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The Continuing Practice and Impact of Discrimination

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Abstract

This chapter provides a detailed discussion of the evidence on housing and mortgage lending, 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 to 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, but rather appears to raise additional opportunities for discrimination on the price of mortgage credit. The growth of the subprime industry also appears to have segmented the market in terms of geography and substantially increased the cost of relying on spatially nearby sources of mortgage credit. On a more positive note, the potential role played by loan officers in mortgage market discrimination suggests that the shift towards automated underwriting may lead to substantial improvements for minority applicants over time.

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

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1. Introduction

A long history of work 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, which had a dramatic impact on outcomes of individual minority homeseekers as well as the spatial distribution of households by race across U.S. metropolitan areas. Recent evidence suggests, however, that there have been dramatic improvements in the treatment experienced by minorities in U.S. housing markets over the last few decades. On the other hand, no consensus has ever been reached concerning the existence of discrimination in the provision of mortgage credit in spite of a huge volume of research. Furthermore, if discrimination exists, there is no evidence to suggest improvements over time, and many reasons to believe that the shift towards risk based pricing and the growth of the subprime 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. Rather than attempting a comprehensive review or critiquing specific methodologies, the goal of this paper is to highlight the major discussions in the literature on housing and mortgage lending discrimination, to assess the key lessons offered by these various areas of inquiry, and to synthesize these findings to form specific conclusions concerning the form of discrimination in housing and credit markets, as well as the potential impacts of such discrimination on minority homeownership and patterns of residential location.

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 paired testing studies. Finally, evidence concerning discrimination and barriers in mortgage market is discussed. This discussion begins with assessments of the role credit barriers play in explaining differences in homeownership and follows with discussions of research using administrative data to look at 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 the 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, restaurant employees may rationally refuse service to or discourage the patronage of minority customers out of fear that minority customers will affect business from prejudiced majority customers. 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 theory of discrimination is the model of statistical discrimination developed by Phelps (1972). Statistical discrimination arises when an unbiased individual uses race or ethnicity as a signal for unobservables that influence the economic return from market interactions. For example, women may leave the labor market at higher rates, and these higher departure rates may affect the willingness of firms to hire women.

The equilibrium effects of statistical discrimination can be quite complex. For example, Lundberg (1991) and Coate and Lowry (1993) extend the statistical discrimination model to situations where minorities respond to the incentives created by discrimination by investing less in human capital. This behavioral response leads to greater levels of discrimination or even creates a self-fulfilling expectation where the discrimination creates the very racial differences on which the discrimination is based. See Lundberg and Startz (2000) for a detailed survey of these types of models.

2.2 Defining Discrimination

Regardless of the underlying cause of discrimination, the most commonly discussed and universally rejected form of discrimination is disparate treatment.

Disparate treatment occurs when an individual's treatment in an economic transaction is materially affected by their minority group status. The underlying question faced by the researcher or the legal system is whether other things equal a individual or group of individuals would have received 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 majority group members.

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 established 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 effects 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.*¹ 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 profit maximizing firm behavior where people are treated equally regardless of race (Mahoney, 1998). On the other hand, Aryes (2001) criticizes NMAC's

use of credit scores to set rates on automobile loans. Specifically, individual dealers charge borrowers with poor credit history a premium above the NMAC provided rates, but the NMAC provided rates already include rate adjustments to account for the higher costs of loans to poor credit history borrowers. While such behavior maximizes profits, Ayres argues that it represents creates a disparate impact against minority borrowers because this use of credit score is not justified by the cost of providing the service. See Ross and Yinger (2002) for a more detailed discussion of these and similar issues.

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 causes 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 omitted variables or behavioral choices that affect 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 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 renters initial visit to a rental office or a homebuyers initial inquiries 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, the technique is unable to capture the impact of discrimination on long-run market outcomes where minorities might adjust their behavior and mitigate the effect of discrimination, see Ross (2002) and Heckman (1998) and Heckman and Siegelman (1993) for more detailed discussions.

Heckman and Siegelman (1993) also argue that average racial differences in treatment may be driven by unobservable differences in the distribution of white and minority testers, i.e. an imperfect match between testers. Heckman and Siegelman suggest that tester unobservables can only bias the net incidence if they influence tester treatment overall, and they find evidence that tester identity could explain outcomes for one of the four samples of labor market tests conducted by the Urban Institute. Similarly, Ross, Turner, Godfrey, and Smith (2005) found that tester identity matters for two of four samples in a paired testing study of mortgage lending discrimination. On the other hand, Ondrich, Ross and Yinger (1999, 2002) find no evidence that tester identity affects treatment of testers in terms of the availability or inspection of available housing units examining data from the 1989 Housing Discrimination Study. For the 2000 Housing Discrimination Study, Turner, Ross, Galster, and Yinger (2002) find that the tester's actual characteristics drawn from an employment application can explain treatment, but this behavior tends to have no impact on measured racial differences in treatment.

