



University of
Connecticut

Department of Economics Working Paper Series

The Continuing Practice and Impact of Discrimination

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Working Paper 2005-19R

June 2005, revised July 2006

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This working paper is indexed on RePEc, <http://repec.org/>

Abstract

This chapter provides a detailed discussion of the evidence on housing and mortgage lending discrimination, as well as the potential impacts of such discrimination on minority outcomes like homeownership and neighborhood environment. The paper begins by discussing conceptual issues surrounding empirical analyses of discrimination including explanations for why discrimination takes place, defining different forms of discrimination, and the appropriate interpretation of observed racial and ethnic differences in treatment or outcomes. Next, the paper reviews evidence on housing market discrimination starting with evidence of segregation and price differences in the housing market and followed by direct evidence of discrimination by real estate agents in paired testing studies. Finally, mortgage market discrimination and barriers in access to mortgage credit are discussed. This discussion begins with an assessment of the role credit barriers play in explaining racial and ethnic differences in homeownership and follows with discussions of analyses of underwriting and the price of credit based on administrative and private sector data sources including analyses of the subprime market.

The paper concludes that housing discrimination has declined especially in the market for owner-occupied housing and does not appear to play a large role in limiting the neighborhood choices of minority households or the concentration of minorities into central cities. On the other hand, the patterns of racial centralization and lower home ownership rates of African-Americans appear to be related to each other, and lower minority homeownership rates are in part attributable to barriers in the market for mortgage credit. The paper presents considerable evidence of racial and ethnic differences in mortgage underwriting, as well as additional evidence suggesting these differences may be attributable to differential provision of coaching, assistance, and support by loan officers. At this point, innovation in loan products, the shift towards risk based pricing, and growth of the subprime market have not mitigated the role credit barriers play in explaining racial and ethnic differences in homeownership. Further, the growth of the subprime lending industry appears to have segmented the mortgage market in terms of geography leading to increased costs of relying on local/neighborhood sources of mortgage credit and affecting the integrity of many low-income minority neighborhoods through increased foreclosure rates.

Journal of Economic Literature Classification: G21, G15, L85, R21, R30

Keywords: Homeownership, Housing Discrimination, Mortgage Lending Discrimination, Segregation, subprime lending.

1. Introduction

A long history of scholarly and policy oriented research examines racial differences in outcomes in U.S. housing markets as well as discrimination by real estate agents and mortgage lenders. A substantial body of legal, historical, and empirical evidence documents high levels of discrimination by real estate agents and the dramatic impact of discrimination on the outcomes of individual minority homeseekers as well as the spatial distribution of households by race within U.S. metropolitan areas. Recent evidence suggests, however, that there have been substantial improvements in the treatment experienced by minorities in U.S. housing markets over the last few decades. On the other hand, no consensus has been reached concerning discrimination in the provision of mortgage credit in spite of a huge volume of research. Furthermore, the shift towards risk based pricing and the growth of the subprime mortgage industry may have increased the potential for discrimination in the price of obtaining mortgage credit.

This paper provides a detailed discussion of recent research on racial and ethnic differences in housing market outcomes and discrimination in real estate and mortgage markets. The paper begins by discussing conceptual issues surrounding empirical analyses of discrimination including explanations for why discrimination takes place, defining different forms of discrimination, and the appropriate interpretation of observed racial and ethnic differences in treatment or outcomes. Next, the paper reviews evidence on housing market discrimination starting with evidence on segregation and price differences in the housing market and followed by direct evidence of discrimination by real estate agents based on paired testing studies. Finally, evidence concerning discrimination and other barriers in the mortgage market is discussed. This discussion

begins with an assessment of the role credit barriers play in explaining racial and ethnic differences in homeownership and follows with discussions of research using administrative data to examine differences in underwriting and the price of credit including analyses of the subprime mortgage market.

2. Issues in Studying Discrimination

2.1 Economic Theories of Discrimination

Becker (1971) hypothesized an economic theory of discrimination in which prejudiced individuals pay for indulging their prejudiced attitudes through lower profits, lower earnings, or higher prices. The most direct realization of this theory is discrimination by a prejudiced individual against the disliked or minority group. Prejudiced owners of firms may refuse to provide services to the minority groups sacrificing profits. Similarly, employees may accept lower tips and commissions in order to avoid providing services to minorities or indirectly accept lower wages as their discriminatory behavior leads to lower productivity.

Becker's theory also explains how unprejudiced actors may discriminate in response to the prejudice of others. Firms and their employees may discriminate based on the prejudice of their customers. For example, a real estate agent may rationally refuse to show homes to minorities in specific neighborhoods out of fear that prejudiced white homeowners in those neighborhoods will provide future real estate listings to other agents in response. Similarly, firm owners and managers may refuse to hire minority employees due to the prejudice of their majority customers or employees. In both cases, the theory suggests that the prejudiced individual pays for their prejudice through higher

equilibrium prices and lower equilibrium wages in segregated retail establishments and work places.

The major alternative to Becker's (1971) theory of discrimination is the model of statistical discrimination developed by Phelps (1972). Statistical discrimination arises when an unprejudiced individual uses race or ethnicity to aid in predicting the economic return from a market transaction. For example, real estate agents may rationally invest less time providing services to minority customers because they know that on average minority homebuyers have lower credit scores and so are less likely to be able to obtain a mortgage. Moreover, statistical discrimination can lead to self-perpetuating racial differences in society. For example, if a minority faces decreased opportunities in the housing market due to discrimination, this individual may rationally place less emphasis on factors that contribute to purchasing a home, such as maintaining a good credit rating or saving for a future downpayment.¹

2.2 Defining Discrimination

Regardless of the underlying motivation behind discrimination, disparate treatment discrimination is the most commonly discussed form and is the form around which there is the broadest consensus. Disparate treatment occurs when an individual's treatment is the direct result of their belonging to a minority group. The underlying question faced by the researcher or the legal system is whether other things equal an individual or group of individuals would have received better job offers, been paid higher wages, or been offered lower prices or interest rates if they had not belonged to the minority group. In rare cases, explicit evidence of intent, a "smoking gun", may directly

establish disparate treatment, but in most cases differences in treatment are identified by a statistical comparison of minority outcomes to the outcomes of comparable whites.

The second major form of discrimination is disparate impact. Disparate impact discrimination occurs when majority and minority group members are treated equally, but in a way that tends to put the minority at a disadvantage. In its most blatant form, disparate impact is little different in implementation and effect than disparate treatment discrimination. Specifically, in the path breaking legal case that defined disparate impact standards, North Carolina fire departments had established a height requirement with an explicit intent to disqualify women applicants. At that time, there was little difference between the effect of the height requirement and a complete ban on female fire fighters, and the courts rejected the height requirement as being discriminatory against women, *Griggs v. Duke Power Co.*²

Disparate impact discrimination, however, can be much more subtle and controversial than in this simple example. Firm behaviors that have a disparate impact are not considered to be discriminatory if they are justified under a standard known as “business necessity.” In many circles, business necessity is viewed as legitimizing any firm behavior that is intended to increase profits as long as people are treated equally regardless of race or other protected characteristics (Mahoney, 1998). On the other hand, Aryes (2001) argued in a case against the Nissan Motor Acceptance Corporation that business necessity should be based entirely on the cost of doing business. For example, in the case of a subprime lender targeting neighborhoods that contain older, financially unsophisticated homeowners, Mahoney might view such a practice as regrettable, but legal, as long as the lender does not explicitly consider the racial composition of

neighborhoods or the race of a particular borrower. On the other hand, Aryes would likely argue that the practice violates the Fair Housing Act if that lender charges prices well above the cost of providing credit and has a disproportionate share of minority borrowers or share of their business concentrated in minority neighborhoods.³

Finally, economists often focus on what they describe as market discrimination. Rather than being based on a legal standard, market discrimination is defined as the equilibrium effect of discrimination on market outcomes. This magnitude of this market effect does not depend upon the average level of discrimination practiced in the market place, but rather on the discriminatory behavior of firms where minorities actually work, shop, or borrower (Heckman, 1998). Market discrimination may be less than the average level of discrimination because minorities have a strong economic incentive to avoid firms that discriminate against them especially when this discrimination is based on prejudice (Becker, 1971). On the other hand, models of statistical discrimination often predict an equilibrium impact of discrimination that is larger than the underlying racial differences in the economy that motivate discrimination due to the behavioral responses of individuals who are facing discrimination. Further, when individuals have imperfect information about their opportunities, discrimination may increase the market power that firms have when they do business with minorities increasing their financial incentive to discriminate (Lundberge and Starz, 2000).⁴

2.3 Issues in Testing for Discrimination

Naturally, the type of data required and the form of statistical tests for discrimination depend upon the type of discrimination and the underlying motivations under consideration. When testing for disparate treatment discrimination, the most direct

approach involves the use of paired testers where two apparently equivalent individuals of different race, ethnicity or gender approach the same firm to inquire about employment, housing, or other market transactions. These individuals follow the same protocol and independently report their treatment on common survey instruments for later review. The use of paired testing avoids common statistical problems that arise because the minority and majority groups differ on important unobserved attributes or differ in behavioral choices that affect an individual's treatment.

