

Housing Market Constraints and Spatial Stratification by Income and Race

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Abstract

This article addresses the extent to which housing market constraints contribute to spatial stratification of the U.S. population by income and race. Differential patterns of residence based on income and race may result from local and federal regulatory policies or from housing market discrimination by private and public actors.

Income homogeneity within communities results directly from local control over taxes, public services, and land use. The empirical literature shows that local regulations have effects on housing prices that tend to exclude low- and moderate-income households. These regulations are also likely to promote racial segregation because of the correlation between income and race, although the magnitude of this effect is unclear. Discrimination by government and private actors directly generates spatial segmentation based on race and ethnicity. While federal policy could alleviate these patterns, current and past federal policy initiatives have themselves increased stratification based on income and race.

Introduction

In many U.S. metropolitan areas, housing markets are spatially differentiated by income and race. Recent data show that 17 percent of households in central cities earn incomes below the poverty level, compared with only 3 percent of suburban households (U.S. Bureau of the Census 1991). Moreover, while the large cities' share of the nation's poor has not increased overall in the past two decades, their share of the nonpoor has decreased dramatically (Pack 1994). In addition, the number of people living in conditions of extremely concentrated poverty in the nation's 100 largest cities doubled to 5.5 million from 1980 to 1990 (Kasarda 1993).

Patterns of segregation also exist with respect to race. More than 25 years after the Fair Housing Act was enacted, levels of racial segregation in many U.S. metropolitan areas remain extremely high. Twenty-two percent of the residents of American central cities are black, compared with only 7 percent of the suburban

population (U.S. Bureau of the Census 1991). Further, the index of dissimilarity shows extremely high levels of racial segregation in most large U.S. metropolitan areas (Massey and Denton 1993). This index, the most commonly used measure of segregation, represents the proportion of a metropolitan area's population that would have to move to achieve an even distribution of minority group members throughout the metropolitan area. Massey and Denton (1993) report that among the 30 metropolitan areas in the United States with the largest black populations, the average index of dissimilarity in 1990 for the North is 77.8; for the South, the value is 66.5. Although measures of racial segregation show modest declines over time (McKinney and Schnare 1989), the economic segregation of racial minorities has increased. Moreover, the percentage of the black population of metropolitan areas that resides in areas of extremely concentrated poverty increased from 20.2 to 23.7 between 1980 and 1990 (Jargowsky 1994).

These patterns of racial and economic segregation have enormous consequences for the economic and social mobility of residents of urban areas (see sources cited in Schill 1991, 1994). Geographic differentiation by income and race is caused by a variety of market and nonmarket forces. Among the market forces that give rise to economic and racial segregation is the mobility of households acting on preferences for residential environments of homogeneous economic or racial composition (Farley et al. 1993). In this article, however, we examine the empirical literature on the nonmarket forces that give rise to these spatial patterns.

The major nonmarket sources of spatially differentiated patterns of income and race are local government regulations and federal regulation of subsidized housing programs, as well as discriminatory practices engaged in by various actors in the housing market. Some of these forces, such as racial discrimination and government regulation of housing subsidy programs, lead directly to racial and income segregation. Others, such as local government land use regulations, indirectly do so by raising the cost of housing.

Local government regulation

Motivations for enacting local land use regulations

Local governments frequently enact land use regulations—such as zoning ordinances, impact fees, and growth controls—that

have the effect of limiting the supply of low-cost housing. These ordinances may be motivated by the desire to preserve environmental amenities and avoid overcrowding of public facilities. In addition, middle- and upper-income residents may prefer to live in communities composed of households of similar socioeconomic composition (Fischel 1990). Further, homeowners may want to preserve or enhance the values of the investments in their homes by preventing the construction of lower valued housing nearby, which they believe will reduce market prices (Downs 1991).

Urban economists have also examined the fiscal reasons why many local governments enact restrictive land use ordinances. As demonstrated by Tiebout (1956), people can avoid cross-subsidizing others by forming homogeneous communities.¹ To prevent cross-subsidization, each person in a jurisdiction must pay the same amount in taxes (head taxes) for public goods provided by the jurisdiction. No local government uses a head tax as its primary source of revenue, although as Hamilton (1975) observes, land use regulations can convert the main source of local tax revenue—the property tax—into a head tax. Zoning regulations can be used to set a minimum value on property in a community, to ensure that no one who lives in the jurisdiction pays less in taxes than his or her proportionate share of the cost of services provided. These fiscal effects of zoning make it possible for residents of the jurisdiction to avoid cross-subsidization. With land use regulations, equilibrium in land markets results in stratification of households by income if wealthy households offer higher prices for land in wealthy communities than nonwealthy households do (Wheaton 1993). These regulations also result in differential spatial access to public goods, particularly education (Benabou 1994; Orfield 1994).

