing grounds even though individual blacks are assigned a higher level of riskiness than they should receive. See Aigner

is that, all else equal, black mortgage applicants will be less likely to be accepted than equally qualified whites.

We do not take a stand in this paper whether the differential rejection rates we find in our empirical work are the result of blatant preference-based discrimination or the result of statistical discrimination. We are merely interested in determining whether there is any evidence of differential acceptance standards for blacks and whites in the mortgage lending market.

Different application acceptance standards should have another, indirect effect on black home ownership transitions. Specifically, if applying for a loan is costly in terms of time and other resources, blacks will be less likely than whites to apply for loans in the first place if they expect differential treatment in the mortgage market. A black person with given characteristics will form a lower expectation about the likelihood that his loan application will be accepted than will his white counterpart, and should be less likely to apply for a loan. Un-equal treatment in the market for loans might result in a kind of feedback "discouragement effect" on black loan applications.

This discouragement effect is similar to what we described above about the effect of smaller anticipated help from family members in meeting the down payment requirement. Another source of discouragement could stem from differences in lender behavior in the terms of the loan being offered to otherwise identical households of differing races - something which has never formally been studied. Differential treatment in the mortgage rates may discourage black renters from deciding to purchase a home.[9]

and Cain (1977) for a description of statistical discrimination, and see Yinger (1996) for a discussion about the illegality of the use of statistical discrimination by mortgage lenders.

[9]It should be noted that there might also be racial differences in households' own assessments of their credit worthiness. In a recent study by Freddie Mac, it was found that twice as many black as white households with 'good' credit ratings reported that they had a 'bad' credit history (22 percent of blacks and 11 percent of whites). We might suppose that even though they would have been deemed credit worthy by a lending institution, these persons may not have applied for loans if they erroneously anticipated rejection. These greater systematic errors by blacks might be due to the fact that blacks

The work which follows may be briefly summarized. First, we separately study whether there are racial differences in the mortgage application decision on the one hand and in the likelihood that mortgages are accepted on the other. Then, we ask whether these racial differences can be made to disappear if information suggested by the discussion in the section is taken into account. Both aspects of our work are novel, in that previous work has not decomposed home transition outcomes into its constituent pieces. Nor have the different factors we consider as possible explanations for the differences in the two outcomes by race been studied jointly or with household data. In the next section, we outline the relevant existing literature with regard to racial differences in homeownership rates and discuss more fully how we improved upon this literature.

3 Relationship To Previous Research

Both the small, older literature and the few recent papers on race and home ownership differ substantially from what we present below. As mentioned, no previous paper simultaneously studies both racial mortgage application differences, and how blacks and white applicants are treated by lending institutions. Another important difference is that unlike the typical emphasis on home ownership *rates* and changes in these rates over time, this paper follows changes in home-owning outcomes for *particular individuals* over time.

Three recent papers have studied aggregate trends in homeownership rates using series of cross sectional data. Long and Caudill (1999) using data from the *Current Population Survey (CPS)* show that home ownership rates for married blacks decreased in absolute value between 1970 and 1986. Segal and Sullivan (1998) use the 1977 through 1995 March *CPS* to document trends in homeownership rates across races,

might have observed other putatively 'credit worthy' blacks being rejected by lending institutions.

education classes and income levels. They find that between 1977 and 1995, black homeownership rates fell by 2.6 percentage points while white homeownership rates increased by 0.4 percentage points. Collins and Margot (1999) use Census data from 1900 onwards to follow changes in home ownership rates over time and by race, and attempt to relate these to changes in variables such as income. They find that the racial home ownership gap at the beginning of 1900 was 26 percentage points. That gap fell to 19.5 percentage points in 1990. The primary focus of these studies is to document the trends in racial differences in homeownership rates over time and to relate these trends to broad income and demographic measures. None of the studies try to explain or isolate the factors that contribute to these persistent differences.[10]

Gyourko, Linneman and Wachter (1998), using three different cross sectional data sources including the 1983 *Survey of Cosumer Finances*, find that there is no racial differences in home ownership rates among households who have large enough wealth to meet down payment and closing cost requirements. However, they do find large ownership differences between black and white households with low wealth. One of the drawbacks of this study is that because wealth and homeownership are measured at the same point in time, it is quite difficult to disentangle the causality between the two. For example, might not the wealth of certain whites that the authors study be low *because* they just bought houses? Because we do not rely on evidence from a series of cross sections, we can isolate the role played by exogenous variable of interest without the confounding influence of cohort effects, time effects, and regime shifts which may

[10] Although differences across races was not their primary focus, Haurin, Wachter and Hendershott (1995) explore the homeownership rates of young families using data from the *National Longitudinal Survey of Youth*. They find that the saving behavior of young households dramatically increases in the year prior to and the year of a home purchase. They provide evidence that a large part of the increase in wealth is due to changes in marital status and a comparatively larger amount of gifts/inheritences during the periods prior to the transition to home ownership. They, however, are unable to isolate whether these gifts were used for a down payment, nor do they document differences in down payment sources for different racial groups.

change the relationship between home owning and other particular variables of interest.