The paired testing approach, however, can only be applied to market transactions where there is no on-going relationship between the tester and the firm, and the approach requires that testers follow a common protocol. As a result, paired testing tends to focus on the early stages of a market transaction, such as a renter's initial visit to an apartment complex or a homebuyer's initial inquiry at a mortgage lender. Paired testing cannot explicitly examine differential treatment in the actual decision to rent a unit or provide mortgage credit. Similarly, in the labor market, paired testing could not be used to examine discrimination in salary raises or promotion. Furthermore, this technique does not capture the equilibrium impact of discrimination on long-run market outcomes where minorities might adjust their behavior to mitigate the effect of discrimination.⁵

Heckman and Siegelman (1993) also argue that each tester is a unique individual who is likely to elicit treatment that differs from the treatment experienced by other equally qualified testers. While training may mitigate the effect of such differences, any racial differences in treatment observed may be driven by unobservable differences between the typical white and minority testers hired for the paired testing study. A variety of studies have examined (Heckman and Siegelman, 1993; Ondrich, Ross and

Yinger, 1999; Ross, Turner, Godfrey, and Smith, 2005; Turner, Ross, Galster, and Yinger, 2002) whether testers differ in ways that influence their treatment during the test. The general conclusion to draw from these studies is that testers can influence their treatment, but there is no evidence to suggest that paired testing studies are systematically biased towards finding discrimination. In fact, Turner, Ross, Galster, and Yinger (2002) find that such behavior tends to have little impact on measured racial differences in treatment in the 2000 Housing Discrimination Study.⁶

A final issue in evaluating paired testing studies is whether analyses should focus on the gross measure, the frequency of white favored tests, or the net measure, the difference between the frequency of white and minority favored tests. The gross measure can dramatically overestimate discrimination because sometimes a minority tester is treated disfavorably for reasons that have nothing to do with race. The net measure addresses this problem by subtracting the frequency of minority favored tests under the assumption that the share of minority favored tests is a good proxy for the frequency of random differences in treatment, but the net measure may underestimate discrimination because sometimes minorities are favored for systematic reasons, such as a white not being shown the requested unit because it is located in a minority neighborhood. In phase II of HDS 2000, tests with three testers, two of the same race, were conducted in two sites. These tests provide a same race comparison allowing the elimination of random differences in treatment without the problems associated with the traditional net measure. The revised net measure based on the same race comparison yielded very similar results to the traditional net measure favoring the use of the net measure for studying discrimination (Turner and Ross, 2003b).⁷

The alternative to paired testing is regression analysis that uses observed individual attributes in order to create an “other things equal” comparison of outcomes across heterogeneous individuals. Some of these studies use socio-economic data in order to assess racial, ethnic or gender differences in outcomes after controlling for variables that are expected to explain legitimate differences in these outcomes. Unexplained racial or ethnic differences in outcomes estimated from socio-economic data are often interpreted as market discrimination even though the potential discriminator is usually unidentified in the sample and the outcomes being considered may not represent decisions made by that potential discriminator. More compelling evidence of market discrimination can often be obtained from administrative data that contains actual firm decisions, such as the hourly wage rate or the approval of a mortgage application. Such administrative studies often include detailed information on firms or may even document the actions taken by individual firms.

The interpretation of a finding of discrimination from either socio-economic or administrative data depends upon the specific application. An analysis based on administrative data from a single firm may provide fairly compelling evidence of disparate treatment discrimination. In fact, such studies form the basis of fair employment and mortgage lending enforcement by the Equal Employment Opportunity Commission and the Office of the Currency of the Comptroller, respectively. On the other hand, analyses of administrative data from multiple firms or socio-economic data on a population of individuals may capture racial or ethnic differences that arise from differences in individual qualifications or choices. Even if the differences identified

definitely represent firm differences in behavior, these differences in behavior may be race-neutral and justified by a business necessity argument.

A final approach to studying discrimination involves examining racial or ethnic differences in performance following the Becker (1971) intuition that if minorities are discriminated against based on firm prejudice they will exhibit higher performance other things equal. The best studies of this type examine performance conditional on the market price paid, which can provide a robust test for whether minorities are systematically under-compensated for their performance levels (Szymanski, 2000; Conlin and Emerson, 2006). On the other hand, a performance approach is sometimes applied to a discrete treatment, such as the decision to approve a mortgage application (Berkovec, Canner, Gabriel, and Hannan, 1994, 1998) or the decision of police to search a motorist (Knowles, Persico and Todd, 2001; Dharmapala and Ross, 2004) where performance is only observed for individuals who received favorable treatment from the firm. The logic behind this test is that prejudice-based discrimination against minorities leads to a select sample where only the performance of very high quality minorities is observed, but this selection process only has power to detect discrimination if important determinants of treatment are omitted. Such tests are far less robust than the performance-price tests described above and accordingly results of this type should typically be given much less weight.⁸

3. Evidence of Discrimination in U.S. Housing Markets

3.1 Racial and Ethnic Segregation and Differences in Housing Market Outcomes

The last few decades have represented a period of gradual improvements for minorities in U.S housing markets. Segregation has declined moderately for African-

Americans while the lower levels of segregation faced by Asians and Hispanics have remained steady (Iceland, 2004), levels which might have been expected to increase due to the substantial increases in the total Asian and Hispanic populations (Massey, 2001). White attitudes concerning integration with African-Americans have also improved substantially during the last few decades (Schuman, Steeh, Bobo, and Krysan, 1997; Farley and Frey, 1994) suggesting that white aversion to African-American neighbors may play a decreasing role in housing segregation (Patterson, 1997; Thernstrom and Thernstrom, 1997).

Bobo (2001) observes, however, that negative racial stereotypes persist and may have substantial negative impacts on African Americans in spite of broad improvements in the general attitudes of whites concerning racial equality.⁹ Farley, Steeh, Krysan, Jackson, and Reeves (1994), Zubrinski and Bobo (1996), and Krysan (2002) find that the holding of negative stereotypes was a strong predictor of unwillingness to live with African Americans, and Ellen (2000) concludes that whites stereotype neighborhoods based on racial composition when choosing a new neighborhood.¹⁰ Further, a substantial fraction of the decline in African-American segregation appears related to increased exposure to Hispanics (Iceland, 2004). Similarly for Hispanics, Baugh (In Press) finds that individuals with Chicano or Mexican dialects faced substantial stereotyping being assessed to have lower intelligence than whites, and Charles (2000) and Bobo and Zubrinsky (1996) suggest that white preferences for segregation limit the housing market opportunities of Hispanic households.

Many studies have examined whether housing segregation can be explained by economic factors. Massey and Denton (1993), Rosenbaum (1996), Bayer, McMillen, and

Rueben (2004), and Ihlanfeldt and Scafidi (2004) all find that the majority of segregation faced by African-Americans cannot be explained racial differences in household characteristics. The empirical results concerning Hispanics and Asians are less clear. While Rosenbaum (1996) finds the segregation of Hispanics in New York City cannot be explained by demographic and economic differences, Bayer, McMillen, and Rueben (2004) find that 95 percent of Hispanic and Asian segregation in San Francisco can be explained by income, education, language and immigration, and Borjas (1995) documents substantial declines among Hispanics' and Asians' exposure to their own ethnic subgroups between the first and third immigrant generations.

If African-American segregation cannot be explained by economic and demographic factors and attitudes are improving more quickly than segregation is declining, a reasonable question to ask is whether housing discrimination plays a significant role in maintaining the level of racial segregation in U.S. metropolitan areas. A well established literature argues that African-Americans must face substantial constraints on their residential location choices potentially due to housing discrimination if they pay a higher price for housing than whites. Studies from the 1960's tend to find evidence that African-Americans pay more for equivalent housing (King and Mieszkowski, 1973, Yinger, 1978), while studies from the 1970's (Schnare, 1976, Follain and Malpezzi, 1981) tend to find no evidence of a housing price premium. Cutler, Glaeser, and Vigdor (1999) confirms this pattern finding that the African-American rent premium fell dramatically between 1940 and 1970 and had reversed entirely by 1990.

While Schafer (1979), Chambers (1992), and Kiel and Zabel (1996) all argue that earlier work may fail to find an African-American price premium because that work does

not control for neighborhood quality or housing submarkets, it is hard to imagine how the dramatic reversal in the African-American housing price premium could have occurred without substantial increases in the number and breadth of neighborhoods being opened up to African-American households.¹¹ In conclusion, the above evidence suggests that current housing discrimination is the major factor in maintaining the level of segregation observed in U.S. metropolitan areas. At the same time, the evidence is also very clear that housing discrimination was central in creating these highly segregated urban housing markets, and quite likely the attitudes and stereotypes arising from past segregation are crucial factors in maintaining current levels of segregation.

3.2 Direct Evidence of Discrimination by Real Estate Agents

Three major paired testing studies of housing discrimination were conducted in 1977, 1989 and 2000. The first major study in 1977 performed a national set of tests for black and white pairs and piloted tests involving Anglo-Hispanic pairs. Both the 1989 and 2000 studies conducted full-scale national testing programs for both blacks and Hispanics. Phase I of the 2000 study piloted tests for Asian and Native Americans, and phase II, which was conducted in 2001, included a national study of discrimination against Asian Americans. Finally, phases III and IV conducted more limited analyses of the treatment experienced by Native Americans and by the disabled.¹²

All three studies found evidence of housing discrimination in both rental and sales markets. The 1989 study found high levels of adverse treatment discrimination against African-American and Hispanic homebuyers and renters across a variety of measures of treatment intended to capture availability of housing, access to housing for inspections, encouragement, price and terms in rental, and financing assistance in sales (Yinger,

1995). The 2000 study continued to find statistically significant levels of discrimination against both African-Americans and Hispanics in both markets, but the levels of discrimination had declined substantially for both groups in one or both markets. For example, the net difference between the fraction of white and African-American favored tests was 13.4 percentage points in 1989 and 8.1 in 2000 for rental tests and 19.9 in 1989 and 6.7 in 2000 for sales tests using a composite of a broad set of treatment measures.¹³ Similarly, adverse treatment against Hispanics fell from 16.8 percentage points in 1989 and 4.3 in 2000 in sales market (Turner, Ross, Galster, and Yinger, 2002; Turner and Ross, 2005). A direct comparison cannot be made between the 1977 and 1989 studies because they were conducted in different markets, but the levels of adverse treatment in the 1989 study appeared comparable to 1977 (Yinger, 1995).