A final question involves 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 overestimates

discrimination because sometimes a minority tester is treated unfavorably 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 minorities are not intentionally favored, but the net measure may underestimate discrimination because sometimes minorities are favored for systematic reasons, such as a white not being shown units in minority neighborhoods. In phase II of HDS 2000, sandwich or triplet tester in which three testers participate and two of the testers have the same race were piloted in two sites. Triplet tests provide a same race comparison and so allow the elimination of random differences in treatment without the problems associated with the traditional net measure. In those two sites, the traditional net measure and the net measure based on the same race comparison yielded very similar results (Turner and Ross, 2003b).²

The alternative to paired testing is regression analysis that uses observed individual attributes in order to create an “other things equal” comparison of outcomes or treatment 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. Across group differences in outcomes are often interpreted as market level discrimination even though the discriminatory agent is usually unidentified in the sample and the outcomes being considered may not represent specific decisions made by firms. More compelling evidence of market discrimination can often be obtained from administrative data where the researcher models actual firm decisions, such as salary or the approval of a mortgage application. Such administrative studies often include detailed information on firms or may even focus on the behavior of an individual firm.

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. 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 because firms behave differently and those differences have a disparate impact. Such analyses may find evidence of discrimination even when firms do not practice disparate treatment discrimination. In addition, if the analyst leaves out specific control variables that explain firm behavior because those variables do not appear related to the economic decision, the resulting estimates capture racial differences that may be attributable to the use of variables that have an adverse impact on minorities, but are not justified by business necessity.

Finally, some studies shift the question from measuring the incidence of discrimination to an alternative question concerning effect of race, ethnicity, or gender on economic outcomes. For example in the labor market context, Johnson and Neal (1996) uses a sample that contains a measure of ability in high school. Neal estimates a model that controls for ability and other presumably exogenous attributes, but does not control for traditional variables such as actual years experience or education since those variables may have been affected by discrimination. Neal interprets the racial differences identified as an estimate of the overall impact of race on labor market outcomes. Alternatively, many studies examine 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.

On the other hand, a performance approach is sometimes applied to a discrete treatment where performance is only observed for individuals who received favorable treatment from the firm, such as a mortgage approval. The logic behind the test is that prejudice-based discrimination against minorities leads to a select sample where only the performance of very high quality minorities is observed. Such tests are much less robust than the performance-price tests described above. Specifically, the power behind the test is based on a selection bias, but the selection bias only exists if substantive variables are omitted from the analysis and the resulting omitted variable bias works in the opposite direction. 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.

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

3.1 Racial and Ethnic Segregation and Differences in Housing Market Outcomes

U.S. metropolitan areas overall have become increasingly diverse primarily due to immigration from Latin America. The percent of non-Hispanic whites in U.S. metropolitan areas fell from 73 to 66 percent between 1990 and 2000 while the percent Hispanic rose by four percentage points. The percent African American was steady at 13 percent.³ While the African American share of population remained steady, the level of segregation faced by this group fell moderately during the 1990's from 0.438 to 0.381 based on a multi-group information index. The metropolitan areas with the largest

declines were primarily areas that had a substantial increase in diversity suggesting that African-American segregation is declining in part due to increased exposure to Hispanics and/or Asians.⁴ On the other hand, the level of segregation faced by Hispanics and other minority groups is much lower than African-Americans, and did not fall during the period remaining steady at 0.208 and 0.133 on the same index, respectively (Iceland, 2004).

Schuman, Steeh and Bobo (1997) examine trends in white attitudes towards African Americans from the 1960s to the late 1990s. They identify strong upward trends in white attitudes towards equality and integration on a wide array of variables relating to school and neighborhood integration, fair access to housing and employment, and interracial marriage. In the context of housing, Patterson (1997) and Thernstrom and Thernstrom (1997) argue that white aversion to African American neighbors has declined sufficiently so that white prejudice and discrimination are no longer important causes of housing segregation. Farley and Frey (1994) also find a substantial decline in white aversion to living with African Americans during the 1980's.

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.⁵ Related results directly support the notion that racial prejudice plays a role in housing segregation. 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. Ellen (2000) concludes that whites stereotype neighborhoods based on racial composition when choosing a new neighborhood. 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, but white unwillingness to move into predominantly African American neighborhoods when choosing among neighborhoods with imperfect information.

