

decision. To compensate for the lack of these variables, the study includes neighborhood risk proxies that are likely to affect the future value of the properties.²³ Finally, to test for the existence of racially-induced lending patterns across census tracts, Schill and Wachter include the percentage of persons in the census tract that are Black and Hispanic.

The authors tested their model for conventional mortgages in Philadelphia and Boston. They first estimated their model including as explanatory variables only the individual loan and racial composition variables. The applicant race variables—whether the applicant is Black or Hispanic—showed significant negative effects on the probability that a loan will be accepted. Schill and Wachter state that this finding does not provide evidence of individual race discrimination because applicant race is most likely serving as a proxy for credit risk variables omitted from their model (e.g., credit history, wealth and liquid assets). In this first analysis, the percentage of the census tract that is Black also shows a significant and negative coefficient, a result that is consistent with redlining. However, when the neighborhood risk proxies are included in the model along with the individual loan variables, the percentage of the census tract that is Black becomes insignificant. Thus, similar to Holmes and Horvitz, Schill and Wachter state that “once the set of independent variables is expanded to include measures that act as proxies for

²³ Their neighborhood risk proxies include median income and house value (inverse indicators of risk), percent of households receiving welfare, median age of houses, homeownership rate (an inverse indicator), vacancy rate, and the rent-to-value ratio (an inverse indicator). A high rent-to-value ratio suggests lower expectations of capital gains on properties in the neighborhood.

neighborhood risk, the results do not reveal a pattern of redlining.”²⁴

In their conclusion, however, Schill and Wachter state that while their results do not support the hypothesis of redlining, they cannot say definitively that neighborhood race is unrelated to lenders’ decisions to accept or reject loan applications. One reason for their hesitancy is that many of their individual loan variables (as well as their neighborhood risk variables) are correlated with the racial composition of the census tract. For instance, the applicant’s race variable (i.e., whether the applicant is Black or Hispanic) remains highly significant and negative in all their estimations. Because of the high degree of racial segregation that exists in urban areas, the applicant race variable is positively correlated with the census tract race variable. It may be that the applicant race variable is picking up effects that should properly be attributed to the census tract race variable.²⁵ If this were the

²⁴ Schill and Wachter, page 271. Munnell, *et al.* reached similar conclusions in their study of Boston. They found that the race of the individual mattered, but that once individual characteristics were controlled, racial composition of the neighborhood was insignificant.

²⁵ In their study of individual loan denial rates, Avery, Beeson, and Sniderman obtain significant and positive coefficients for the individual applicant’s race. Unlike Schill and Wachter, they found that denial rates were higher in low-income tracts even after controlling for the effects of the applicant’s race and income. Although denial rates were not higher overall for purchase and refinance loans in minority tracts after controlling for the race of the applicant, denial rates were higher in minority tracts for white applicants. In other words, minorities have higher denial rates wherever they attempt to borrow, but whites face higher denials when they attempt to borrow in areas dominated by minorities. In addition, denial rates were higher in minority areas for home-improvement loans. See Robert B. Avery, Patricia E. Beeson, and Mark S.

case, Schill and Wachter’s conclusions about the existence of racially induced redlining would necessarily change.

e. Geographic Dimensions of Underserved Areas—Targeted Versus Broad Approaches

An important issue for the GSE regulations is whether geographic areas under this goal should be broadly or narrowly defined. Is central city location an adequate proxy for lack of access to mortgage credit? What is gained by more targeted neighborhood-based definitions of underserved areas? This section reports findings from three studies that address these questions. All three support defining underserved areas in terms of the minority and/or income characteristics of census tracts, rather than in terms of a broad definition such as all areas of all central cities.

HUD’s Analysis. Tables B.1 and B.2 documented the relatively high denial rates and low mortgage origination rates in underserved areas as defined by HUD. This section extends that analysis by comparing underserved and served areas within central cities and suburbs. Figure B.1 shows that HUD’s definition targets central city neighborhoods that are experiencing problems obtaining mortgage credit. The 22.2 percent denial rate in underserved areas of central cities is twice the 11.2 percent denial rate in the remaining areas of central cities. Similarly, the average mortgage origination rate (per 100 owner occupants) in underserved areas of central cities is 6.2, much lower than the average of 13.1 for the remaining areas of central cities.

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Sniderman, “Underserved Mortgage Markets: Evidence from HMDA Data,” Working Paper Series 94-16, Federal Reserve Bank of Cleveland, October 18, 1994.