Three major exceptions existed to the general improvement between 1989 and 2000 in the treatment observed in the rental and owner-occupied housing markets. Most significantly, net adverse treatment against Hispanics in the rental market was high and fairly steady rising from 13.4 to 15.6 percentage points. Second, the frequency of racial steering of African-Americans homebuyers increased over the decade and appeared to be associated with an overall increase in the number of units in minority neighborhoods being shown by real estate agents. Finally, real estate agents substantially increased the amount of financial assistance being offered to prospective homebuyers. This increase was substantially smaller for Hispanic testers than for white or African-American testers and so adverse treatment of Hispanic testers increased markedly on the financial assistance measures (Turner, Ross, Galster, and Yinger, 2002; Turner and Ross, 2005).

Later phases of HDS 2000 examined discrimination against previously untested groups. In phase II, the national estimates of overall adverse treatment discrimination for Asians is 4.3 and 19.6 percentage points for rental and sales markets, respectively, suggesting much higher levels of adverse treatment against Asian-Americans in the sales market than seen with other minority groups (Turner and Ross, 2003a). Phase III examined the treatment of Native Americans primarily focusing on the rental market and finding net differences of 7.7, 21.3, and 19.0 percentage points in the states of Montana, Minnesota, and New Mexico (Turner and Ross, 2004).¹⁴ Finally, Phase IV examined the relative treatment of individuals who are deaf attempting to obtain information about available housing over the telephone via a TTY system and individuals in a wheel chair attempting to visit and inspect available rental housing. In both scenarios, disabled testers faced very high levels of discrimination with many net measures falling between 15 and 30 percent (Turner, Herbig, Kaye, Fenderson, and Levy, 2005).

The high levels of discrimination in rental housing against three different groups, Hispanics, Native Americans, and the disabled, suggests that discrimination in rental housing markets is still a serious problem. Further, the declines in discrimination against African-Americans in the rental market may not represent as large an improvement as suggested by the estimates. The reader needs to remember that the key service provided by a rental agent is the provision of rental housing while paired testing can only assess the amount and nature of information provided to the testers during their initial inquiry about the advertised rental unit. It is impossible to know whether discrimination against African-Americans has declined or has been moved to other stages of the transaction that are not captured by traditional enforcement approaches. For example, Massey and Lundy

(2001) find that testers who speak “Black English” are less likely to be able to make an appointment to see available housing over the phone. Further, Galster and Ross (In Press) find that local Department of Housing and Urban Development funded enforcement activities are associated with a decline in adverse treatment against African-Americans in the rental market, but this deterrence effect of enforcement testing may not affect landlord behavior in later stages of the rental process.¹⁵ They did not find any evidence that enforcement lowered discrimination against Hispanics, which is consistent with the fact that Hispanic targeted enforcement activity was only one-fifth the level of African-American targeted activities.

In the sales market, however, the evidence of declines in discrimination is more compelling. The job of a real estate agent is to provide information on homes that are available for purchase, as well as to provide homeseekers with physical access to those properties. The sales tests directly examine these treatments and allow for both a follow-up visit by the tester and follow-up contact by the real estate agent. Substantial declines were observed for both African-Americans and Hispanics, and these declines were not associated with fair housing enforcement activities (Galster and Ross, In Press). Further, Galster and Ross (2004) find that discrimination against African-Americans was higher overall in metropolitan areas with large Hispanic populations. This finding suggests that discrimination should have risen based on current trends and that the decline in discrimination is likely associated with broad changes in racial attitudes and in the real estate industry (Ross and Turner, 2005). The high level of discrimination against Asians clearly raises concerns, but do not necessarily point to broader problems in the market place.

It is important to place the above conclusion in context with the recent report issued by the National Fair Housing Alliance (NFHA, 2006). The NFHA report describes high levels of discrimination in the sales market against both African-Americans and Hispanics. The first thing to realize is that NFHA is focusing their efforts on real estate agencies and markets where HDS 2000 identified unusually high levels of adverse treatment and so their findings do not accurately describe the environment encountered by a typical minority. In addition, many of the results presented represent gross measures of adverse treatment. For example, they observe that African-Americans and Hispanics were denied access or given limited information in 20 percent of tests, but this finding is broadly comparable to findings in HDS 2000 that approximately 15 percent of white, black, and Hispanic testers all were told that the advertised unit was not available when their partner was told that the unit was available suggesting net measures of adverse treatment near zero. The NFHA report does present net measures for number of units inspected with African-Americans and Hispanics seeing about three units less than whites, but HDS 2000 also identified substantial differentials on number of units inspected for African-Americans. In terms of access to housing, the NFHA and HDS 2000 results are not very different from each other especially given NFHA's mandate to focus on real estate agencies that appeared to be discriminating in HDS 2000.

The most provocative finding of discrimination in the sales market is the increase in the likelihood of African-Americans being steered towards predominantly minority neighborhoods. This increase, however, was relative to apparent reverse steering of African-Americans in 1989. The overall level of steering against African-Americans and Hispanics in 2000 appears fairly small with net differences between four and five

percentage points. Ross and Turner (2005) argue that the negative steering result in 1989 may arise from customer based discrimination where agents act to protect potentially vulnerable neighborhoods and are more likely to exclude minorities from neighborhoods that already have some minority residents than from all white neighborhoods (Yinger, 1995). Multivariate analyses of the 1989 HDS and earlier testing efforts have generated numerous findings consistent with discrimination based on customer prejudice, such as Yinger (1986, 1995), Roychoudhury and Goodman (1992), and Page's (1995) finding that minority couples face more discrimination when they have children, Yinger's (1986) finding that discrimination was high in integrated neighborhoods that were not experiencing an influx of African-Americans, and Ondrich, Ross, and Yinger's (2002) finding that discrimination decreases with the distance between the housing unit and the real estate agent's office.¹⁶

On the other hand, in 2000, real estate agencies had consolidated and expanded market territories limiting the need for customer-based discrimination. Furthermore, the representation of advertised units located in minority neighborhoods by main stream real estate agencies had increased substantially by 2000 indicating greater willingness of real estate agents to market such units and increasing the opportunity to steer minorities to predominantly minority neighborhoods. The steering observed in 2000 is quite likely the result of statistical discrimination where real estate agents believe the likelihood of a sale is increased by steering homebuyers towards or away from minority neighborhoods. For HDS 2000, Zhao, Ondrich, and Yinger (2006) in sales and Choi, Ondrich, and Yinger (2005) in rental find substantial evidence of neighborhood exclusion based on minority

composition and income, which would appear to be consistent with statistical discrimination.¹⁷

In the case of steering, however, the NFHA report and the results from HDS 2000 are far less consistent with the NFHA report finding that steering takes place in 87 percent of tests when testers were given an opportunity to see homes. One explanation may again arise from the reliance of NFHA on gross measures of adverse treatment combined with the fact that the NFHA report never mentions requiring that differences in neighborhood composition exceed a reasonable threshold in order to count as steering. Without a threshold, the gross measure in the presence of no steering is likely to be near 50 percent. Another potential factor is the role of agent editorializing concerning neighborhoods, schools, and communities. While HDS 2000 found only low levels of steering based on units recommended and inspected, the black-white tests in HDS 2000 indicated much larger differences in the comments made by real estate agents with agents being 12-14 percent more likely to editorialize about neighborhoods in ways that would encourage segregation of African-Americans rather than reduce segregation (Galster and Godfrey, 2005). Further, Galster and Godfrey (2005) found that agents offer more comments to whites and that 70 percent of those comments provide information about the racial or ethnic make-up of the neighborhood.¹⁸ The HDS 2000 methodology, which instructs testers to focus on inspecting the advertised and similar units, quite likely reduces the influence of agent commentary on the type of units observed relative to either the NFHA testers or typical homebuyers.

3.3 Analysis and Conclusions

In spite of the existing criticisms, Cutler, Glaeser, and Vigdor (1999) provide a fairly compelling story of growing segregation during the 1900's based on the increasing urbanization of African-Americans and fairly rigid discriminatory barriers followed in recent decades by declining segregation and dispersal of the African-American population as those discriminatory barriers have fallen. Their conclusions are consistent with Bostic and Martin's (2005) finding of a sharp shift of African-American homeowners in the 1980s away from central city neighborhoods towards higher income suburban neighborhoods.¹⁹ This story is also supported by evidence from the 2000 Housing Discrimination Study that documents substantial declines in the level of discrimination faced by African-Americans in both the rental and owner-occupied housing markets.

While steering against African-Americans in the owner-occupied market did increase during the 1990's, racial differences in steering were only 5 percentage points in 2000, which is comparable to the low levels of disparate treatment observed on most treatments in 2000. In fact, this increase in steering may in part be due to a number of factors that represent improvements in the housing market. First, the opportunity to steer increased because mainstream real estate agencies increased their representation and advertising of units located in minority neighborhoods between 1989 and 2000 indicating greater willingness of real estate agents to market such units. Further, the real estate industry has consolidated substantially reducing the incentives for agents to practice customer-based discrimination. Rather than exclusion from neighborhoods, which may create substantial price premiums, real estate agents today appear to practice a less

restrictive form of steering where they provide homebuyers with information on racial and ethnic compensation that in some cases disparages integrated neighborhoods to white homebuyers, which would be consistent with the lower prices in minority neighborhoods documented by Cutler, Glaeser, and Vigdor (1999).

Admittedly, the findings concerning the rental market are not as clear as in the sales market. Discrimination against Hispanics increased in the rental market on many key treatment indicators. In addition, part of the decline in adverse treatment of African-Americans in the rental market appears to be attributable to enforcement activities of state and local fair housing organizations. In the presence of such enforcement testing, which was used quite extensively to address racial discrimination during the 1990's, rational landlords and rental agents might move discrimination until later in the process in order to avoid detection.