No direct evidence is available concerning changes in white preferences for segregation from Hispanic households. Charles (2000), however, examines current preferences of Asian, African American, Hispanic, and White households for living with other racial or ethnic groups. She suggests that the preferences can be described by a status hierarchy with whites at the top, African Americans at the bottom, and Asians and Hispanics in the middle. Further, both Charles (2000) and Bobo and Zubrinsky (1996) suggest that white preferences for segregation limit the housing market opportunities of Hispanic households. In addition, stereotyping may also play a substantial role in white relationships with these groups. For example, Baugh (2004) finds that individuals with Chicano or Mexican dialects were assessed to have lower intelligence than whites while those with European dialects were assessed to have similar or higher intelligence than whites.

Many studies have examined whether the very high levels of segregation faced by African-Americans can be explained by economic factors, and a smaller number has examined the same question for the lower level of segregation faced by Hispanic households. Massey and Denton (1993) document high levels of racial segregation in American metropolitan areas that cannot be explained by racial differences in income. Similarly, Rosenbaum (1996) documents for New York City that both African Americans and Hispanics reside in lower quality housing and neighborhoods than whites after controlling for demographic and economic differences. Similarly, Bayer, McMillen, and

Rueben (2004) find that only 30 percent of the observed segregation of African-Americans in the San Francisco metropolitan area can be explained by income and education differences, and Ihlanfeldt and Scafidi (2002) find that most segregation in the Atlanta, Detroit, and Los Angeles metropolitan areas remain even after controlling for both economic factors and the self-reported preferences of African-Americans in their study.

On the other hand, the empirical results concerning Hispanics and Asians are less clear. As with African-Americans, Rosenbaum (1996) finds levels of segregation of Hispanics in New York City that cannot be explained by demographic and economic differences. Unlike Rosenbaum, however, Bayer, McMillen, and Rueben (2004) find that 95 percent of Hispanic segregation in San Francisco can be explained by income, education, language and immigration. Borjas (1995) further documents that important role immigration plays in the segregation of Hispanic households. He finds very high levels of exposure of all immigrant groups to other first and second generation immigrants, but that these exposure levels fall generation by generation. The levels of exposure to immigrants are somewhat higher for Hispanics, but the overall pattern is the same. On the other hand, in examining specific subgroups, Borjas finds that Cubans and Mexicans have substantially higher levels of exposure to their own group of when compared to non-Hispanic immigrant groups.

Finally, a substantial literature exists that examines racial differences in housing prices as a test for whether minorities face discrimination in the housing market that excludes them from certain neighborhoods. A finding that African-Americans pay a higher price for housing than whites suggests that they face substantial constraints on

their residential location choices potentially due to housing discrimination. 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 not to find evidence of a housing price premium.

Cutler, Glaeser, and Vigdor (1999) confirm this pattern finding that the African-American rent premium fell dramatically between 1940 and 1970 and had reversed entirely by 1990. They argue that today segregation in America is enforced by a decentralized racism where whites outbid African-Americans for houses in white neighborhoods and therefore pay more for housing than African-Americans. Cutler et. al. also find that the white price premium in the 1990's is highest in the most segregated cities. This additional finding is consistent with their decentralized racism hypothesis that whites pay a premium to live in segregated neighborhoods, but it is also consistent with African-Americans being segregated and steered into the worst neighborhoods in the metropolitan areas that also are the most highly segregated.

Alternatively, Schafer (1979), Chambers (1992), and Kiel and Zabel (1996) argue that earlier work fails to find an African-American price premium because that work does not control for neighborhood quality and did not account for housing submarkets within metropolitan areas. As many earlier studies recognize and Cutler et. al.'s work makes very clear, racial differences in housing prices track very closely with the influx of southern rural blacks into major U.S. cities, and the elimination of the African-American housing price premium followed the conclusion of this great migration. The observed housing price premium is as much a feature of this period of migration as it is an

indication of discrimination. If ghettos operate as a port of entry and 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.⁶

3.2 Direct Evidence of Discrimination by Real Estate Agents

Three major paired testing studies of housing discrimination studies were conducted in 1977, 1989 and 2000. The first major study in 1977 performed a national set of tests for black-whites and piloted Anglo-Hispanic tests. Both the 1989 and 2000 studies conducted a full-scale national testing program 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 Asian Americans. Finally, phases III and IV conducted more limited analyses of the treatment experienced by Native Americans and by the disabled.⁷

All three studies found evidence of housing discrimination in both rental and sales markets. The 1989 study founds 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. 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 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.⁸ Similarly, adverse treatment against Hispanics fell from 16.8 percentage points in 1989 and 4.3 in 2000 in sales market.

Three major exceptions existed to the general improvement in treatment observed in the rental and owner-occupied housing market. Most significantly, the 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, 2004).