Some of the most interesting and controversial work on race differences in home ownership has focused on whether blacks are discriminated against in the mortgage market.[11] Convincing evidence on preference-based discriminatory treatment has been hard to come by. It is not sufficient to note that blacks, on average, are more likely to be rejected than whites when they apply for loans. What matters to economists is whether blacks and whites who, from a bank's perspective ought to be *equally deserving* of loans, are treated differently. This has been a very difficult standard for empirical studies to meet because of the very limited information in most data sets about variables which banks use to determine credit risk.

A notable exception is the influential study by Munnel et.al (1996). The authors use data collected by the Boston Fed on mortgage loan applications made in Boston area banks in 1990. The data contain information on the race of the applicant, the size of the loan applied for, a summary measure of the applicant's credit rating, the applicant's income in the year that the application was made, the location of the desired home, and the bank at which the application was made. Many of the these variables have not been available in any previous study of lending discrimination. The main finding of Boston Fed Study *(BFS)* is that there are significant, unexplained differences in loan acceptance probabilities between blacks and whites, even after controlling for extensive measures of credit worthiness.

[11] Early work on differential racial effects in the mortgage include Black et al. (1978); Schafer and Ladd (1981); Yinger (1986); and Gabriel and Rosenthal (1991). Black et al. and Schafer and Ladd both looked at lender behavior in restrictive samples and had limitations on many of the variables (such as credit scores) which are important in lender decisions and are likely correlated with race. Yinger uses data from matched pair audits and finds high levels discrimination in the realtor market. Gabriel and Rosenthal, using data from the *1983 Survey of Consumer Finances* finds that minority households were less likely to obtain conventional financing than whites, even after controlling for various proxies of default risk. They interpret their results as suggesting that race effects in mortgage lending may persist for reasons unrelated to borrower default risk. See Ladd (1998) and Yinger (1999) for a more complete survey of the literature pertaining to racial effects in mortgage lending.

There have been a few criticisms of the *BSF* study since its publication. The first criticism centers on the *BFS* data itself. The *BSF* data come from a particular region of the country, and cover only a single year (Boston in 1990). Even if the results reflect discrimination, it is not clear whether they can be generalized. Also, the Boston Fed data do not identify the specific identity of each applicant. The data are collected at the level of the *application*, so it is possible that individuals might be responsible for more than one application in the data. To see the problem that this can cause, suppose that people who anticipate being rejected because of credit problems apply for more than one loan at several different banks, while people who know that their credit is good apply only once. If blacks constitute a disproportionate share of people with unobserved credit problems, loan applications in the BFS data, which are identified only by the fact that the applicant is black, would be those which would be disproportionately likely to be rejected. And a regression which treats the various applications as essentially independent will find, misleadingly, that blacks are more likely than whites to be rejected, controlling for observables.

The data in our study are free of some of these criticisms. Our data are collected at the individual level rather than at the level of the loan, so we need not worry about multiple applications. Our sample is nationally representative, so there is less concern that our results are driven by idiosyncracies of a particular region of the country. We lack the credit bureau information associated with each loan application that is available to the BSF analysts. However, our data contains information on variables which are likely to be very strongly correlated with any credit measures used by banks in determining individual credit worthiness. For example, we know whether the individual has faced financial difficulties in the years around the period that we study including whether households have had trouble paying their existing

bills, and whether creditors have called the household to demand payments.[12] We also have a record of every individual's unemployment and income history and a full set of demographic variables.

Aside from data issues, there has been some discussion in the literature about the interpretation which should be attached to the unexplained race differential in bank rejection rates. Is this evidence of preference-based discrimination or possible profit maximizing statistical discrimination? One way to disentangle between these possibilities may be to examine default rates for blacks and whites whose loan applications were successful. In an interesting paper, Berkovek et al. (1998), use information on default rates in data from the Federal Housing Administration to assess racial differences in default rates. Good discussions of the limitations of studies of this type may be found in Galster (1996), Ross (1996), and Yinger (1996). This issue is not a focus of our paper. We are merely interested in determining whether differential treatment in the mortgage market for households who want to buy a home can explain differences in home ownership rates across races. Also, we are curious whether race differences in rejection rates persist when controls for credit worthiness which are absent from most household surveys are taken into account.

