• The existence of substantial geographic disparities in mortgage credit is well documented. Research has demonstrated that areas with lower incomes and higher shares of minority population consistently have poorer access to mortgage credit, with higher mortgage denial rates and lower origination rates for mortgages. Thus, the income and minority composition of an area is a good proxy for determining whether that area is being underserved by the mortgage market.

• The research strongly supports a targeted definition of underserved areas. Studies conclude that characteristics of the applicant and the neighborhood where the property is located are the major determinants of mortgage denials and origination rates. Once these characteristics are accounted for, other influences such as central city location play only a minor role in explaining disparities in mortgage lending.

2. Evidence About Access to Credit

The viability of neighborhoods—whether urban, rural, or suburban—depends on the access of their residents to mortgage capital to purchase and improve houses. While neighborhood problems are caused by a wide range of factors, including substantial inequalities in the distribution of the nation's income and wealth, there is increasing agreement that imperfections in the nation's housing and mortgage markets are hastening the decline of distressed neighborhoods. Disparate denial of credit based on geographic criteria can lead to disinvestment and neighborhood decline. There is growing evidence that discrimination and other factors, such as inflexible and restrictive underwriting guidelines, limit access to mortgage credit and leave potential borrowers in certain areas underserved.[3]

a. Early Credit Flow Studies

Most studies of geographical disparities have used Home Mortgage Disclosure Act (HMDA) data. A number of studies using the early HMDA data sought to test for the existence of geographical redlining, which is the refusal of lenders to make loans in certain neighborhoods regardless of the creditworthiness of the individual applicant.[4] Consistent with the redlining hypothesis, these studies found lower volumes of loans going to low-income and high-minority neighborhoods.[5] However, such analyses were criticized because they did not distinguish between demand and supply effects[6]—that is, whether loan volume was low because people in high-minority and low-income areas were unable to afford home ownership and therefore were not applying for mortgage loans, *or* because lenders refused to make loans in these areas. Moreover, the early HMDA data were incomplete because non-depository lenders (e.g., mortgage bankers, who originate most FHA loans) were not included.

Like early HMDA studies, an analysis of deed transfer data in Boston found lower rates of mortgage activity in minority neighborhoods.[7] The discrepancies held even after controlling for income, house values and other economic and non-racial factors that might explain differences in demand and housing market activity.[8] In addition, a larger percentage of transactions in such neighborhoods were financed by the seller or other non-traditional institutional lenders (e.g., credit unions, governments, universities, business leaders, real estate trusts, and pension funds). Greater seller financing may suggest unmet demand for mortgages, since it is not likely that minority sellers prefer, more than whites, to finance the sale of their homes rather than being paid in cash.[9] The study concluded that "the housing market and the credit market together are functioning in a way that has hurt Black neighborhoods in the city of Boston." [10]

b. Improved HMDA Data—Wider Coverage and Mortgage Denial Rates

HMDA reporting was expanded in 1990 to provide information on the disposition of loan applications (originated, approved but not accepted by the borrower, denied, withdrawn, or not completed), to include the activity of large independent mortgage companies, and to provide information on the race and income of individual loan applicants. An additional expansion in 1993 covered mortgage companies that originated 100 or more home purchase loans in the preceding calendar year. HUD's analysis using the expanded HMDA data for 1993 shows that high-minority and low-income census tracts have both higher loan application denial rates and lower loan origination rates.[11]

Table B.1 presents denial and origination rates by the minority composition and median income of census tracts for metropolitan areas. The tract minority and income data are grouped by deciles. Two patterns are clear:

• Census tracts with higher percentages of minority residents have higher mortgage denial rates and lower mortgage origination rates than all-white or substantially-white tracts. For example, the denial rate for census tracts that are over 80 percent minority is about two-and-a-half times that for census tracts with less than 10 percent minority.[12]

• Census tracts with lower incomes have higher denial rates and lower origination rates than higher income tracts. The average number of mortgage originations in high-income census tracts (i.e., tracts with a median income over 120 percent of area median) was 12.7 per 100 owner-occupants; this compares with a range of 3.6 to 6.6 originations for the census tract deciles with income less than 80 percent of area median.