Later phases of HDS 2000 tested previously untested groups. The national estimates of overall adverse treatment discrimination for Asians is 4.3 and 19.6 percentage points for rental and sales markets, respectively, in phase II of the 2000 (Turner and Ross, 2003a) suggesting much higher levels of adverse treatment against Asian-Americans in the sales market than seen with other minority groups. 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). Finally, Phase IV examined the

relative treatment of individuals suffering from physical disabilities that would require landlords to make “reasonable accommodation” under the American’s with Disabilities Act. While these results have not yet been published, initial results suggest that the report identified very high levels of adverse treatment against the physically disabled in accessing rental housing (Smith, 2004).

The 1989 study demonstrated that many regions of the metropolitan area were underrepresented in the major newspaper. Phase I was a replication of HDS1989 and therefore followed the 1989 sampling frame of selecting advertisements from the major metropolitan newspaper. In order to address this limitation, the study identified under-sampled regions of the metropolitan area and administered additional tests in those locations by first over-sampling those regions and second by collecting test locations from alternative sources within those regions. On average, adverse treatment tended to be higher against African-Americans in underrepresented neighborhoods, but for Hispanics adverse treatment tended to be higher in overrepresented neighborhoods. This pattern was stronger for rental than for owner-occupied housing markets. Phase II 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 to tests based on alternative sources did not yield a consistent or strong pattern of differences across advertisement sources (Turner, Ross, Galster, and Yinger, 2002; Turner and Ross, 2003a).⁹

Many studies have used the 1989 Housing Discrimination Study and other early testing efforts to examine the motivations behind discrimination by real estate agents. In

the case of agent prejudice, most studies examine the effect of the real estate agent's race with many studies finding 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 finding that discrimination falls when an agent and tester have the same minority group status (Roychoudhury and Goodman, 1992; and Yinger, 1995). Many papers have also found evidence of customer-based discrimination. Yinger (1986, 1995), Roychoudhury and Goodman (1992), and Page (1995) find that minority couples face more discrimination when they have children. Similarly, a neighborhood protection hypothesis has been supported by Yinger (1986) where discrimination was high in both all white neighborhoods and integrated neighborhoods that were not experiencing an influx of African-Americans, and Ondrich, Ross, and Yinger (2002) find that discrimination decreases with the distance between the housing unit and the real estate agent's office. Finally, Ondrich, Ross and Yinger (2004) find evidence of statistical discrimination against African-American homebuyers where African-Americans are consistently shown lower price units in lower value neighborhoods relative to their initial request.

Multivariate analysis of the 2000 Housing Discrimination Study has been much more limited. In the sales market, Zhao, Ondrich, and Yinger (In Press) find little evidence of agent based prejudice in that agent race only matters on one of six treatment variables considered, but substantially more evidence of customer based discrimination with discrimination against black home seekers lower in Hispanic neighborhoods on a variety of treatment measures and occasionally lower in high income neighborhoods and among agents who use the internet. They do not identify any consistent patterns of

adverse treatment against Hispanics in the sales markets, which appears consistent with the lower levels of adverse treatment observed. In the rental market, Choi, Ondrich, and Yinger (2004) also find that agent race only matters on one of the treatment variables. The main consistent finding is that discrimination against African-Americans is higher by Hispanic agents when the advertised unit is in Hispanic neighborhoods suggesting a very specialized form of customer based discrimination. Their study also found that discrimination was systematically higher in higher property value neighborhoods possibly consistent with customer based discrimination.

Finally, Galster and Ross (2004, 2005) examine whether across metropolitan area changes in discrimination can be associated with other changes in the metropolitan environment. Specifically, Galster and Ross (2005) examine the effect of fair housing enforcement on discrimination for both black-white and Anglo-Hispanic tests in both rental and sales markets. For black-white tests in the rental market, they find evidence that local HUD funded enforcement efforts are associated with the expected decline in discrimination. On the other hand, Department of Justice and National Fair Housing Alliance are associated with smaller or not declines suggesting that these groups targeted locations where discrimination is most persistent. Their analysis did not find any evidence that enforcement lower discrimination against Hispanics, but it should be noted that Hispanic targeted enforcement activity was one-fifth the level of African-American targeted activities.

Galster and Ross (2004) focus on the sales market finding that discrimination against African-Americans was higher overall in metropolitan areas with large Hispanic populations and high levels of segregation. These findings suggest that discrimination

should have risen based on current trends in U.S. metropolitan areas and suggest that the decline in discrimination is most likely associated with broad improvements in racial attitudes and changes in the real estate industry, see Ross and Turner (In Press) for a discussion. They find no evidence of any systematic patterns in the adverse treatment of Hispanics in the sales market.

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.¹⁰ Their conclusions are consistent with Bostic and Martin's (2005) finding of a sharp shift of African-American homeowners in the 1980 away from central city neighborhoods towards higher income suburban neighborhoods.¹¹ 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.