There has been some recent research on the differential treatment across races in rental markets. Ondrich, Sricker and Yinger (1999), using matched pair audit studies, find that landlords are much more likely to restrict access to units, were more likely to restrict access to certain neighborhoods and were less likely to offer rental incentives if the perspective renter was black. Cutler, Glaeser and Vigdor (1999), using census data, find that landlords in 1990 were more likely to set rents to discourage black applicants than they were in the early part of the century. Unlike previous work, we know the rents paid by the households in our sample (not the average rents in an area)

[12] We discuss the data in depth in Section IV

and also have rich information on the characteristics of rental units. We are able to say which much greater confidence, therefore, whether any observed difference in rents paid derives from unequal treatment, or from the fact the prices refer to what are essentially different goods. While no previous research has analyzed racial differences in the rental market using household data or the role of differences in the rental market in home ownership outcomes, Collins and Margot in their study of race and home owning argue that considering rental prices might prove important, though their study has none of this information. By contrast, our regressions control directly for these effects.

Finally, our data allows us to address many topics which to date have not been addressed in the literature. As noted by Ladd (1998), in her survey of discrimination in mortgage lending, there is little work on racial differences in the terms of the mortgage conditional on having the mortgage accepted. We are able to make strides along this dimension because we observe the rates at which the household secured their mortgage, as well as a rich set of information about other terms of the mortgage. Additionally, given the structure of our data, we are able to disentangle and separately analyze the individual components of the home acquistion decision: considering getting a mortgage, applying for the mortgage conditional on considering and the lender's decision to accept the mortgage conditional on household applying. Also, while it has been noted by many authors that large down payment requirements may prevent many borrowers from securing a mortgage, there has been no analysis of racial differences in the role that the borrower's family plays in providing down payment relief. We provide a preliminary analysis of this issue.

4 Data

We use data from the *Panel Study of Income Dynamics (PSID)*. The *PSID* is a large scale survey started in 1968 which tracks the socio and economic variables of a given

family over time. In each year of the survey, demographic questions such as age, race, family composition, and education levels are asked of all members of the household. Among other information, the survey asks the households about labor market participation, earned labor and asset income, transfer payments received, and a variety of housing information (including rents paid, house value and outstanding mortgage payments). In 1994 and 1996, the *PSID* added more extensive questions on the terms of the mortgage, including information about the rate and when the mortgage was acquired.

The *PSID* supplements the main data set with special modules from time to time. In 1984, 1989 and 1994, the *PSID* asked households extensive questions about their wealth position. Aside from pensions (both private and public), the *PSID* data provides a relatively complete picture of household wealth.[13]

For our analysis, we also make use of two other "new" special supplements: the *1996 Mortgage Shopping Supplement* and the *1996 Financial Distress Supplement*. The *1996 Mortgage Shopping Supplement* asked all households (both homeowners and renters) about their recent experiences with mortgage lenders. Households with a new mortgage (households who initiated their mortgage between 1991 and 1996) were asked how much their down payment was, where they received their down payment, how they found their lender and about any previous relationships they had with their lender.[14]

Other home owners (those who did not initiate a mortgage between 1991 and 1996) where asked if they 'considered' getting a new mortgage between 1991 and 1996,

[13]The *PSID* wealth data has been shown to match survey of consumer finances data and flow of funds data up to the top 1 percentile. Given that the *PSID* does not over sample the 'super-rich', the wealth distributions of the *PSID* and the *SCF* do not align for the top 1 percent of the wealth distributions. However, many authors find that the *PSID* wealth data accurately depicts household wealth positions for the remainder of the distribution. See Hurst, Luoh, and Stafford (1998) and Juster, Smith and Stafford (1999) for a complete description of the data.

[14]Households with a new mortgage between 1991 and 1996 could have acquired a mortgage for the first time (new homebuyers), could have sold one home and acquired another, or could have refinanced an existing mortgage.

whether they 'applied' for a new mortgage during that time, and what was the outcome of the application if they applied. More importantly for this study, current renters were also asked whether they took steps to purchase a home during 1991 and 1996 (whether they considered buying a home, whether they applied for financing and what happened to the application if they applied).[15] One drawback to these *PSID* questions is that they only allow respondents to report their most recent mortgage shopping experience between 1991 and 1996. That means, if the household reported considering taking steps to purchase a house in 1996, we have no information on whether that same household considered taking steps to purchase a home between 1991 and 1995. Additionally, this data limitation forces us to restrict our sample of analysis to households in the survey between 1991 and 1996.