Since a major purpose of zoning is to prevent free riders by separating households by property value, it is not surprising that such separation results from zoning. Moreover, since, as the empirical literature shows (Goodman and Kawai 1986), the income elasticity of demand for housing is approximately 1, income segmentation naturally follows from property value segmentation. Statistical studies of income and house values in suburban communities support the hypothesis that income homogeneity across communities is an outcome of local control

¹ Tiebout argues that in the absence of externalities, mobility costs, and information deficits, this sorting mechanism will promote economic efficiency. For an analysis of how externalities might generate allocative inefficiencies, see Schill (1991).

over taxes, public services, and land use regulation by fiscally motivated jurisdictions (Hamilton, Mills, and Puryear 1975).²

Effects of local land use regulations on house prices and affordability

Regardless of their source, local land use ordinances are likely to contribute to the lack of affordable housing in many communities. Multifamily housing is frequently the most affordable source of housing for low- and moderate-income families. Many local government ordinances, however, either ban or severely limit the construction of this type of housing. Further, the construction of low-cost single-family dwellings is frequently precluded by ordinances that mandate minimum setbacks and lot sizes as well as maximum densities (Advisory Commission on Regulatory Barriers to Affordable Housing 1991; Schill 1992). In effect, these regulations are enacted to enforce minimum levels of housing consumption.

Regulations may separately contribute to income segregation through pricing effects. Because of the scarcity of land zoned for high-density housing, developers are likely to pay more per acre for such land and pass this cost on to buyers and renters (Hamilton 1977). In fact, as noted by Mills and Hamilton (1994), zoning is needed to prevent developers of high-density housing from outbidding less dense land uses. The scarcity of low-cost dwellings in the suburbs created by zoning is likely to cause low- and moderate-income households to bid up the price of such housing, where it does exist, further contributing to affordability problems. Thus, the prices of the artificially limited supply of high-density land sites and modest housing are likely to be higher than they would be without zoning.

To the extent that zoning, through its fiscal effects, lowers tax burdens or to the extent that these regulations generate increased amenities, the price of all existing housing in the community will increase. Beginning with Oates (1969), social scientists have shown that the fiscal effects made possible by zoning are capitalized in land values. Fischel's (1990) review of the literature on land use regulations concludes that amenity

² Such stratification may be viewed as a market outcome using the theory of clubs (Buchanan 1965). Some commentators have suggested that cross-subsidization may be more effectively avoided through zoning than through covenants.

effects also tend to raise the value of existing housing and developable land.

Although Fischel shows that the measurement of amenity effects presents difficult methodological problems, studies with carefully specified models do measure these effects.³ For example, Lafferty and Frech (1978) find that the geographic concentration of disamenities through zoning reduces their negative impact on residential neighborhoods and raises land values. Shilling, Sirmans, and Guidry (1991) find that the effect of state land use controls is to increase single-family home land values and decrease restricted undeveloped land values.

It is also possible to test for amenity effects by evaluating how one specific type of land use regulation—growth controls—affects housing prices. Several studies test for the impact of growth controls by comparing housing prices in communities that adopt growth controls and those that do not. Using this methodology, Schwartz, Zorn, and Hansen (1986) find that growth controls in Davis, California, increase housing prices by approximately 10 percent.

It is unclear whether the studies that find that land use regulations are related to increased housing prices are capturing the effects of demand or supply. Studies that specifically address the supply dynamic have shown that zoning may raise housing prices by restricting supply. To test for “monopoly zoning” effects, Pollakowski and Wachter (1990) examine whether jurisdictions adjacent to municipalities with restrictive zoning ordinances have higher housing prices than other localities. Their findings support the hypothesis that zoning affects housing prices by artificially restricting supply. Similar results are reported by Wachter and Cho (1991) and Cho and Linneman (1993).