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 quite active in the area of 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 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 U.S. 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 2000 Housing Discrimination Study suggests that real estate agents are not key contributors to the observed racial differences in outcomes, and the next section will address racial and ethnic differences in homeownership rates and mortgage lending discrimination.

In my opinion, however, it is not appropriate to simply end the conversation having exonerated current real estate agents and placed the blame for racial segregation on economic and social factors including the preferences of white households. Cutler, Glaeser, and Vigdor, the 1977 and 1989 Housing Discrimination Studies, and the work of

many others clearly demonstrate that segregation 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 they are willing to pay this premium today or whether the typical white homeowner would have any preference for segregation in a metropolitan environment that had not been so terribly distorted by a legacy of extreme, spatial discrimination in the housing market.¹²

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) examine racial differences in homeownership using the survey of consumer finance and a self-report variable on whether a household had been unsuccessful in obtaining the desired credit. They find that the denied credit variable explained a substantial portion of the racial and ethnic differences in homeownership. Gyourko, Linneman and Wachter (1999) and Deng, Ross and Wachter (2003) estimate a proxy for whether households face a downpayment constraint and find that the effect of facing a downpayment constraint is substantially larger for African Americans than whites. Finally, Charles and Hurst (2002) examine the success of households in obtaining mortgage credit, and they also find that limited liquid assets compared to expected housing consumption plays a substantial role in the mortgage application decision. Haurin, Rosenthal, Herbert, and Duda (2003) conclude

that four to eight percentage points of racial and ethnic difference in homeownership can be explained by constraints in credit markets.

Taken together, these studies provide pretty compelling evidence that differential outcomes in credit markets have a substantial market impact on minority homeownership. However, they do not provide much compelling evidence to suggest that discrimination exists in the mortgage market. Gyourko, Linneman and Wachter and Deng, Ross, and Wachter. have no information about whether households even applied for credit let alone whether minority applications were differentially denied. Rosenthal, Duca and Rosenthal and Charles and Hurst do have information on differential rates of application denial, but do not have access to even the most basic information on the quality of the credit application, such as borrower's proposed downpayment on a mortgage application, capacity to repay or credit history. On the other hand, Gabriel and Rosenthal (2004) examine trends in racial and ethnic differences in homeownership and find the ability of credit barriers to explain racial and ethnic homeownership differences is unchanged over the last two decades in spite of many market innovations that should have reduced credit barriers based on limited downpayments and blemished credit history. These findings suggest that the role of credit barriers cannot simply be attributed to unobserved financial attributes.

Finally, neighborhood also appears to play a significant 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. 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. However, 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.

4.2 Direct Evidence of Mortgage Lending Discrimination

Unlike in real estate markets, the history of 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 loan to value ratio, housing expense to income ratio, or 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 variable bias 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 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, and endogeneity between lender underwriting decisions and submitted loan terms (Horne, 1997; Day and Liebowitz, 1996; Rachlis and Yezer, 1993). Alternatively, Carr and Megboluge (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 (1999a) review all of the criticisms and re-analyses of the Boston Fed data and find that the central result is only sensitive to one of the major complaints. Namely, the inclusion of a self-reported lender variable on whether the application meets the lenders credit guidelines lowers 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. Critics like Horne (1997) and Day and Liebowitz (1996) 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 (1999a) estimate a simultaneous equations model that controls for meets guidelines in the underwriting model and find that racial differences still fall to 6.5 percentage points, but they find no evidence of a correlation between the error terms in the underwriting and meets guidelines equations, which would indicate omitted underwriting variables. 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) merge raw HMDA data with the Boston Fed data in order to obtain lender identifies for the Boston Fed sample and to examine whether racial differences in lending can be explained by differences in lender underwriting. Ross and Yinger examine a series of models in which the underwriting weights used by lenders vary based on the characteristics of the lender's applicant pool, such as the average loan to value 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.¹³ None of the estimated models suggest, however, that these differences can explain the racial underwriting differences in the sample. Ross and Yinger 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 differences could explain the racial underwriting differences in the sample.

Alternatively, the Office of the Comptroller of the Currency 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 both

the weights place on underwriting variables, such as credit history or loan to value ratio, as well as allow the actual specification and variable construction to vary between lenders.¹⁴ These models can provide quite strong evidence of disparate treatment discrimination. 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. Their analysis also suggests that the elimination of racial differences in the lender specific models arises almost entirely from the move to lender specific underwriting variables rather than from the restriction that underwriting weights be the same across lenders.¹⁵

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 a disparate impact in mortgage underwriting systems marketwide. Specifically, Ross and Yinger (2002) found no evidence that racial differences in underwriting are attributable to observable portfolio differences between the lenders. Therefore, while across lender differences may help explain racial differences in application denial rates, these differences do not appear related to observable factors that might explain 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 models against performance data in a way that would allow them to reject the variable constructions used in the market level model

because most lenders do not have access to the data necessary to perform such a validation.