In spite of these caveats, the housing discrimination results in the owner-occupied market appear to be quite compelling and most relevant for considering the impact of discrimination on racial and ethnic segregation. Unlike rental agents who might withhold housing during later stages of the transaction, real estate agents in the sales market provide services that are easily observed during testing, and the remaining discrimination against African-Americans and Hispanics in this segment of the market appears quite low. In addition, over 70 percent of U.S. households reside in owner-occupied housing, and this number is even higher in suburban areas, which suggests that major discriminatory barriers to the decentralization of the African-American population would have to be found either in the market for owner-occupied housing or in other markets that are crucial to the transition to homeownership, such as the home mortgage market.

The results of the 2000 Housing Discrimination Study suggests that while real estate agents play a role in propagating racial and ethnic housing segregation they are not currently the key contributors to the persistent racial differences in U.S. housing markets. In my opinion, however, it is not appropriate to simply end the conversation having described a limited role for current real estate agents and placed the blame for racial segregation on economic and social factors. Cutler, Glaeser, and Vigdor (1999), the 1977 and 1989 discrimination studies, and the work of many others clearly demonstrate that discrimination played a very important role in creating the highly segregated metropolitan areas that exist today. The finding that whites pay higher prices for housing is consistent with whites paying a premium to avoid living in integrated neighborhoods, but does nothing to identify why those white are willing to pay this premium today. In a similar vein, would the typical white homeowner have any preference for segregation or would the typical real estate agent have any economic incentive to encourage segregation in a metropolitan environment that had not been so terribly distorted by a legacy of extreme, spatial discrimination in the housing market?²⁰

4. Racial and Ethnic Discrimination in Mortgage Lending

4.1 Differential Access to Credit and Homeownership

The first set of studies considered here are quite comparable to the studies of housing price in the section on housing market discrimination. These studies tend to examine the link between credit markets and racial differences in homeownership. Rosenthal (2002) and Duca and Rosenthal (1993) use a self-reported indicator on whether a household had been unsuccessful in a credit application while Gyourko, Linneman and Wachter (1999), Deng, Ross and Wachter (2003), and Charles and Hurst (2002) predict

whether households are downpayment constrained by comparing information on household wealth and factors that influence housing demand in order to assess the effect of credit constraints. All of these studies find that the credit constraints explain a substantial portion of the racial differences in homeownership, and Herbert, Haurin, Rosenthal, and Duda (2005) conclude that four to eight percentage points of racial and ethnic difference in homeownership can be explained by constraints in credit markets. These differences in part arise from wealth differences that were created by past discrimination in labor, housing, and credit markets and may be exacerbated in the future as white seniors begin transferring their wealth to their children (Joint Center for Housing Studies, 2002).

Taken together, these studies provide compelling evidence that differential outcomes in credit markets have a substantial impact on minority homeownership. While these studies do not have adequate information to demonstrate racial differences in mortgage market outcomes, Gabriel and Rosenthal (2004) examine trends in racial and ethnic differences in homeownership and find that the ability of credit barriers to explain racial and ethnic homeownership differences is unchanged over the last two decades. This continuing role of credit barriers in spite of many market innovations, such as limited downpayment loans and easy qualifying loan products, that should have reduced credit barriers for individuals with a limited downpayment and blemished credit history suggests that racial and ethnic differences in homeowners cannot be entirely attributed to unobserved financial attributes.

Finally, neighborhood also appears to play a significant role in explaining racial differences in homeownership. Herbert (1997) finds that the concentration of African-

Americans into central cities that typically have a low stock of owner-occupied housing lowers ownership rates across a larger number of metropolitan areas. Further, this low stock arises in part due to past redlining by mortgage lenders (Hillier, 2003), as well as by the Federal Housing Authority (Bradford, 1979). On the other hand, Deng, Ross, and Wachter (2003) find that racial differences in homeownership rates are lower due to the concentration of African-Americans into the central city for Philadelphia. Of course, high minority homeownership rates in poor, central city neighborhoods that have exhibited little housing price appreciation may not represent a real opportunity for minority households and in fact might have limited minority wealth accumulation relative to more traditional financial investments.²¹

4.2 Direct Evidence of Mortgage Lending Discrimination

Unlike in real estate markets, the research on mortgage lending discrimination is dominated by studies that use administrative data containing both application outcomes and detailed application characteristics. These studies include Black, Schweitzer, and Mandell (1978), King (1980), Schafer and Ladd (1981), and Maddala and Trost (1982). All of these studies found evidence of racial differences in mortgage lending, but none of these studies contained information on the credit history of the borrower. Moreover, a number of the studies were missing other crucial information, such as the ratio of loan amount to the assessed value of the property, the ratio of monthly housing expenses to borrower income, or any information to proxy for the risk associated with lending in a given neighborhood. These data omissions raise the concern that the results cited above might be attributable to omitted mortgage application or borrower attributes rather than racial discrimination.

Munnell, Tootell, Browne and McEneaney (1996) attempted to address these concerns by collecting a sample of loans from the Boston metropolitan area with detailed information on the borrower including credit history, loan terms, and unit and neighborhood attributes. They found an eight percentage point racial difference in the likelihood of loan denial after controlling for the key underwriting information. The typical white denial rate was ten percentage points leading to the well-known claim that blacks in Boston were 80 percent more likely to have their mortgage application denied.

There have been many competing claims concerning the results of the Boston Fed study. The major concerns raised involve omitted variables, data errors in control variables, misclassification of withdrawn or counter-offer loans as denials, incorrect specification (Horne, 1997; Day and Liebowitz, 1998), and endogeneity between lender underwriting decisions and submitted loan terms (Rachlis and Yezer, 1993). Alternatively, Carr and Megbolugbe (1993) and Glennon and Stengel (1994) reanalyzed the Boston Fed data concluding that the results were robust to many of the criticisms. Ross and Yinger (1999) review all of the criticisms and re-analyze the Boston Fed data. They find that the central result is only sensitive to one of the major complaints. Namely, the inclusion of a variable for whether the application meets the lender's credit guidelines lowers unexplained racial differences from 7.7 to 4.1 percentage points.

However, the effect of the meets guidelines variable on racial differences is open to many interpretations because it is self-reported by the lender on the Boston Fed survey forms. Critics like Horne (1997) and Day and Liebowitz (1998) argue that the variable captures omitted underwriting characteristics while Browne and Tootell (1998) argue that the variable is chosen after the fact in order to ratify the original decision to approve or

deny credit. Ross and Yinger (1999) control for whether the application meets guidelines while allowing for the possibility that the actual denial of credit influences the likelihood that the lender reports the loan as not meeting guidelines. They find that racial differences only fall to 6.5 percentage points in their model. Further, they find no evidence to indicate that the influence of the meets guidelines variable is due to omitted underwriting variables.²² Rather, they conclude that the effect of controlling for meets guidelines may be the result of across lender differences in the criteria for whether a loan application meets guidelines. As a result, these differences are unlikely to be associated with disparate treatment and might result from either disparate impact discrimination or even the effect of legitimate lender variation in guidelines that are motivated by a business purpose.

Finally, Ross and Yinger (2002) examine whether racial differences in lending can be explained by differences in lender underwriting by considering a series of models in which the underwriting weights used by lenders vary based on the characteristics of the lender's applicant pool/loan portfolio, such as the average loan to value ratio or debt to income ratio of applications in the pool. They find substantial evidence that attributes of a lender's applicant pool is related to its underwriting standards even in a model that controls for both lender fixed effects and allows underwriting weights to vary by the value of other underwriting variables.²³ None of the estimated models suggest, however, that these differences can explain the racial underwriting differences in the sample. Ross and Yinger (2002) also examine a model for the ten largest lenders in the sample and allow the weights placed on credit history, loan to value ratio, and debt to income ratio to vary freely across lenders. Again, while substantial differences in underwriting weights

were identified, there was no evidence that these underwriting differences could explain the racial differences in mortgage application outcomes.

Alternatively, the Office of the Comptroller of the Currency (OCC) and the Federal Reserve Board of Governors have developed lender specific underwriting models. Corchane, Nebhut, and Nickerson (2000) and Blackburn and Vermilyea (2004) present the results of OCC estimations for ten lenders. Their lender specific analyses allow the weights placed on underwriting variables, such as credit history or loan to value ratio, to vary across lenders, as well as allow lenders to define the specific functional form used for including each underwriting variable.²⁴ These models can provide quite strong evidence of disparate treatment discrimination, but the OCC has only found evidence of discrimination for two lenders using this approach (Corchane, Nebhut, and Nickerson, 2000). Further, Blackburn and Vermilyea (2004) find that the unexplained racial differences in a model that pools all ten lenders are much larger than the average unexplained racial differences in the lender specific models.²⁵ Their analysis suggests that the smaller racial differences arising in the lender specific models are driven almost entirely from the move to lender specific underwriting variables rather than from relaxing the restriction that underwriting weights be the same across lenders.²⁶

Ross and Yinger (2002) draw on their own analyses as well as the analysis of Blackburn and Vermilyea (2004) to argue that the Boston Fed study did not necessarily isolate disparate treatment discrimination, but that the racial differences identified very likely constitute evidence of disparate impact discrimination in the U.S. mortgage market. Specifically, Ross and Yinger (2002) found no evidence that racial differences in underwriting are attributable to observable portfolio differences between the lenders

concluding that the racial differences in application denial rates do not appear related to observable factors that might explain the differential default risk faced by lenders. In addition, Blackburn and Vermilyea's findings concerning the source of the disparate impact do not appear consistent with a business necessity argument. Specifically, it is very unlikely that these lenders have validated their specific functional forms against performance data in a way that would allow them to reject the alternative variable constructions used in Blackburn and Vermilyea's market level model because most lenders do not have access to the data necessary to perform such a validation.