Even if poor households wish to bid higher prices to locate in higher priced communities with better public goods, capital market imperfections may prevent them from doing so. Increases in housing price, regardless of their source, will decrease access

³ Disamenities that would be expected to lower land values may generate offsetting benefits. Moreover, with “efficient” zoning, there will be few “bads” to measure. A third difficulty is that zoning will lower the value of non-developable or redevelopable sites, so measures of the impact of zoning must exclude such properties. Pogodzinski and Sass (1991) also show that in most studies the use of hedonics to value housing prices leads to underestimates of amenity impacts. This is because housing attributes that generate value may themselves be the outcome of zoning.

to homeownership. Linneman and Wachter (1989) find that income and capital constraints negatively affect homeownership propensities among U.S. households. For people who want to own their homes, higher house prices attributable to the enhanced amenities, fiscal effects, and monopoly effects of restrictive zoning ordinances will exacerbate affordability problems.⁴ More generally, borrowing constraints may restrict the ability of lower income households to bid for higher priced locations.

Class segregative effects

Although empirical evidence shows that local government regulations increase the price of housing—and theory predicts that spatial differentiation in housing prices will give rise to income segmentation through preferences, capital market imperfections, and unaffordability—no systematic study has shown a direct link between regulation and income segregation. Nevertheless, metropolitan patterns of income distribution are consistent with the hypothesis that local regulations have had such effects.⁵ Poverty has become much more geographically concentrated in central cities than in the suburbs (Downs 1994; Kasarda 1993; Madden forthcoming). From 1970 to 1990, the proportion of people living in cities who had incomes below the poverty level increased from 15 to 19 percent, whereas in suburbs the proportion increased from 8.1 to 8.7 percent.

⁴ Land use ordinances are not the only local regulations that can raise the price of housing. Many local governments have adopted housing codes governing the construction or renovation of dwellings. It is often argued that housing codes limit affordable housing for low- and moderate-income households by requiring costly amenities (Advisory Commission on Regulatory Barriers to Affordable Housing 1991; Downs 1991). Nevertheless, very few empirical studies have examined the impact of housing codes on housing prices. One study by Noam (1983) analyzes the effect of housing codes in 1970 in 1,100 municipalities and estimates that strict codes increase the cost of a house by approximately \$1,000. Local governments are not the only source of regulations that may inflate house prices and decrease affordability; for example, federal environmental regulations that restrict or prohibit construction on wetlands or lands inhabited by endangered species may also have these effects (Downs 1991).

⁵ As incomes in suburbs and cities diverge, a downward spiral may occur in urban property values that increases the incentives for higher income households to relocate to higher income suburbs (Pack 1994). Resulting changes in ability to borrow in a community with a lower tax base per capita may exacerbate these patterns.

Race segregative effects

Given the correlation between race and income (Wachter and Weicher 1989), the income segregation generated by municipal regulations is also likely to have some impact on the degree of metropolitan racial segregation. The extent to which income differences between white and black households contribute to racial segregation is the subject of a lively debate among social scientists. For example, Clark (1986) estimates that as much as two-thirds of racial segregation may be explained by economic variables.

However, several studies by Kain (1976, 1985, 1987) support the hypothesis that income differences among whites and blacks explain only a small part of racial segregation. For example, in his analysis of 1970 census data for the city of Cleveland, Kain (1976, 1987) predicts the location of households, controlling for various characteristics other than race. He finds that the effects of family income, size, type, and age of household head explain only a small part of the actual geographic distribution of black households and do not predict their total absence from certain parts of the metropolitan area. These studies, which find that economic characteristics of households do not explain existing patterns of racial segregation, are consistent with earlier results reported by Taeuber and Taeuber (1965), which conclude that only about one-third of racial segregation is explained by income.⁶

Recent studies by Farley et al. (1993) and Massey and Denton (1993) support these findings. Massey and Denton compute separate dissimilarity indices for three income groups for the 30 U.S. metropolitan areas with the largest black populations. They find that the index values for households earning over \$50,000 per year are not markedly lower than the values for blacks earning between \$25,000 and \$27,500 or even for blacks earning less than \$2,500.⁷ Nonetheless, we do not know how

⁶ See also Taeuber (1968). However, Galster and Keeney (1988) estimate a cross-sectional, simultaneous-equation model of 40 metropolitan areas and find that the "most potent exogenous component of segregation" is the variable that captures the interaction of housing price segmentation and interracial economic disparities. Using the econometric results from this study, Galster (1988) observes, however, that an increase in the ratio of white to black incomes would explain a smaller increase in segregation than an increase in housing market discrimination would.