Finally, a recent reanalysis of the Boston Fed data (Han, 2002) suggests an alternative explanation for the racial differences uncovered. Han distinguishes between applicants who have a consumer credit history regardless of whether the credit history is good or bad and applicants who had no consumer credit history in the major credit bureau files at the time of the application. Han finds very large racial differences in underwriting for the subsample with no credit history information and no racial differences for the subsample where information on credit history is available. Han 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.

Finally, a small number of pair 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 Lawton (1996) and Smith and Cloud (1996). In addition, the Urban Institute recently completed a pilot testing study for blacks and Hispanics in the Chicago and Los Angeles metropolitan areas.

The Urban Institute (Smith and Delair, 1999) obtained the 1993 pre-application testing data from enforcement efforts of the National Fair Housing Alliance in five cities

and reanalyzed the data. There was tremendous heterogeneity in terms of the products and information provided to testers. In the end, they focused on whether the tester received a quote and the number of quotes received where quote was defined as information about a loan product with an estimate of monthly mortgage payments and closing costs. Statistically significant net differences of 13 and 25 percentage points were found for Chicago and Atlanta, respectively. In terms of number of quotes, significant differences existed for Chicago, Atlanta, and Denver. These results must be considered with care because the tests were designed for enforcement purposes, and little is known concerning the process of selecting and training testers and the procedures followed by testers during their visit to a mortgage lender.

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.¹⁶ Approximately 75 tests were conducted for each group (African-Americans and Hispanics) in each site (Chicago and Los Angeles), see Turner, Freiberg, Godfrey, Herbig, Levy and Smith (2002).

The HTP was designed to allow the analysis of multiple factors over a variety of loan products. 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 for an average 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 were 25 and 21 percentage points.¹⁷ 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 substantial and important racial and ethnic differences between the pre-application experiences of first-time homebuyers for blacks and Hispanics 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 by 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).¹⁸

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. For example, outcome-based studies by 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 find a very similar pattern of credit flows in a model that includes a measure of neighborhood default risk using public foreclosure data.¹⁹

However, direct studies of the mortgage application approval process tend to find little evidence of redlining by neighborhood racial composition or income distribution.²⁰ 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.²¹

Ross and Tootell (2002) suggest that lenders may favor applicants from CRA-protected neighborhoods if they obtain Private Mortgage Insurance (PMI) and that this behavior may mask lender redlining of low income and minority neighborhoods. For loan applicants who are not covered by PMI, this paper finds strong evidence that applications for units in low-income neighborhoods are less likely to be approved, and some evidence that applications for units in minority neighborhoods are less likely to be approved, regardless of the race of the applicant. This pattern is not visible in earlier

studies because lenders appear to treat applications from these neighborhoods more favorably when the applicant obtains PMI. Similarly, differences in the price of credit also might mask the influence of neighborhood on underwriting. For example, loans in minority neighborhoods may tend to have higher interest rates leading to higher profits for lenders or higher commissions for brokers and to associated increase in approval rates.

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 (1997) 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. The argument being that minority borrowers may be less able to renegotiate a locked-in rate when interest rates decline. They find that the average decline below the lock-in rate is 6 basis points and that the average unexplained racial differential decline was 3 basis points or half of the overall average decline.

Alternatively, Courchane and Nickerson (1997) examine mortgage overages where an individual is charged more than the standard rate for their type of mortgage at a given point in time. They examine the results at three mortgage companies and find some evidence of racial or ethnic discrimination in the setting of overages at each company.

Given that overages and release from locked-in rates result from a negotiation between a loan officer and seller, it is not always possible to determine whether racial 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 unlikely that such non-competitive pricing could be legally defended if it has an adverse impact on minority borrowers (Ayres, 2001a).

While the price differences identified above are small, those studies focused 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 percent 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). Subprime lending is broadly defined as the segment of the credit market that provides credit to populations that have blemished credit histories and therefore are not served or at least underserved by traditional/primary credit markets, see Weicher (1997). On the other hand, 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 credit-rationing and a lower quality or subprime segment with risk-based pricing, see Cutts and Van Order (2001). In this context, the subprime market evolved to address this market failure and increases the access to credit of non-traditional borrowers.

As mentioned above, however, borrowers may enter the subprime market due to poor information regarding their credit options rather than poor qualifications. Carr and Schuetz 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 (200X) 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 the residents of those neighborhoods tend to be less financially sophisticated and more reliant on local information networks. For example, 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 the borrowers credit history and financial characteristics.