Finally, a small number of paired testing efforts have been conducted to examine discrimination in the pre-application phase of the mortgage lending process. Fair housing groups have conducted enforcement-oriented testing of mortgage lenders, and many of these testing efforts led to court cases and legal settlements under the Fair Housing Act, see Harney (2006), Lawton (1996) and Smith and Cloud (1996). The most recent study by the National Community Reinvestment Coalition conducted 100 tests across five cities. The study found that whites were provided more information concerning relevant fees (74 vs. 31%), product types/loan options (twice as many), and the possibility of referral up to less expensive products (7 vs. 0%), and that minorities were much more likely to be pressed for details on their credit report (40 vs. 9%) (Harney, 2006). In addition, the Urban Institute (Smith and Delair, 1999) examined the 1993 pre-application testing data from the National Fair Housing Alliance tests that were conducted in five cities. They also found substantial differences in the number of loan products quoted for three of the five sites.

The urban institute pilot study of pre-application mortgage testing, called the Homeownership Testing Program (HTP), provides the first paired testing evidence arising from a cohesively designed and carefully documented process. HTP focuses on a single scenario in which a first-time homebuyer whose home purchase is constrained by the resources available for a downpayment visits a mortgage lender and requests information about obtaining a mortgage including help in figuring out a price range, a reasonable loan amount, and suitable loan products.²⁷ Approximately 75 tests were conducted for each group, African-Americans and Hispanics, in each site, Chicago and Los Angeles (Turner, Freiberg, Godfrey, Herbig, Levy and Smith, 2002; Turner, Godfrey, Ross, and Smith, 2003).

The HTP was designed to allow the analysis of tester treatment for a wide variety of loan officer decisions, and systematic differences in treatment were identified in Chicago across a variety of treatments. Black testers were less likely to receive the information requested with a net difference of 16 percentage points. In terms of total supply of credit, Hispanic testers were provided products that offered a \$17,000 smaller maximum loan amount given an average white loan amount of about \$190,000. Both blacks and Hispanics received information about less products with net differences in treatment of 24 and 22 percentage points, respectively, representing about four tenths of a product less. Blacks and Hispanics both received less coaching and assistance with net differences of 25 and 21 percentage points.²⁸ Black testers were also less likely to receive a follow-up phone call where only the white tester received a phone call for 13 percent of tests and only the minority tester received a phone call for 1 percent of tests. In Los Angeles, the number of treatments in which Blacks or Hispanics experienced

adverse treatment was small and could have arisen by chance with a fairly high probability.

These results point to important racial and ethnic differences in the pre-application experiences of first-time homebuyers in Chicago. Admittedly, the form of adverse treatment varied across groups. Nonetheless, the level of adverse treatment against minorities in Chicago is sizeable and favorable treatment of minorities is never observed for any treatment variables for any group in any site. Furthermore, the findings in Chicago are supported by multivariate analyses suggesting that discrimination against blacks is higher at smaller lenders and lenders with a small percentage of African-American applicants. Similarly, discrimination is higher against Hispanics at small lenders (Ross, Turner, Godfrey, and Smith, 2005).²⁹

Loan officers are in a unique position to influence the relative outcomes of minority mortgage applicants. The loan officer often meets with the individual applicant observing their race and ethnicity while the formal mortgage underwriting process is usually centralized so that race and ethnicity are likely unobserved. Kim and Squires (1999) find that the approval rates of African-American applicants rise as the share of African-American employees at a lender increases.³⁰ Further, the loan officer is more likely to be consulted during underwriting for applications in which the final outcome is not obvious from the paper file (Temkin, Levy, and Levine, 1999).³¹ Han (2002) finds that most of the racial differences in the Boston Fed data arise from applications where no information is available on the applicant's credit history possibly leading to additional consultation with the loan officer who met the applicant.³² Finally, the loan officer has private information concerning a lender's specific underwriting policies and standards. If

loan officers provide more assistance and advice to white applicants in the preparation of the mortgage application, white applicants would have better matches between application attributes and lender underwriting standards than minorities as found in Ross and Yinger (2002) and Blackburn and Vermilyea (2004).³³

4.3 Redlining by Mortgage Lenders

Current research indicates that the aggregate pattern of lending in many cities is consistent with redlining based on race where redlining is defined as the reduced provision of credit to minority neighborhoods. For example, Shlay (1989) for Baltimore; Bradbury, Case and Dunham (1989) for Boston, Shlay (1988) for Chicago, Avery and Buynak (1981) for Cleveland, and Schafer and Ladd (1981) for New York City all find that the flow of credit to minority neighborhoods is much lower than for predominantly white neighborhoods. Further, Holmes and Horvitz (1994) find a very similar pattern of credit flows in a model that includes a measure of neighborhood default risk using public foreclosure data.³⁴

However, direct studies of the mortgage application approval process tend to find at best mixed evidence of redlining by neighborhood racial composition or income distribution.³⁵ Schafer and Ladd (1981) examine approximately 20 metropolitan areas in New York and California and have mixed results, finding evidence of racial or ethnic redlining in some locations but no evidence in many others. Schill and Wachter (1994) examine applications in Boston and Philadelphia and find no evidence of redlining by neighborhood racial or income composition after controlling for neighborhood risk variables. Similarly, the only study of redlining that controls for both applicant credit history and neighborhood risk, Tootell (1996), finds no evidence of racial or income

redlining in Boston.³⁶ Also using the Boston data, Ross and Tootell (2002), however, find evidence that lenders favor applicants from CRA-protected neighborhoods if they obtain Private Mortgage Insurance (PMI) and that this behavior masks lender redlining of low income and minority neighborhoods for loan applicants who are not covered by PMI.

However, the most striking finding in Tootell (1996) and Ross and Tootell (2002) is that certain neighborhood features are very important for explaining mortgage underwriting. Specifically, the ratio of median rental price to the median value for owner-occupied properties in a neighborhood is a strong predictor of mortgage denial. This variable is included as a proxy for likelihood of future declines in property values because buyers must receive a discount relative to the current rental stream when purchasing in a location where values are more likely to fall. In addition, studies on the use of subprime credit by Calem, Gillen and Wachter (2004), Calem, Hershaiff and Wachter (2004), Apgar, Calder, and Fauth (2004), National Community Reinvestment Coalition (2003) all find evidence that high rent to value ratios imply a higher likelihood of using subprime rather than prime mortgage financing. These findings suggest an important link between the residential segregation of minorities into low appreciation, depressed central city neighborhoods and the inability of minorities to access mortgage credit.

4.4 Discrimination in the Price of Credit, Subprime Lending, and Predatory Behavior

While most studies focus on underwriting, a small number of studies examine discrimination in the pricing of mortgage credit. For example, Crawford and Rosenblatt (1999) examine differences between the final interest rate and the interest rate to which the borrower committed early in the mortgage process using a sample of 1988 and 1989

loans from a major mortgage lender. They find that the average decline below the lock-in rate is 6 basis points or 6 100ths of a percentage point of interest and that the average unexplained racial differential decline was 3 basis points or half of the overall average decline. Courchane and Nickerson (1997) examine mortgage overages where an individual is charged a percentage of the loan amount above the lender determined price of credit at three mortgage lenders. At one lender, they identified a single loan officer who processed 96% the lender's African-American applications and on average charged two percentage points above the overage of typical loan officers. For the other two lenders, however, the differences in overages identified were substantially smaller observing a 0.17 percentage point differential for minorities at one lender and no systematic differences in pricing for the other. Finally, Nelson (2005) examines data from a single large lender in California. She does not find any racial or ethnic differences in mortgage interest rates, but does find that African-Americans and Hispanics pay between 250 and 350 additional dollars in closing costs.

Given that overages, release from locked-in rates, and even closing costs may result from a negotiation between a loan officer and seller, it is not always possible to determine whether racial and ethnic differences in the price of credit arise from adverse treatment discrimination or whether the process of setting interest rates has an adverse impact on minority borrowers. Moreover, if it has an adverse impact on minority borrowers, the question arises concerning whether this impact is justified by business necessity. If business necessity is defined based on profit maximization, these systems may stand up to legal scrutiny. If on the other hand a cost basis for business necessity is

used, it seems likely that such non-competitive pricing would have an unjustified adverse impact on minority borrowers (Ayres, 2001).

While the price differences identified above are often small, these studies focus primarily on lending in the prime market. On the other hand, the growing subprime market creates the opportunity for very large differences in the price of credit. Subprime loans carry rates that are on average two percentage points higher than prime loans and exhibit much higher variation both in the interest rate as well as other terms that affect the overall cost of credit (Lax, Manti, Raca and Zorn, 2004). In a perfect world, subprime lending would represent the segment of the mortgage market that provides credit to populations that have blemished credit histories and therefore are underserved by traditional/primary credit markets (Weicher, 1997). However, many users of the subprime market are qualified for financing in the primary market based on assessment using automated underwriting tools (FreddieMac, 2000), and these borrowers appear to use the subprime market due to a very low level of attachment to formal financial institutions (Carr and Schuetz, 2001).

Economic theory suggests that credit markets are characterized by adverse selection where the lender has imperfect information regarding underwriting risk and an increase in the interest rate leads to a decline in the credit quality of the pool (Stiglitz and Weiss, 1981). This type of model can imply market segmentation into a high quality segment with uniform prices and high quality threshold for providing credit and a lower quality or subprime segment with risk-based pricing (Cutts and Van Order, 2005). If individuals enter the subprime market due to poor information regarding their credit options rather than poor qualifications, subprime lenders may be able to extract higher

prices than those justified by credit risk. In fact, Lax, Manti, Raca, and Zorn (2004) find that half of the two percentage point difference between prime and subprime interest rates cannot be explained by differential credit risk and servicing costs. In addition, a strong and active subprime market may crowd-out the activities of traditional lenders further increasing the market power of subprime lenders. This outcome is consistent with a rent-seeking story. Rather than profits being eliminated through price competition, subprime lenders may compete with each other through extensive consumer marketing and outreach, which would discourage prime lenders from entering markets dominated by subprime lenders.