⁷ Similarly, Wachter and Megbolugbe (1992) and Gyourko, Linneman, and Wachter (1994) find that racial disparities in homeownership cannot be explained solely by differential endowments.

much of the current aggregate pattern of racial segregation in the United States can be attributed to class segregation effects.

Federal regulation of housing subsidy and mortgage assistance programs

Public housing

Federal housing policy has also played a role in the spatial differentiation of income and race in U.S. metropolitan areas. In many urban areas, the public housing program has substantially contributed to concentrations of nonwhite and impoverished households (Casey 1992; Schill 1993; Vale 1993). These patterns are rooted in the structure of the program, federal mandates, judicial rulings, local mismanagement, and the changing demographics of U.S. cities. In this part, we focus on the first three of these factors.

Under the Housing Act of 1937, local public housing authorities (PHAs) that choose to participate in the public housing program sign contracts with the federal government in which they agree to build and operate housing pursuant to federal regulations. In return, the federal government advances the bulk of the capital costs and, in many instances, provides operating and modernization subsidies.⁸ This federal-local structure of the public housing program effectively removed the decision of where to locate public housing from the federal government and placed it in the hands of local governments (Schill 1990). Rather than encouraging the dispersal of public housing throughout metropolitan areas, local choice permitted many municipalities, typically suburbs, to avoid participating in the program.⁹

⁸ Operating and modernization subsidies were authorized in the late 1960s and 1970s to assist financially strapped PHAs whose rental incomes declined as a result of declining tenant incomes and the Brooke Amendment. The Brooke Amendment limited tenant rents to 25 percent (later increased to 30 percent) of income. For many PHAs, insufficient operating and modernization subsidies have contributed to deferred maintenance and deterioration. Disinvestment in public housing contributes to spatial differentiation of households by income—by causing tenants with sufficient resources to move elsewhere—and may generate negative externalities for surrounding neighborhoods (Schill 1993; Schill and Wachter forthcoming).

⁹ This bias toward locating public housing in central cities was further strengthened by the inclusion in the Housing Act of 1937 of the “equivalent elimination requirement.” This provision mandated that one unit of substandard housing be eliminated for each unit of public housing constructed. Since most suburbs had little substandard housing, even those that wished to

After ensuring that most public housing would be built in central cities, Congress enacted a regulatory framework that filled units with extremely poor residents. Although the Housing Act of 1937 reflected some ambivalence about who should live in public housing (Schill 1993), succeeding amendments established income ceilings, admissions preferences for particularly needy households, and low quotas on the number of residents who could earn incomes above 50 percent of the area's median income.¹⁰

Public housing has also directly contributed to racial concentration. The absence of effective federal regulatory oversight permitted some PHAs to use public housing as a mechanism to achieve racial segregation. Public housing developments have often been located in areas predominantly occupied by racial minorities. For example, in Chicago, the politicization of public housing siting decisions created an environment in which individual communities could veto planned projects (Hirsch 1983). The geographic constraints imposed by the political process, together with the need to rehouse families displaced by the Urban Renewal Program, led to enormous concentrations of poverty in several neighborhoods. Similar, if less dramatic, patterns were repeated in other large U.S. cities, such as Miami and Philadelphia (Bauman 1987; Mohl 1993).¹¹

participate in the public housing program were sometimes excluded (Wood 1982). Geographic concentrations of poverty were also exacerbated by the tendency of PHAs to economize on expensive urban land by building towers. This type of construction created security and maintenance problems that intensified the concentration of poverty by causing tenants who had the resources to move elsewhere.

¹⁰ At present, 75 percent of public housing units built before 1981 and 85 percent of units built thereafter must be occupied by very low income households earning under 50 percent of the area median income (Schill 1993). In recent years, Congress has authorized PHAs to experiment with mixed-income housing developments. For example, the Chicago Housing Authority has redeveloped public housing adjacent to Lake Michigan and leased it in equal proportions to low-income and very low income households (see Schill forthcoming).