As a result, subprime lending can have both positive and negative affects on borrowers. Even if a borrower qualifies for credit in the primary market, the existence of the subprime market may improve the welfare of that borrower because without that market the borrower might not have even pursued financing options due to the limited information available. On the other hand, the strong and active subprime market may crowd-out the activities of traditional lenders and lower the welfare of many borrowers. 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, see Lax, Manti, Raca and Zorn (2004). 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. Traditional lenders may not be able to profitably enter the market because the extensive marketing and outreach of subprime lenders create a barrier to entry.

Substantial evidence also suggests the spatial concentration of subprime lending into 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 compare FHA to subprime loans and find that racial segregation in a metropolitan area leads to higher use of subprime lending. Finally, Harding, Hossain, and Ross (2005) find that subprime financing increases in likelihood with the distance from branches of depository lenders.

Finally, this segmented market creates the potential for abuse on the part of subprime lenders, which is often referred to as predatory lending. 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.

In addition, 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. Stein notes that these mortgages are often refinanced multiple times or flipped leading to the re-imposition of the high fees, which eventually eliminate all equity in the home. The borrowers need to multiple refinancing often arises from fraudulent underwriting practices where the borrower never had the ability to make the payments implied by the mortgage or from large balloon payments that are often undisclosed to the borrower. Using industry figures, Stein 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.

Obviously, the payment of high up front fees and prepayment penalties may benefit the borrower through a lower interest rate. Therefore, the abusive nature of a predatory loan eventually arises from either the risk-rate trade-off or the inability of the borrower to make the payments required by the mortgage contract. Stein claims that prepayment provisions and high fees almost never accompanied by rate reductions. This claim is bolstered by Lax, Manti, Raca, and Zorn's 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 considers the unconditional subprime interest rate unadjusted for the higher cost of credit associated with up front fees and prepayment penalties. In addition, Ferris and Richardson (2004) find that the likelihood of prepayment penalties increases with the neighborhood minority share.

Stein and Libby (2001) interviews of 117 homeowners on 125 loan transactions in the four communities: Los Angeles, Oakland, Sacramento, and San Diego. While the study represents a small, self-selected group, the findings are quite consistent with the preceding discussion. They find that three-fourths of all borrowers did not approach a bank, the loan was lender initiated through aggressive marketing for one-third of borrowers, 70% of borrowers claimed that loan terms changed for the worse at closing, 50% if 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, 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 show that this change arose from a decline in applications not increased denials suggesting a decline in outreach and market effort by subprime lenders. Both studies suggest that the law has limited credit opportunities for low income borrowers. 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 such abusive features. They

categorize loans by three abusive practices: extended prepayment penalties, balloon payments, and ultra high loan to value ratios. They find that the number of refinance loans with these features declined by 50 percent²² and that those declines could explain 90 percent of the post law decline in subprime originations.

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. A substantial portion of the homeownership gap can be explained by credit barriers. Nonetheless, the dramatic reduction in those barriers over the last decade has left racial and ethnic differences in homeownership and the role of those barriers in explaining those differences relatively unchanged. Analysis of administrative data has consistently found unexplained racial differences in the likelihood of loan application denials. In spite of various methodological caveats, the existence of racial differences in underwriting outcomes appears very robust.

Admittedly, a substantial portion of observed racial and ethnic differences in underwriting can be explained by controlling for across lender differences in their underwriting standards. Ross and Yinger observe that these 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 of the lenders to which they apply. Further, Ross and Yinger argue that these differences appear idiosyncratic, are unlikely to satisfy a business necessity standard, and so represent disparate impact discrimination.

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In retrospect, I believe that Ross and Yinger missed a crucial point by not asking what mechanism could cause minority applicants to have a worse fit with their lender's underwriting standards than white applicants. Is it really credible to believe that individual applicants have sufficient information about the underwriting standards of individual lenders in order to create systematic racial differences in the match quality between application attributes and lender underwriting standards?

Rachlis and Yezer (1993) suggest a more feasible mechanism for creating a correlation between application attributes and underwriting standards. Specifically, loan officers and mortgage brokers have private information about one or more lender's underwriting standards. Loan officers and brokers can both assist a borrower in tailoring their application in order to maximize the likelihood of approval while brokers may be able to steer the applicant towards a lender who offers a high likelihood of approval. In fact, Yezer, Phillips, and Trost (1994) and Ross and Yinger (2002) both find evidence of a simultaneity between loan terms and lender underwriting behavior.

While loan officers and brokers have a profit incentive to close loans, these matching activities require effort, and officers and brokers might rationally provide less effort to minority applicants if they believe the likelihood of closing the loan is lower or if they have an aversion to spending time with minorities. A number of studies provide informal support to this idea. Temkin, Levy, and Levine (1999) examine a medium-sized mortgage lender that has an explicit policy of including the loan officer, who knows the race of the applicant, in the underwriting decision for problem applications.²³ Kim and Squires (1999) merge employment information from the Equal Employment Opportunity Commission with HMDA data and find that the approval rates of African-American

applicants rise as the share of African-American employees at the lender increases.²⁴

Finally, Han's (2002) finding that racial differences in the Boston Fed study are attributable to applicants with no credit history also can be cast in this light. Most likely the underwriter has never met the borrower and so race or ethnicity is likely to only enter into the equation when the underwriter contacts the loan officer. This contact might be most likely to occur when the underwriter lacks more objective information, such as a credit history.