Substantial evidence supports the notion that subprime lending is concentrated in disadvantaged neighborhoods. Calem, Gillen, and Wachter (2004) find that the likelihood of using subprime mortgage financing is higher in predominantly African-American neighborhoods even after controlling for the credit quality of neighborhood residents and the equity risk associated with properties in the neighborhood. Similarly, Calem, Hershaff, and Wachter (2004) find that the likelihood of subprime financing falls with both neighborhood income and neighborhood education levels. Immergluck and Wiles (1999) find substantial segmentation of the market by neighborhood racial composition and stratification of lenders within the subprime market based on neighborhood racial composition. Pennington-Cross, Yezer, and Nichols (2000) compare FHA to subprime loans and find that racial segregation in a metropolitan area is associated with higher use of subprime lending.³⁷

In 2004, the Home Mortgage Disclosure Act data was expanded to facilitate the examination of the subprime sector by distinguishing between high and low cost loans

based on the spread between the effective mortgage rate and a benchmark market interest rate.³⁸ Avery, Canner, and Cooke (2005) find that African-Americans and Hispanics are approximately 300 and 200 percent more likely to receive high cost loans for first-lien home purchase loans relative to HMDA comparable whites.³⁹ However, after controlling for pricing differences across lenders, the estimated differences fall to less than 100 and 50 percent higher likelihood for African-Americans and Hispanics, respectively. Bocian, Ernst, and Lee (2006) add information on credit history, ratio of the loan amount to the value of the property, and additional loan terms to a subsample of loans in order to better control for differences across borrowers. They find that African-American homebuyers are between 15 and 30 percent more likely to have a high rate loan than whites while Hispanics were between 30 and 45 percent more likely to have a high rate loan. These differences are sizable, but substantially smaller than differences that are found controlling only for information available in HMDA.

Furthermore, Bocian, Ernst and Lee (2006) do not appear to control for price differences across lenders. A reasonable concern is that the racial and ethnic differences in price may not persist in models that focus on the behavior of individual lenders or even in models that simply distinguish between low and high cost lenders. While there are few lender specific price analyses that are publicly available, the small differences typically identified in those existing studies and the extensive use of firm specific pricing sheets based on common risk factors, such as credit score, loan to value ratio, and documentation of income and assets, suggest that the large differences identified by Bocian, Ernst, and Lee do not accurately represent the level of disparate treatment discrimination in the pricing practices of the lenders in their sample.

Rather, as discussed earlier with respect to the Boston Fed Study, the differences identified in their study may capture the fact that the current mortgage lending system in the U.S. has a serious adverse impact on minority borrowers. The spatial concentration of the subprime lending industry and the limited of access to traditional financial services in many minority neighborhoods may combine to substantially increase the price that many African-Americans and Hispanics pay for mortgage credit. Further, the current financial structure of many lenders who are divided into prime and subprime subsidiaries may exacerbate the problem because subprime mortgage brokers and loan officers likely have strong incentives against referring qualified applications up to the prime subsidiary built into their salary structure. Given perceptions that minority borrowers are less likely to shop around for lower interest rates, the incentives against referring up may be especially strong when loan officers and mortgage brokers encounter minority borrowers. As mentioned above, the National Community Reinvestment Coalition testing study found that minority testers were never counseled on up referral while 7 percent of white testers were counseled (Harney, 2006).

Finally, the concentration of individuals with low levels of financial sophistication into a single segment of the mortgage market creates the potential for a high level of fraudulent activity, which has typically been referred to as predatory lending (Carr and Kolluri, 2002; Stein, 2001; Engel and McCoy, 2002a). Lax, Manti, Raca and Zorn (2004) find that subprime borrowers are older, less educated, have less financial knowledge, and are less likely to search for the best interest rate even after controlling for a borrower's credit history and financial characteristics. Further, Carr and Schuetz (2001) argue that subprime lending flourishes in communities that are primarily served

by non-traditional financial institutions, such as check cashers, pawnshops, and payday lenders. Engel and McCoy (2002b) suggest that subprime lenders dominate lending in low-income and minority neighborhoods because prime lenders tend not to have a presence in those neighborhoods, and Harding, Hossain, and Ross (2005) find that subprime financing is higher when neighborhoods are further from the branches of depository lenders.

Carr and Kolluri (2002) define predatory lending as characterized by three behaviors: targeted marketing in order to identify financially unsophisticated customers based on attributes such as race, ethnicity, age, or gender; unreasonable and unjustified loan terms, such as high interest rates and fees, expensive credit insurance, and large prepayment penalties; and fraudulent lender behavior, such as failure to explain loan terms, high pressure sales tactics, and omitting information concerning credit insurance or balloon payments. Further, Stein (2001) quantifies the cost of predatory lending based on three specific components: Equity stripping based on the financing of credit insurance, underwriting fees, and prepayment penalties; rate-risk disparities where rates exceed the level justified by the borrowers credit history, and excessive foreclosures caused because loans were made without considering the borrowers ability to repay the loan.⁴⁰ Using industry figures, Stein (2001) estimates the annual cost of equity stripping to be six billion dollars and the annual cost of the rate-risk disparity to be three billion dollars.

While high up front fees and prepayment penalties may benefit the borrower through a lower interest rate, Stein argues that prepayment provisions and high fees in the subprime market are almost never accompanied by rate reductions. This claim is

bolstered by Lax, Manti, Raca, and Zorn's (2004) finding that only about half of the rate gap between prime and subprime mortgages can be explained by credit risk and servicing costs, and their analysis only examines interest rate excluding higher costs of credit associated with up front fees and prepayment penalties. Stein and Libby (2001) interviewed 117 homeowners on 125 targeted loan transactions in the Los Angeles, Oakland, Sacramento, and San Diego. They find that three-fourths of all borrowers in their survey did not approach a bank prior to applying for a mortgage, one-third of borrowers experienced aggressive marketing as the lender attempted to initiate a loan, 70% of borrowers claimed that loan terms changed for the worse at closing, 50% of respondents had points and fees exceeding 5% of the loan amount, 10% of the borrowers attempted to exercise their option to cancel within three days, but only 2% of the sample was successful, and 60% of loans had a prepayment penalty. Finally, Farris and Richardson (2004) find that the likelihood of prepayment penalties increases with the neighborhood minority share.

Further, the abusive features in predatory loans, such as high income ratios and repeated refinancing of the same mortgage, is likely to exacerbate foreclosure rates in minority and low-income neighborhoods where subprime lending tends to be concentrated. Immergluck and Smith (2004) found that foreclosure rates among subprime loans in Chicago were over 20 times the foreclosure rates of prime loans, and Gruenstein and Herbert (2000) found that foreclosures by subprime lenders in Boston grew by 154 percent between 1995 and 1999 while foreclosures by prime lenders fell by 30 percent during the same period. These studies cannot distinguish between the effect of predatory loan practices and differential credit risk in the subprime sector, but the

foreclosure differences are striking. Further, Dearborn (2003) explicitly links potentially fraudulent underwriting activity to foreclosure in a study of 434 foreclosures in St. Clair County, IL. She finds that in 221 of those foreclosures the mortgage amount exceeded the initial assessed value of the housing unit by more than 25 percent.⁴¹

A number of studies examine the effect of an anti-predatory lending law in North Carolina that was passed in 1999. Elliehausen and Staten (2004) and Harvey and Nigro (2004) find that subprime lending fell more rapidly following the law than in the nation as a whole or in comparison to other southern states. Harvey and Nigro (2004) show that this change arose from a decline in applications not increased denials suggesting a decline in outreach and marketing effort by subprime lenders. Both studies suggest that the law has limited credit opportunities for low income borrowers. On the other hand, Quercia, Stegman, and Davis (2004) argue that the decline in marketing and originations by subprime lenders should be expected given that law was intended to prevent abusive loans and limit the aggressive tactics used by lenders to market products with predatory or abusive features. They support this argument by documenting that the number of refinance loans with abusive features declined by 50 percent and that those declines could explain 90 percent of the post law decline in subprime originations.⁴²

The research on subprime and predatory lending provides little evidence to support the view that the subprime market is efficiently delivering credit to borrowers and neighborhoods that have been underserved by prime lenders. As in earlier analyses of application outcomes, a substantial portion of racial and ethnic differences observed appear to be driven by the structure of the existing marketplace possibly combined with discrimination by branch level loan officers and mortgage brokers in terms of the

information provided. For example, given the large price differences between prime and subprime products, the failure to refer prime qualified borrowers up and out of subprime subsidiaries quite likely has a much larger impact on the cost of credit to minority borrowers than discrimination by loan officers and brokers in the setting of overages. Further, the evidence concerning predatory behavior of some lenders demonstrates the huge costs to society that can occur when markets become segmented and individual firms are able to use information advantages to extract very high prices out of consumers.

4.5 Analysis and Conclusions

The evidence from both market and administrative data suggests that the availability of mortgage credit plays an important role in limiting minority opportunities for homeownership. Credit barriers can explain a substantial portion of the minority homeownership gap, and the dramatic reduction in those barriers over the last decade has left the role of those barriers in explaining racial and ethnic differences in homeownership relatively unchanged. Analysis of administrative data has consistently found market wide unexplained racial and ethnic differences in the likelihood of loan application denials, and more recently found substantial market wide differences in the price of mortgage credit.