¹¹ Fuerst and Petty (1985) argue that federal court rulings and administrative regulations contribute to the concentration of poverty in public housing developments. In the early years of the program, PHAs had enormous latitude in admission and eviction decisions (Friedman 1966; Reich 1965). As the federal courts ruled in the late 1960s and early 1970s that tenants of public housing were entitled to procedural due process (*Escalera v. New York City Housing Authority* 1970; *Holmes v. New York City Housing Authority* 1968), however, the U.S. Department of Housing and Urban Development (HUD) mandated detailed standards for admission as well as time-consuming requirements for lease termination. Also, courts ruled that certain grounds for

Besides concentrating poverty directly, public housing developments may also generate negative externalities for the communities in which they are located, leading to further concentrations of poverty in metropolitan areas. Those few studies that have examined the impact of public housing on nearby property values have failed to find a negative effect (Nourse 1963; Rabiega, Lin, and Robinson 1984). Nevertheless, more recent studies (Massey and Kanaiaupuni 1993; Schill and Wachter forthcoming) have found that public housing may lead to increases in neighborhood poverty. In both studies, the authors specify models that hypothesize that relative increases in impoverished households in a census tract are a function of a variety of demographic and locational variables. Massey and Kanaiaupuni use a dummy variable for the existence of public housing to capture the effect of those developments on poverty rates. They report that the construction of a project after 1950 raised a tract's poverty rate by 8 percent by 1970, all else being equal.

Schill and Wachter use the ratio of public housing units in a census tract as well as distance to a large public housing development among other independent variables in their model. They find that higher proportions of public housing in Philadelphia census tracts are significantly related to increased poverty in those tracts in subsequent decades. They simulate results that show that compared with an average neighborhood with no public housing, which would be expected to have a 13 percent poverty rate, the poverty rate for a neighborhood with the average proportion of public housing units would be 31.8 percent.

In addition to generating negative externalities and income segregation, public housing may promote racial transition in urban neighborhoods. In municipalities where most public housing tenants are racial or ethnic minorities, construction of subsidized units in integrated or all-white neighborhoods may cause white residents to move elsewhere. Two empirical studies have examined the relationship between public housing and neighborhood racial composition. Goldstein and Yancey (1986) found that the presence of public housing in a Philadelphia census tract was not significantly related to increased black populations in that

rejection or eviction—such as illegitimacy or a criminal record—were inappropriate (*Thomas v. Housing Authority of Little Rock* 1967; *Tucker v. Norwalk Housing Authority* 1971). Although the procedural requirements imposed by courts and HUD have no doubt had a beneficial effect in limiting abuses of power, the resulting loss of PHAs' freedom to select and evict tenants has contributed to the concentration of poverty in public housing by limiting their power to avoid or evict tenants who are likely to be detrimental to the community.

tract in 1970 and 1980. Galster and Keeney (1993) examine the relationship between subsidized housing and changes in black population in Yonkers neighborhoods between 1970 and 1980 and find a significant relationship between the number of units of subsidized housing and increases in the proportion of black residents. Nevertheless, they report in several alternative specifications that the magnitude of this relationship is small.

Mortgage assistance programs

In addition to its subsidization of publicly owned housing, the federal government has actively promoted homeownership opportunities for working- and middle-class Americans through its mortgage assistance programs. The regulations governing these programs, like those for the public housing program, have sometimes had the effect of destabilizing urban neighborhoods and promoting or exacerbating spatial race and income disparities. Perhaps the most important examples of such regulations are those that governed the Federal Housing Administration (FHA) Mortgage Insurance Program. FHA appraisal guidelines systematically favored loans for the purchase of newly constructed housing over those for homes located in inner-city neighborhoods with large numbers of old structures. Furthermore, FHA guidelines explicitly instructed loan originators to avoid neighborhoods in racial transition, most of which were in central cities (Bradford 1979; Jackson 1980, 1985). Existing data demonstrate that inner-city neighborhoods were thus less likely than communities at the periphery to receive FHA financing (Jackson 1980).

To the extent that the absence of home finance capital was thought to contribute to neighborhood deterioration and concentrated poverty, it was only natural for government officials to propose an infusion of mortgage finance into low-income communities as a way of counteracting urban blight. Indeed, in the late 1960s, the federal government enacted several mortgage assistance programs targeted to low- and moderate-income home buyers. The most important was the Section 235 Homeownership Assistance Program, under which the federal government made insurance for low-down-payment, subsidized-interest mortgage loans available to low- and moderate-income home purchasers. Unfortunately, the Section 235 program had disastrous results for many individual home buyers and low-income urban neighborhoods. Compounding the impact of low down payments on the risk of loan default (Wachter 1980), lax underwriting standards and fraudulent appraisals led to the foreclosure and abandonment of tens of thousands of homes (Graeser and Williams 1978;

U.S. General Accounting Office 1975). Entire neighborhoods were blighted as a result of the program's failure (Boyer 1973; Hayes 1985).