The *1996 Financial Distress Supplement*, asked households whether they had trouble paying bills, had creditors call frequently and demand payment, whether they had liens placed on their property or whether they had property repossessed at anytime during the 1991 and 1996 period. The following are the actual *PSID* questions that we used to compute our financial distress measure: Since 1991, have you (or your spouce) 1) found yourself unable to pay bills when they are due; 2) obtained a loan to consolidate or pay off debts; 3) had creditors call or come see you to demand payment; 4) had your wages attached or garnished by a creditor; 5) had a lien filed against your property because you were unable to pay your bills; and 6) had your home, car, or personal property repossessed. If the respondent answered yes to any of the previous questions, they were asked to indicate which year(s) between 1991 and 1996 they

[15]The following are the actual *PSID* questions that we used in our study: Since 1991, did you take steps to buy your own home? If so, what year was that? Did you apply for financing on any of the homes you considered? Why didn't you apply for financing? If you did apply, what happened with your application (was it turned down)? We treat households that 'took steps to buy a home' as being households who *considered* getting a mortgage, households who 'applied for financing' as being households who *applied*, and households who had their 'mortgage application turned down' as being households who were *rejected*.

experienced the financial distress. Unlike with the mortgage shopping data, it was possible that households could have reported having had trouble paying bills in all years between 1991 and 1996. Using this information, we created a dummy variable for financial distress in a each year with the value equal 1 if the household reported having *any* financial distress in that given year. We also separate financial distress into two forms - mild financial distress and more severe financial distress. Households were deemed to have mild financial distress if they responded yes to 1) or 3) and were classified as having more severe financial distress if they responded yes to 4), 5) or 6). The results in our empirical work were the same regardless of our financial distress measure. Additionally, the *PSID* asked households if and when the household went bankrupt.[16]

Our sample of renters consists of *PSID* households who: (a) are renters in 1991; and (b) who are present in every year between 1991 and 1996. Table 1 presents the summary statistics for the sample of 1991 renters. The means for the time varying characteristics are as of the 1996 survey year, and use the *PSID* 1996 weights. Little is noteworthy about the age and education distributions of our sample, except that blacks tend to be concentrated in the low tail of the education distribution and that there tend to be slightly more middle aged black renters. If the sample seems slightly young, this is likely because it consists of people who are all renters in 1991. This also explains the relative small number of children. One interesting difference is in family structure: a much larger proportion of black families are female-headed, and the incidence of marriage is much smaller for blacks. Between 1990 and 1994, annual income of the blacks in the sample was almost $10,000 less than that of their white counterparts. At the start of the time period that we study, blacks also paid less annual

[16]These bankruptcy questions were not restricted to the period between 1991 and 1996. These questions pertained to any time in the past that the household went bankrupt. See Fay, Hurst and White (1999) for a description of the *PSID* Bankruptcy Questions.

rent than whites.

Credit worthiness is likely to play a very important role in home ownership transitions. The last 4 rows of the table show means for four of these variables. Interesting, for two of the measures, bankruptcy and financial distress (which essentially means difficulty in paying off credit obligations), blacks and whites are very similar, on average . This counter-intuitive result can be explained very simply. To *get into* credit problems, one must been offered credit in the first place. To the extent that blacks are less likely to be granted credit cards, for example, then the likelihood that they encounter difficulties paying off their credit card bill is suppressed. A large race difference does show in the unemployment and bank account information. Over the 5 years period, 38 percent of the blacks in the sample experienced at least one bout of unemployment compared to only 28% for whites. Also, more than *twice* as many whites had a checking account in 1994.[17]

In the next section, we present the empirical results.

5 Results

5.1 Housing and Wealth

We begin with Table 2 which analyzes the effect of housing wealth on the racial wealth gaps. In this introductory portion of the analysis, our goal is to analyze the role that housing plays in explaining differences between blacks and whites in any randomly selected year. The results in this table are not drawn from our sample of renters as of 1991, but rather from the entire PSID sample in various survey years. Reassuringly, the results for our sample of 1991 renters are quite similar to the results for the full PSID sample. The results for different years using the full PSID sample are nearly identical in

[17] The difference in the incidence of owning checking accounts across races has been well document. See Hurst, Luoh and Stafford (1998).

cases where they are comparable.[18] We emphasize the 1994 sample years because this is the only year during our sample periods with information on all particular variables of interest (ie., wealth data).