At the same time, most of the available evidence suggests that lender specific racial and ethnic differences in mortgage underwriting and pricing decisions are relatively small. Further, in the case of mortgage underwriting, Ross and Yinger (2002) observe that the market wide differences do not arise simply because minorities tend to apply to lenders with more stringent underwriting standards, but rather due to a poor fit between minority application attributes and the underwriting policies of the lenders to

which they apply. The most feasible mechanism behind the poor fit between minority applicant attributes and underwriting standards is that loan officers and mortgage brokers have private information about their lender's underwriting standards and may provide less assistance to minority applicants. This mechanism is also supported by recent paired testing studies, which find that loan officers and mortgage brokers provide less assistance to minority applicants.

In terms of pricing disparities, the current evidence points towards the segmented structure of the mortgage market where borrowers are sorted between prime and subprime markets. Observationally equivalent borrowers appear to face substantially different prices depending upon the mechanisms through which mortgage financing was pursued, and this feature of the mortgage market appears to have a significant disparate impact on minority borrowers. This adverse impact on minorities is likely further exacerbated by disparate treatment discrimination practiced by loan officers and mortgage brokers, which may discourage minorities from seeking mortgage credit at prime lenders, limit the success of minorities who do apply for prime loans, and decrease the likelihood of minorities being referred out of the subprime sector.

Across neighborhood differences in access to credit appear especially important for explaining the racial disparities observed. Neighborhood risk variables are very important in explaining mortgage underwriting decisions, loan pricing, as well as the pattern of both subprime and predatory lending. Further, subprime lending and loan products with predatory features appear concentrated in minority neighborhoods even after controlling for borrower and neighborhood risk variables, and survey evidence suggests that predatory lenders appear to target specific neighborhoods where borrowers

tend to have a low level of financial sophistication and are less likely to understand the options available in the market. Even in an environment without discrimination, lenders may market very different products at individual branches and between their prime and subprime subsidiaries, and minority and low-income borrowers who search for mortgage credit in close proximity to their residence are likely to pay a substantially higher price for mortgage credit.

In this context, the modernization of financial markets appears to offer some hope for mitigating these problems. The current segmentation of the market may be weakening as prime lenders more aggressively market mortgages to borrowers with blemished credit histories using Alt-A products and more generally price credit based on perceived risk, and as many subprime lenders introduce prime and near-prime products eliminating the need for upward referral. The trend towards more uniform, streamlined and often automated underwriting systems should level the playing field between white and minority applicants and reduce racial and ethnic disparities in application denial rates that arise from differential assistance from loan officers and mortgage brokers. The large secondary market players, FreddieMac and FannieMae, have clearly played a role in these reforms with their introduction of automated underwriting systems, entrance into Alt-A and other subprime credit markets, and their policies concerning prohibitions on purchasing loans with predatory features.

Even with the potential improvements associated with continued modernization, the current pricing and underwriting disparities in U.S. mortgage markets are substantial and likely have negative impacts on low-income and minority neighborhoods well beyond the additional cost of credit due to increased foreclosure rates and depressed

homeownership rates. Evidence from North Carolina suggests that legal reforms are available that can restrict the amount of predatory lending and potentially discourage the riskiest subprime loans that presumably pose the greatest risk to the integrity of low income and minority neighborhoods.

5. Home Insurance and Neighborhood Redlining

The ability to purchase a home also obviously depends upon obtaining insurance on the property. Lenders will not issue a mortgage on a home that is not insured, and a key mortgage underwriting variable is the housing expense to income ratio, which includes the cost of property insurance. In contrast to U.S. housing and mortgage markets, little scholarly or policy oriented research exists on discrimination in the home insurance industry. Further, my knowledge of this research and the associated debates is much more limited, and so this section will briefly report some key findings and point the reader to other work for a more detailed treatment of the subject.

The research that does exist tends focus on the impact of neighborhood composition rather than on the direct impact of race or ethnicity on the treatment of applicants for home insurance. The most common concern is that prices are influenced by the racial or ethnic composition of the neighborhood. In a study across 33 metropolitan areas, Klein (1995, 1997) found that neighborhood racial composition could explain price differences even after controlling for loss experience and other demographic factors, but a later study of Texas found no evidence of unexplained price differences associated with racial composition (Grace and Klein, 1999). In a paired testing study, Galster, Wissoker, and Zimmerman (2001) found that minority testers from a predominantly minority neighborhood were quoted prices that were 12 percent higher

than white testers from a comparable white neighborhood, but they acknowledge that these price differences were consistent with the price schedules for the state approved rating territories.

Often the debate centers on whether price differences across rating territories arise from the legitimate pricing of risk faced by insurers or whether they arise in part from stereotypes concerning minority neighborhoods. Squires (2003a) reviews much of the recent literature of neighborhood redlining by the insurance industry. He cites numerous legal, survey, and anecdotal examples where race or ethnicity has influenced the behavior of home insurers including consultant provided labels of neighborhoods, such as “low income southern blacks” and “middle class black families” which when challenged in court were changed to the equally pejorative labels of “hard times” and “working class families” (Metzger, 2001; National Fair Housing Advocate Online, 1998). Squires also bolsters these examples using evidence from enforcement paired testing studies that document differences in the likelihood of providing policies, returning phone calls, offering a variety of policy options, and requiring home inspections (Smith and Cloud, 1997). The service differences identified by Galster, Wissoker, and Zimmerman (2001) in the only research oriented paired testing study, however, were substantially smaller than in the enforcement studies discussed by Squires (2003a).⁴³

6. Summary and Conclusions

The picture painted by this review is mixed. The willingness of whites to live in integrated neighborhoods has improved steadily. The incidence of housing discrimination is down substantially with the exception of discrimination against Hispanics in the rental market, and the observed pattern of prices and outcomes in the

housing market suggests that housing market discrimination does not significantly constrain the residential outcomes of minorities. On the other hand, the evidence of high levels of discrimination in the past is quite compelling, and the legacy of this past discrimination is likely a very important factor in explaining the high levels of residential segregation faced by African-Americans today. While middle income African-Americans have suburbanized over the last two decades, this suburbanization has taken place in a cultural environment distorted by high levels racial segregation, and accordingly the pattern of African-American suburbanization also involves high levels of segregation mirroring that earlier environment.

Furthermore, this history of discrimination and segregation helps explain the current racial differences in homeownership. The centralization of African-Americans into central cities depressed homeownership overall and also limited the accumulation of wealth among African-American homeowners who often owned homes in lower-income, central city neighborhoods with low appreciation rates. In addition, racial differences in ownership rates among the previous generation and the black-white wealth gaps both contribute significantly to current racial differences in homeownership (Charles and Hurst, 2002; Dawkins, 2005). While Hispanics face lower levels of segregation than African-Americans, the high levels of rental market discrimination faced by this group may have lasting consequences especially since rental market discrimination is likely to fall disproportionately on first and second generation immigrants.

The mortgage market also appears important in explaining racial differences in homeownership, and the evidence suggests that discrimination and segregation play an important role in these differences as well. Paired testing evidence finds that loan

officers in some markets provide minority applicants with less help and assistance, and a number of studies are consistent with the notion that adverse treatment by loan officers can lower the likelihood of minority homeseekers obtaining mortgage credit. Furthermore, the recent trend towards risk based pricing and the growth of the subprime market have substantially increased the variation in interest rates and other costs paid by borrowers, and the associated increased incidence of high interest rate loans and foreclosures appear to arise disproportionately in low-income and minority neighborhoods.

On a positive note, the trend towards automated underwriting and more uniform underwriting standards should help limit the role played by individual loan officers in underwriting and potentially mitigate the effect of adverse treatment by such individuals on loan approval rates. Further, the increasing competition in the subprime market created by the introduction of near prime products by prime lenders and the increased role of FreddieMac and FannieMae in purchasing subprime loans should create downward pressure on the unjustified price gap between subprime and prime financing. Nonetheless, given that we are at best only a few years removed from well-documented very abusive practices by some mortgage lenders operating in low-income and minority neighborhoods, it would seem unwise for policymakers to simply assume that financial modernization will quickly eliminate the racial and ethnic differences and institutional problems documented in U.S. mortgage markets, and recent evidence suggests that increased regulation can prevent abusive loans with only moderate impacts on the volume of legitimate subprime lending.

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6. References

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7. Endnotes

¹ Lundberg (1991) and Coate and Lowry (1993) develop models of this type for the labor market. Also see Lundberg and Startz (2000) for a detailed survey of this literature.

² See 401 U.S. 424 (1970).

³ Specifically, Aryes (2001) argues that corporate specified interest rates account for risk associated with low credit scores, and any additional discretionary interest rate premium added at the dealership constitutes an unjustified pricing policy that has an adverse impact on African-American borrowers who tend to have lower credit scores. See Ross and Yinger (2002) for a more general discussion of adverse impact and specific applications in the context of mortgage lending.

⁴ For example, Johnson and Neal (1996) estimates an earnings model that controls for ability, which may not actually be observed by an employer, and other presumably exogenous attributes, such as age and family background, but does not control for traditional variables that employers likely consider, such as actual years experience or education since those variables may have been affected by past racism and discrimination. This model captures the effect of race on labor market outcomes after controlling for “pre-market” differences in ability. In principle, estimated racial differences may be higher or lower than traditional estimates that control for traditional human capital variables because both pre-market ability and the omitted human capital variables are correlated with race.

⁵ See Ross (2002), Heckman (1998) and Heckman and Siegelman (1993) for more detailed discussions.

⁶ The data analyzed by Turner, Ross, Galster, and Yinger (2002) is unique in that the information on tester employment applications have been recorded allowing them to explicitly examine whether differences between testers, such as education or work experience, biases the estimates of discrimination.

⁷ It should be noted, however, that the two piloted sites had substantially lower levels of adverse treatment than many of the sites in the Phase I study and that the results might have been different in metropolitan areas with higher levels of adverse treatment. Ondrich, Ross, and Yinger (2000) and Turner, Ross, Galster, and Yinger (2002) use the estimates from parametric models to correct for these problems, but the revised lower bound estimates of discrimination are usually still quite close to the net measure.