Denial rates increase in increments ranging from 1.6 to 3.0 percent as one moves from low-minority to 60-percent-minority tracts. They decline in decrements ranging from 1.0 to 3.4 percent as tract income increases from 60 percent of area median to over 120 percent of area median.

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[3] Because of concern about these problem issues, Federal agencies have formed an Interagency Task Force on Fair Lending to establish a uniform policy against discriminatory lending. At the same time, both Fannie Mae and Freddie Mac have made efforts to make their underwriting guidelines more flexible to allow alternative mechanisms for low-income borrowers to demonstrate creditworthiness.

[4] Prior to 1990, HMDA data showed only the total number and aggregate dollar volume of loans made in each census tract for depository institutions; no information was reported on individual borrowers or on applications denied.

[5] These studies, which were conducted at the census tract level, typically involved regressing the number of mortgage originations (relative to the number of properties in the census tract) on characteristics of the census tract including its minority composition. A negative coefficient estimate for the minority composition variable was often interpreted as suggesting redlining. For a discussion of these models, see Eugene Perle, Kathryn Lynch, and Jeffrey Horner, "Model Specification and Local Mortgage Market Behavior," *Journal of Housing Research,* Volume 4, Issue 2, 1993, pp. 225–243.

[6] For critiques of the early HMDA studies, see Andrew Holmes and Paul Horvitz, "Mortgage Redlining: Race, Risk, and Demand," *The Journal of Finance*, Volume 49, No. 1, March 1994, pp. 81–99; and Michael H. Schill and Susan M. Wachter, "A Tale of Two Cities: Racial and Ethnic Geographic Disparities in Home Mortgage Lending in Boston and Philadelphia," *Journal of Housing Research*, Volume 4, Issue 2, 1993, pp. 245–276.

[7] Katherine L. Bradbury, Karl E. Case, and Constance R. Dunham, "Geographic Patterns of Mortgage Lending in Boston, 1982–1987," *New England Economic Review*, September/October 1989, pp. 3–30.

[8] Using an analytical approach similar to that of Bradbury, Case, and Dunham, Anne Shlay found evidence of fewer mortgage loans originated in black census tracts in Chicago and Baltimore. See Anne Shlay, "Not in That Neighborhood: The Effects of Population and Housing on the Distribution of Mortgage Finance within the Chicago SMSA," *Social Science Research*, Volume 17, No. 2, 1988, pp. 137–163; and "Financing Community: Methods For Assessing Residential Credit Disparities, Market Barriers, and Institutional Reinvestment Performance in the Metropolis," *Journal of Urban Affairs,* Volume 11, No. 3, 1989, pp. 201–223.

[9] Analysis of 1985 American Housing Survey data also showed a greater reliance on non-institutional financing by low- and moderate-income owners in both metropolitan and rural areas. See the Urban Institute.

[10] Holmes and Horvitz, and Schill and Wachter conduct more rigorous tests of the redlining hypothesis that control for several characteristics of the neighborhood, including credit risk. Their findings are reviewed in Section 2.e below.

[11] HUD's previous analysis of 1992 HMDA produced comparable results. For a similar analysis based on 1992 HMDA data, see Glenn B. Canner, Wayne Passmore, and Dolores S. Smith, "Residential Lending to Low-Income and Minority Families: Evidence from the 1992 HMDA Data," *Federal Reserve Bulletin,* Volume 80, February 1994, pp. 79–108.

[12] The denial rates in Table B.1 are for purchase mortgages. Denial rates are several percentage points lower for refinance loans than for purchase loans, but denial rates follow the same pattern for both types of loans: Rising with minority concentration and falling with increasing income.