The first two rows of the table show that the wealth gap between blacks and whites, with no controls, is very large. On average, black households in the PSID in 1994 have only $43,365 of wealth, compared to $220,000 for white household heads. The raw racial wealth gap evaluated at the medians is smaller than at the means, but it too is quite large. The median wealth of black household heads is just a bit more than $9,000 but is $77,000 for whites. The difference in the mean and median wealth gap is obviously the result of greater concentration among whites at the very high end of the overall wealth distribution.

The wealth gap falls considerably once we control for standard demographic measures, and average household income over the 5 preceding years, but it remains substantial. The conditional black shortfall is just over $24,000 at the mean, and is about $8,000 at the median. When we add an indicator variable for whether the head is a homeowner to the set of controls, the wealth gap at the means falls to only $14,580, and disappears completely at the medians. In other words, a very large potion of racial differences in wealth, especially at the median, may be attributed to differences in home ownership.[19]

Panel B assesses the magnitude of this home ownership difference. In 1994, only about 40% of black household heads owned their own home, compared to a home ownership rate of 66% for whites. Nor was this difference due to differences in observables

[18] The results for different years are available upon request.

[19] This, however, does not definitely imply that the differences in home ownership explains all of the wealth gap at the median. The correlation could go the other way with high wealth households being more likely to own a home - perhaps due to liquidity constraints. We will address this point on the potential endogeneity between wealth and home ownership to a greater extent later in this section. Additionally, there could be some unobserved characteristic, such as a household's time preference rate, which drives both saving and factors affecting the homeownership decisions.

between the races. In a linear probability model regression with a standard set of controls, the racial difference falls, but is still substantial at 13 percentage points.[20]. Panel C looks at the value of homes, conditional on being a homeowner. Not only are blacks less likely to own homes than whites, but when they do own the value of their homes is smaller at the means, at the medians, and with and without controls.

Table 3 summarizes transition into home ownership between 1991 and 1996 for our sample of renters. Over the 5 years period from 1991-1996, not only did the black and white 1991 renters differ in the rates at which they became home owners, but they also differed in each of the antecedent steps. Almost thirty percent of the white renters in 1991 had become home owners 5 years later, while only twelve percent of blacks had. When asked whether they had 'taken any steps to acquire a mortgage (considered getting a mortgage)', 33% of whites answered in the affirmative. Only 17% of blacks reported considering getting a mortgage. Similarly, conditional on having considered applying for a mortgage, there was a seven percentage point difference in the probability of actually applying for the mortgage between black and white renters. The middle two rows show that whites were about twice as likely as blacks to apply for mortgages overall. Finally, among those who applied for loans over the 5 years, blacks were much more likely to be rejected than whites, though it is important to note that the overall rejection incidence was not particularly large for either blacks or whites. A simple decomposition shows that 89 percent of the raw gap in transitions is due to differences in application probability, with only 11 percent due to differential treatment by lending institutions.

[20]The results were nearly identical when a probit was used to estimate home ownership probabilities

5.2 Transitions Into Home Ownership - The Mortgage Applications Gap

Understanding the differences in racial transition into home ownership requires examination of all of the differences summarized in the last three rows of the Table. We focus on the applications decision first. Can the racial gap in applications be explained by standard demographic differences between the races? Table 4 examines this issue. The first column shows that there is a raw applications differential of 16 percentage points. Adding controls for education, family status, and the number of children cause the gap be fall by more than one-half to 7 percentage points. Differences in family structures and stability explain some of the initial racial gap in applications. Households in which the head was initially married, became married or stayed married were more likely to apply for a mortgage during 1991 and 1996. Given the well documented differences in marital stability and family structure between black and white households, it is not suprising that the racial gap falls when standard demographic controls are added.

In the last two columns of Table 4, controls for own family income and for the quality of the neighborhood in which the family resides, such as average family income and and the incidence of poverty in the neighborhood (ie, initial zipcode of residence in 1991), are added to the regressions.[21]. Even with this rich set of controls, there is a 6 percentage point difference in application probability between blacks and whites. Note, households' level of family income proxies for the tax benefits a household gets from mortgage interest rate deductions. As expected, the higher the income, the more likely to consider buying a home. This effect diminishes as income gets increasing larger.

The discussion in Section 2 suggests that these standard demographic controls may

[21] In order to control for neighborhood characteristics at the zipcode level, we used the confidential *PSID* location indicators

be insufficient for understanding the racial gap in applications. In particular, the rental market faced by the potential homeowners may affect this outcome significantly. The amount of income uncertainty a family faces should matter as well, as should a family's own capacity to finance any down payment costs.