⁸ Specifically, the power behind the test is based on a selection bias, but the selection bias only exists if key variables are omitted from the analysis creating a correlation between the unobservable determinants of firm treatment and performance. The resulting omitted variable bias typically works in the opposite direction of the selection bias. Ross (1997, 1996) provides evidence in the mortgage lending context that the omitted variable bias, which is likely to mask discrimination, is actually larger than the selection bias that provides the basis of the test. See Ross and Yinger (2002) for additional discussion and Anwar and Fang (2006) for a unique solution approach to this problem.

⁹ For example, Sniderman and Piazza (1993) find that half of whites surveyed endorse some negative stereotypes of African Americans and over one in five hold uniformly negative views. Similarly, Bobo and Kluegel (1997) find that over half of whites surveyed rated African Americans relatively lower than whites on intelligence and laziness and higher on violent tendencies, and over three-quarters rate African Americans as relatively more likely to prefer living off welfare.

¹⁰ She bases this conclusion on white willingness to remain in neighborhoods when African Americans move in due to the white’s presumed knowledge of the neighborhood.

¹¹ In fact, Kiel and Zabel (1996) only find a significant African-American price premium in one of the metropolitan areas examined in their study. Another alternative explanation for a price premium is that ghettos can operate as a port of entry. If housing markets adjust slowly relative to the speed of migration, price spikes will arise in these ghettos whether or not housing discrimination is practiced. Similarly, as migration slows, the housing market will adjust or discriminatory real estate agents can move boundaries allowing price premiums to disappear whether or not discrimination has fallen. For example, Yinger (1995, p. 123) discusses the role played by real estate agents in the creation of new predominantly African-American neighborhoods in the Mattapan neighborhood of Boston, MA. Clapp and Ross (2004), however, find no evidence that increases in minority population in the 1990’s in Connecticut had any impact on housing prices even though these increases lead to higher levels of segregation.

¹² The national studies are constructed as two stage samples of tests in which first a set of representative metropolitan areas are chosen based on the distribution the minority population across metropolitan areas, and in each selected site tests are conducted based on a random sample of advertisements from the major

metropolitan newspaper. Also see Yinger (1993), Smith (1993), and Boggs, Sellers, and Bendick (1993) for histories of testing in the housing market.

¹³ The composite results presented here are based on a hierarchy of 14 treatment variables where availability of the advertised unit is first and followed by ability to inspect the advertised unit, see Turner, Ross, Galster, and Yinger (2002) for details.

¹⁴ Phase II and beyond used a sampling protocol that rotated between the various sources available to homebuyers and renters, such as the internet, weekly newspapers, and local homebuyer or rental guides that cover a region of the metropolitan area. A comparison of tests based on advertisements drawn from major metropolitan newspapers, which were used in 1989 and phase I of HDS 2000, to tests based on alternative sources did not yield a consistent or strong pattern of differences across advertisement sources, see Turner, Ross, Galster, and Yinger (2002) and Turner and Ross (2003b) for a detailed discussion of these comparisons. See Ross (2002) for a discussion of this and other methodological issues arising when paired testing approaches are used to measure the incidence of discrimination.

¹⁵ On the other hand, Department of Justice and National Fair Housing Alliance (NFHA) enforcement activities are associated with smaller declines and higher levels of discrimination suggesting that these groups targeted locations where discrimination is most persistent and widespread. Given the likelihood that national actors like Justice and NFHA target metropolitan areas where discrimination is especially problematic it is not possible to determine whether the actions of these groups lead to reductions in the level of discrimination.

¹⁶ These and other studies have also examined the effect of agent race on treatment as a test for whether discrimination is caused by agent prejudice. Many studies find no evidence that agent race matters (e.g. Ondrich, Ross, and Yinger, 2000; Ondrich, Stricker, Yinger, 1998, 1999; and Yinger, 1986 often attributing this finding to the small number of minority agents), but a few studies find that discrimination falls when an agent and tester have the same minority group status (Roychoudhury and Goodman, 1992; and Yinger, 1995).

¹⁷ See Ondrich, Ross and Yinger (2003) for a more detailed discussion of statistical discrimination by real estate agents and an analysis of statistical discrimination in the 1989 HDS. They find that African-Americans are consistently shown lower price units in lower value neighborhoods relative to their initial request.

¹⁸ The NFHA study (2006) found that comments about schools were a very important component of racial steering, but Galster and Godfrey (2005) found that only five percent of comments were related to schools.

¹⁹ No such shift was identified for white households.

²⁰ As an illustration, Bayer, McMillen, and Rueben (2005) estimate a structural model of residential location choice. This analysis shows that the neighborhood choices available in current metropolitan areas dramatically limits the options of upper and middle income African-Americans causing them to consume much lower levels of neighborhood amenities than would otherwise have been expected. This concentration of African-Americans of all income levels into lower amenity neighborhoods would naturally limit the willingness of whites to live in integrated neighborhoods.

²¹ Very little research has been conducted to test whether credit constraints are more important in explaining homeownership differences in poor and underserved neighborhoods. The one exception is Gyourko, Linneman, and Wachter (1999) who find that credit constraints matter for African-Americans in both the central city and the suburbs.

²² Specifically, if loan denial and meets guidelines were influenced by common unobserved underwriting variables, the error terms in the loan denial and meet guidelines equations would be correlated, but Ross and Yinger (2002) find no evidence of such a correlation.

²³ For example, in a model that allows underwriting weights to vary with the average debt to income ratio of the lender's applicant pool, Ross and Yinger (2002) also allow weights to vary with the applicant's actual debt to income ratio.

²⁴ For example, some lenders simply use debt to income ratio in their underwriting decision while others only consider debt to income ratio when it exceeds a lender specific threshold.

²⁵ See Blackburn and Vermilyea (2003) for more details on their analysis that are not available in Blackburn and Vermilyea (2004).

²⁶ The apparent contradiction between Blackburn and Vermilyea's (2004) findings and the analysis by Ross and Yinger (2002) is actually quite easy to resolve. Ross and Yinger could only relax the assumption

of equal weights across lenders. As with Ross and Yinger after controlling for meets guidelines, the market wide racial differences in underwriting identified by Blackburn and Vermilyea are still statistically significant even after allowing underwriting weights to vary across lenders.

²⁷ A set of financial profiles were developed, which were assigned randomly to tester pairs. These profiles started with a home price near the median house price for the metropolitan area and set assets based on a five percent downpayment, income based on a 28 percent housing expense to income ratio, and debts based on a 32 percent total debt expense to income ratio. Based on these values, the applicant faces a binding downpayment constraint and has income ratios based on the implied maximum loan amount that are well within guidelines for conventional conforming mortgages. All testers were randomly assigned A- credit profiles, and all testers had time at current residence and at current employment set at 3 years or greater

²⁸ Assistance is defined as suggestions concerning paying down or consolidating debts, obtaining a downpayment, information on points or closing costs, provision of a pre-qualification letter, or information about homebuying seminars.

²⁹ Ross, Turner, Godfrey, and Smith (2005) find some evidence that tester identity can explain differences in treatment between testers of the same race for Hispanics in Chicago and Blacks in Los Angeles. This finding does raise some concerns that the differences in treatment for Hispanics in Chicago might be attributable to behavioral differences between testers. However, Heckman's logic concerning behavioral differences between testers must be applied to the credit market with care. In principle, potential applicants with similar financial attributes and qualifications should receive comparable treatment even if there are minor differences in how they behave during their visit to a mortgage lender. If such behavioral differences have a negative impact on the treatment of minorities, the differences in treatment might reasonably be considered as having a disparate impact that is not justified by business necessity. In addition, all multivariate results are based on models that control for tester fixed effects.

³⁰ This evidence is consistent with the cultural affinity hypothesis where racial similarities increase the quality of communication between the borrower and the loan officer leading to superior outcomes for borrowers who share the same racial and cultural background with loan officers. See Bostic (2003) and Longhofer (1996) for additional discussions of the cultural affinity hypothesis in the mortgage market.

³¹ Temkin, Levy, and Levine (1999) examine a medium-sized mortgage lender that has an explicit policy of including the loan officer, who likely knows the race of the applicant, in the underwriting decision for problem applications. The Temkin, Levy, and Levine's (1999) case study concluded that the underwriting system was race neutral in their assessment of the process, but in terms of outcomes they found large racial disparities in lending, numerous discrimination complaints, and one active law suit under the ECOA.

³² Han (2002) interprets this finding as evidence of statistical discrimination. On average, African-American applicants had substantially worse credit history than white applicants in the Boston mortgage market of the early 1990's. Therefore, lenders have an incentive to use race in order to predict the creditworthiness of applicants when no credit history has been established and so may have rationally discriminated against those minority applicants, but the explanation in the text is equally reasonable and more consistent with other evidence presented here.

³³ Rachlis and Yezer (1993) first suggested that loan officers might provide information to borrowers about the lender's specific underwriting standards affecting both the borrower's application and the likelihood of approval; thereby creating a simultaneity between loan application terms and underwriting. Yezer, Phillips, and Trost (1994) and Ross and Yinger (1999, 2002) both find evidence of simultaneity between loan application attributes and lenders' underwriting standards suggesting that loan officers do influence the attributes of the submitted loan application.

³⁴ Such an approach was only feasible due to the extreme price swings and unusually high default rates in the Houston market during their sample period.

³⁵ Recent work on the role of race and location in small business lending by Cavalluzzo and Cavalluzzo (1998) and Blanchflower, Levine, and Zimmerman (2003) also suggests that the race of the applicant, rather than the neighborhood racial composition, is more important..

³⁶ Avery, Beeson, and Sniderman (1996) find consistent evidence of income and racial redlining using data gathered from the Home Mortgage Disclosure Act, but their data do not contain the detailed borrower and loan characteristics available for the studies discussed in the text.