In light of this interpretation, the results of the Urban Institute paired testing study are extremely salient. In Chicago, the study identified large differences in treatment between white and minority potential borrowers across a variety of treatments, such as being pre-qualified for a loan, the loan amount, coaching by the loan officer, and follow-up contact. This study provides direct evidence that loan officers and brokers do respond to the race and ethnicity of potential applicants and provide minorities with less information and assistance. These differences in service can negatively impact minority borrowers by discouraging them from seeking mortgage credit, affecting the likelihood of application approval, limiting their perception concerning financing options leading them to accept higher interest rates, or finally encouraging the borrower to seek financing in the more expensive subprime market. If this view of mortgage lending discrimination is correct, the trend towards more uniform and often automated underwriting systems should level the playing field between white and minority applicants and reduce unexplained racial and ethnic disparities in loan denial rates.

As the market for credit evolves, the effect of differential services on the price of credit may be the most important consequence of discrimination by loan officers. Today,

prime lenders are much, more aggressive in pricing mortgages based on perceived risk and potentially by the applicants willingness to pay as perceived by the loan officer. Both the overall price of credit and the dispersion of mortgage rates are much higher in the subprime market, and a substantial portion of racial differences in the subprime market appears attributable borrower characteristics that likely explain the borrowers financial sophistication and willingness to pay as opposed to ability to pay.

Neighborhood characteristics appear especially important in explaining the pattern of both subprime and predatory lending. Substantial evidence exists to suggest that both subprime representation and the incidence of applications with predatory loan features are higher in traditionally underserved neighborhoods. 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 with equal treatment, lenders may market very different products at individual branches and between the depository prime lending operation and their subprime subsidiary, 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.

5. 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 this pattern of 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) and Dawkins (2004). 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. 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 increased incidence of high interest rates and additional costs 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. On the other hand, the spatial segmentation of the market based on the financial sophistication of a neighborhood's residents is a new and potentially permanent feature of the market.

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7. Endnotes

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¹ See 401 U.S. 424 (1970).

² 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. In addition, 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.

³ While the Asian-Pacific Islander population has grown dramatically, its contribution to increasing diversity nationally is substantially smaller with the percent of metropolitan residents who are Asian or Pacific Islander rising by only one percentage point.

⁴ See Cutler, Glaeser, and Vigdor (1999) who relate the growth in segregation during the 1900's to growing African American populations, and Massey (2001) who argues that white preferences imply higher levels of segregation in metropolitan areas with large African American populations.

⁵ 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.

⁶ 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.

⁷ 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.

⁸ 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.

⁹ See Ross (2002) for a detailed discussion of this and other methodological issues arising when paired tests are used to measure the incidence of discrimination.

¹⁰ Moreover, Clapp and Ross (2004) examine housing prices for the influence of a port of entry type of phenomena based on metropolitan economic and demographic changes, but their analysis finds no effect of demographic change on across town housing price differentials suggesting that the housing market adjusts fairly quickly (over a two year period) in order to eliminate price premium.

¹¹ No such shift was identified for white households.

¹² As an illustration, Bayer, McMillen, and Rueben (2004) estimate a structural model of residential location choice in order to explicitly examine how the neighborhood choices available in current metropolitan areas dramatically limit 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.

¹³ 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 also allow weights to vary with the applicant's actual debt to income ratio.

¹⁴ 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.

¹⁵ The apparent contradiction between Blackburn and Vermilyea's findings and the analysis by Ross and Yinger 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 controlling for differences in lender criteria.

¹⁶ 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 debt 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

¹⁷ 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.

¹⁸ Ross, Turner, Godfrey, and Smith (2005) find some evidence that tester identity can explain differences in treatment between testers of the same race in different tests 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 an disparate impact that is not justified by business necessity. In addition, all multivariate results are based on models that control for tester fixed effects.

¹⁹ 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.

²⁰Recent work on the role of race and location in small business lending by Cavalluzzo and Cavalluzzo (1998) and Blanchflower, Levine, and Zimmerman (1998) also suggests that the race of the applicant, rather than the area of the loan, is more important..

²¹ 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.

²² This reduction is substantially more than in neighboring states where the declines fell between 13 and 36 percent.

²³ 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.

²⁴This 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 tests of the cultural affinity hypothesis in the mortgage market.