Table 5 examines rents paid in 1991 - a year when everyone in the sample was still a renter. The first column presents the average racial difference in annual rents. With no controls for individual or rental unit characteristics, black 1991 renters paid about $1,000 less in rent per year than whites. The second column shows that the entire racial difference in annual rental payments vanishes once controls for income, marital status measures, income and the size of the rental unit are added to the regressions. Income, income squared and property size have large effects in predicting household rents. The third column adds a detailed set of controls for the characteristics of the rental property and various measures of the neighborhood where the household lives including: 1) descriptions of the type property the household is renting; 2) whether the rent is subsidized by the government; 3) dummies for whether the household lives in a large urban area, a small urban area, or a large rural area[22]; and 4) characteristics of the zip code where the household resides. When these controls are added, black renters appear to pay slightly *more* in annual rents in 1991 though the effect is not statistically significant. In the last column we add race/age interactions. These results suggest that working age blacks, those less than 55, pay more for rent. The rent gap, however, is not very large—approximately $31 per month. In summary, there is some evidence that young blacks pay a small premium in the rental market, which to the extent that we accurately capture the characteristics of the rental property, could be consistent with the existing literature using aggregate data or housing audit which

[22]The omitted variable is a small rural area. The urban/rural measures came from the Beale-Ross Rural-Urban codes reported in the *PSID*.

finds discrimination in rental markets. However, the modest rent premium paid by blacks may well reflect the fact that there are aspects of rental property which are unobserved for which blacks may pay slightly more.

If the difference in rental market outcomes is due to discrimination, we may expect this differential treatment to provide incentive for blacks to enter the housing market. Table 6 gets at this formally. The first column adds rents paid in 1991 to the set of regressors in Table 4. Notice that the race coefficient is unchanged from the result with the basic standard controls. Additionally, the estimated effect of the rent variable in the housing application regression is negative - the opposite of what is predicted if discrimination in rental markets propelled black households into the home-owning.

The race coefficient does not change when we add other controls which the discussion in Section 2 suggests should be of some importance in explaining race differences in applications. The second and third columns in the Table control in turn for instability in earnings and capacity to make a down payment on the typical American home as of 1990. As controls for income instability we include whether the household head or wife was unemployed any time between 1991 and 1991, our mild financial distress and severe financial distress varialbes and a variable which captures the volatility of the households' recent labor income.[23] We expect all these variables will enter with a negative sign. Additionally, we add a control that captures whether the household can make a down payment on a typical house as of 1989. The mean housing value on all homes in the *PSID* during 1991 was $72,000. Assuming households would need to put 10% down when they purchased a home, we created a dummy variable equal to 1 if the household had stocks and checking account balances less than $7200 in 1989.[24]

[23]Our measure of household income volatility is to take the standard deviation of household labor income for all the years the household is in the sample between 1987 and 1994, relative to their permanent income over this time period.

[24]Note, we used 1989 wealth because the *PSID* only asked wealth measures in 1984, 1989, and 1994. Additionally, we used different cutoffs including 5% down and 20% down. All variations gave similar

Whereas all of these variables, aside from the income variability measure, affect application probabilities with their predicted sign, their inclusion in the linear probability models leaves an unexplained race gap in applications of about 5 percentage points.

In short, racial differences in the transition to home ownership are significantly affected by the smaller and un-explained probability of applying for mortgages of black renters. Our results show that while there is some evidence of a differential placed by blacks on consuming rental housing, this effect explains virtually none of the application difference. Nor does the inclusion of wealth, income, or standard demographics explain away these results. Our discussion earlier in the paper suggests that the racial applications difference could be due to what we term the endowment and discouragement effects. Later, we discuss the evidence on family assistance differences, by race, and discuss the role that this might play in the outcomes we observe. In the next subsection, we turn our attention to rejection differences by race.

5.3 Transitions Into Home Ownership - The Rejections Gap

Differential treatment from loaning institutions for those who do apply for loans obviously has a direct effect on home ownership transition probability. Because of what we have called the discouragement effect, there may also be an indirect feedback effect, in that anticipating being rejected makes one less likely to apply in the first place. While, it is impossible to obtain direct individual estimates of this discouragement effect, this possible effect of unobserved differential treatment by lending institutions should be kept in mind in what follows.

Table 7 presents the results of a series of linear probability estimates of the probability of having the mortgage application for a first home be rejected. The first column presents the raw race differential. Blacks are 11 percentage points more likely than

results.

whites to have the applications rejected. When we add controls which would be available in most household surveys, the race gap falls somewhat, but remains large at 8 percentage points. The main question raised by results such as those in the first two columns is whether the race gap reflects unequal and possibly unfair treatment or whether they reflect differences, by race, in credit worthiness which financial institutions but not the analyst are able to observe.

The third column in the table adds a set of variables which are likely to be strongly associated with credit worthiness which are not available in most surveys. Having experienced a bout of unemployment and having experienced self-assessed "financial distress" both raise the likelihood that a mortgage application will be rejected, as does the absence of significant net worth.[25] The effect of owning a checking account is what one would expect. Households with checking account are more likely to establish credit histories with lending institutions and are more likely to be financially sophisticated. Oddly, having declared bankruptcy has no statistically significant effect on the probability of rejection, though this effect is compromised by the tiny number of people in the sample who both had this experience *and* applied for a mortgage.

The main point in column III is that the large, unexplained racial gap in rejection rates remains after all of these controls are added. This result reproduces the results from BFS on a sample of fundamentally different design, albeit of smaller size. We do, however, find a racial gap in rejection rates that are similar to that in the found in the BFS study. With our set of controls, we find that blacks are 87% more likely to be rejected than whites,[26] while the BFS study found, with their set of controls, that

[25]We included two dummy variables to capture net worth differences in applicants. First, we included a dummy variable indicating whether the household had zero or less net worth. In this case, our net worth measure is the same used by Hurst, Luoh and Stafford (1998). Additionally, we included a dummy indicating whether the household had enough wealth to make a standard 10% down payment. The results were qualitively unchanged regardless if we used a 5% or a 20% wealth cutoff.

[26]The base white rejection rate for whites was 8 percent (Table 3). Blacks are 7 percentage points

blacks were 80% more likely to be rejected. It is straightforward to conclude that some part of the racial gap in home ownership transitions is due to the different treatment that blacks receive from financial institutions as far as rejections are concerned. Given the reasoning presented earlier, this differential treatment might also account for some of the applications gap. We can only speculate about this, because we do not directly observe the rejection experience of people who did not apply for loans. In principle, we could use the results from the rejection equation to predict how every person would have fared had they applied. The problem is that we would need a convincing instrumental variable which only affects the application probability through its effect on anticipated rejection. While we do not have such a variable, the very different rejection experiences of blacks and whites suggests that we cannot reject the notion that there is a type of discouragement feedback effect on applications.

The last set of regressions we run test for racial differences in the terms of the mortgage contract. In 1996, the *PSID* asked households the current mortgage rate they are paying on there mortgage. Table 8 summarizes the results from an OLS regression predicting mortgage rate for our sample of renters in 1991 who acquired a home by 1996. The first column of table 8 provides the raw racial gap. Without any controls, black households who received a mortgage did not pay a significantly higher interest rate, on average, than white households. The results remain robust when additional controls are added. Controlling for the type of loan, whether the loan is government subsidized, standard income and demographich measures, measures of credit history and year dummies, black households who were able to secure a mortgage paid similar interest rates as their white counterparts. Not suprisingly, less educated households, households with a fixed mortgage rate, households who became divorced, and households who experienced financial distress were more likely to pay higher mortgage rates. Even

more likely to be rejected than whites as seen in column III of Table 7.

though we find evidence that blacks were less likely to apply and more likely to be rejected, we find no evidence that blacks face different mortgage terms conditional on securing a mortgage.

One source of difference between black and white households may be differences in the ability of the household's family to assist with the down payment. We examine this possibility next.

5.4 Endowments - Family Assistance

For people who bought houses between 1991 and 1995, the PSID inquired about the source of the down payment. Respondents were presented with several categories and were asked to check all that applied. The main categories were: assistance from family; own savings; and "other". The entries in the Table 9a may not sum to 100 because of rounding error. The first row reveals the large role that family assistance played in helping whites who purchased homes finance their down payments. Only fifty-four percent of whites paid for their down payments entirely with their own savings. Fully fifteen percent got their down payments *entirely* from their families, and more than a quarter of all white home buyers - twenty-seven percent - got *some* help from their families in coming up with the down payment.

The picture was much different for black who purchased homes. Almost 9 in 10 came up with their down payments entirely from their own savings. Only 6 percent relied entirely on help from family, and virtually none of those who used savings got any family help as well. Thus, whites were, on average, four times more likely than blacks to receive some help from their parents in coming up with their down payment. This is suggestive of a very large role indeed for endowments. If blacks anticipate that they will be on their own when they try to get a house, they will be less likely to apply for mortgages. And, since it takes time to save up for a down payment, young blacks

will be loathe to apply for mortgages and blacks will enter home ownership status later in life.

In Table 9b, we more formally study family assistance differences. The first pair of columns look at the race gap in having one's down payment finnaced *solely* by help from family. Notice that the large race gap of 10 percentage points *rises* when observables are taken into account. Blacks get even less help from family than their observables would predict. The same pattern in evident when we focus on whether people get *any* help from their families in financing their down payments. The race gap is large, and grows when controls are added.

These differences are estimated on the sample of blacks and whites who bought houses. That is, these people applied for mortgages and received them. Under the assumption that the people most likely to pass through these two steps are those whose anticipation of family assistance is the highest, then the race gaps that we have estimated are under-estimates of the degree to which blacks and whites can rely on assistance from others. And, given that a mortgage application is very unlikely to be accepted if there is no down payment, we might expect this difference in assistance to affect both the willingness of blacks to apply for mortgages in the first place, relative to whites, and in the willingness of banks to extend credit to blacks, relative to whites.

6 Conclusion

Differences in housing wealth explain a large proportion of the wealth gap that exists between blacks and whites. Understanding differences in home ownership rates will help to understand the well documented racial differences in wealth. In this paper, we explicitly study the difference in the transition into home ownership for a sample of blacks and whites who are all initially renters. New data from the Panel Study of Income Dynamics allows us to decompose the home ownership decision into its parts;

homeowners' deicions to buy a home and lenders' decisions to allow the household to finance the purchase of the home. We find that even when including a variety of controls suggested by theory, a large, unexplained racial gap exists in both the probility that a household considers buying a home *and* the probability that a lender accepts the household's mortgage application.

In our sample of renters in 1991, twenty-nine percent of white households acquired a home by 1996 while only twelve percent of black households purchased a home—a racial gap of seventeen 17 percentage points. Almost all the households who purchased a home secured financing from a lending institution. Thirty-one percent of white who rented in 1991 applied for mortgage financing as of 1996, of which 8 percent were rejected. Only fifteen percent of blacks in our sample applied for a mortgage, of which nineteen percent were rejected.[27]

We find that after conditioning on a full set of income, demographic and credit history controls, lenders were far more likely to reject black households' mortgage applications. We find that after including a rich set of controls from the *1996 PSID Financial Distress Supplement* and the volatility of the household's earned income prior to our sample period as proxies for credit history, we are only able to explain a little less than 40 percent of the raw racial difference in rejection rates.[28] Put another way, we find that black households were 87 percent more likely to be rejected than otherwise similar white households. This number is consistent with the results in Munnell et. al. (1996) which found that blacks in the Boston area during 1990 were 80 percent more likely to be rejected than otherwise similar whites. However, we find no racial difference in the terms of the mortgage offered to households who had their mortgage

[27]The applied numbers presented here take into account both the decision to consider and the decision to apply conditional on considering.

[28]The raw gap in mortgage rejections was 11 percentage points. After including our set of controls an 7 percentage point gap remained.

application approved.

Despite the large average difference, greater mortgage rejection played a relatively tiny role in explaining why the blacks in our sample were less likely to become homeowners than whites. The racial gap in mortgage applications is the main reason that the transition into homeownership was smaller for blacks. Theory predicts that differences in valuation of housing property, differences in rental market outcomes, differences in income and family composition and differences in wealth could explain the differential application rates. We find that these factors only explain approximately 60 percent of the gap in applications.[29] We argue that the there might be two sources of discouragement in the applications process for which we are not able to directly control, but for which we offer some suggestive evidence. First, if households are forward-looking and the application process is costly, anticipated differential treatment in the lending market may discouraged some black families from applying. Second, it appears that assistance from parents and other family members may play a large role in whether or not a household acquires a mortgage. Twenty-seven percent of white households who purchased a home had help with their down payment from their family. By contrast, only eight percent of black households received help from their families. These differences suggest that differences in wealth between previous generations of blacks and whites might have persistent effects, in the sense that the wealth levels of blacks and whites today may be heavily affected by them.

Our results raise an important policy question about the best way to generate higher home ownership rates among blacks. Those concerned about the racial difference in home ownership rates have emphasized the treatment that blacks receive from banks when they apply for loans. Our evidence on different rejection probabilities by race

[29]The raw gap in application differences was 16 percentage points. After including our set of controls, a 6 percentage point gap remained.

suggest that this concern is appropriate. However, the results also show clearly that efforts which are targeted at raising black application rates may have a larger impact on black home ownership rates.

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