Racial discrimination and segregation

Discrimination based on race in the sale or rental of dwelling units likely generates spatial patterns of racial segregation (Galster and Keeney 1988).¹² At least since 1968, federal law has outlawed discrimination in housing by both private and public actors (Fair Housing Act). Nonetheless, evidence suggests that discrimination has been practiced by real estate agents, sellers, landlords, and government agencies. For example, Galster (1987) reports that the incidence of discriminatory treatment of minority home buyers is particularly high in all-white neighborhoods.

Housing market discrimination by private and public actors

Fair housing audit studies directly test for the presence of discrimination. The audit method typically involves the random selection of sales or rental advertisements from newspapers (Turner, Struyk, and Yinger 1991; Yinger 1992). Pairs of testers—one minority and one majority—are sent separately to the real estate agent's office, posing as home or apartment seekers. These testers are matched with respect to most characteristics other than race so that discrimination can be inferred from differential treatment.

The first large-scale use of the audit procedure was the Housing Market Practices Survey (HMPS) conducted by the U.S. Department of Housing and Urban Development (HUD) in 1977. White

¹² Racial segregation is also likely to be caused, in part, by the income segmentation effects of the regulations discussed above. Studies also indicate that black and white households typically receive their information about housing vacancies from different sources and that these discrepancies in information may have geographic consequences (Newburger forthcoming; Turner 1992). Farley et al. (1993) also argue that perceptions of racial discrimination may shape black housing search behavior regardless of whether these perceptions are accurate. Further, different preferences for neighborhood racial composition among whites and blacks may lead to neighborhoods segregated by race (Clark 1991; Farley et al. 1993). Racial segregation, even if it is the outcome of different preferences for neighborhood racial composition, may have significant social costs, such as limiting minority access to suburban manufacturing jobs and quality education (Kain 1992; Schill 1991).

renters and home purchasers were consistently favored over blacks; in many metropolitan areas, the incidence of favoritism exceeded 50 percent (Wienk et al. 1979). A more recent HUD-funded audit, the Housing Discrimination Study (HDS), was undertaken by The Urban Institute in 1989 and involved 3,800 audits in 25 metropolitan areas (Turner, Struyk, and Yinger 1991). The results of this study demonstrate the persistence of discrimination in the housing market. The HDS authors use a multinomial logit to obtain estimates of the likelihood that black or Hispanic persons would encounter discrimination in housing-related transactions.¹³ They conclude that 53 percent of black renters and 59 percent of black home buyers could be expected to encounter one or more incidents of discrimination. Among Hispanics, the expected incidence of discrimination was 46 percent for renters and 56 percent for home buyers.¹⁴

Discrimination in the housing market may contribute to racial segregation in several ways. The refusal by homeowners or landlords to make housing units in predominantly white communities available constrains housing choices to certain geographic areas. According to the HDS, between 36 and 39 percent of racial and ethnic minority home seekers received unfavorable treatment with respect to information about the overall availability of units (Turner, Struyk, and Yinger 1991). In addition, real estate agents may steer minority households to neighborhoods different from the ones they show white clients. Mikelsons and Turner (1991) and Turner, Edwards, and Mikelsons (1991) report that, compared with whites, black home seekers have a 12 percent greater chance of being steered toward neighborhoods with lower proportions of whites, an 11 percent higher likelihood of being shown communities with lower income residents, and a 17 percent higher chance of seeing areas with lower house values.

¹³ Because audits were typically done with real estate agents, the HDS does not measure directly whether the unfavorable treatment of minorities occurred as a result of the discriminatory preferences of the agents themselves or their principals. Yinger (1992) and Roychoudhury and Goodman (1992) use HDS data to draw inferences about the motivations of agents. Both studies conclude that discrimination is caused by agents' prejudice and by agents' efforts to look out for their clients' real or perceived interests.

¹⁴ With respect to the most severe form of discrimination—denial of access to available units—the researchers estimated that for blacks this would happen to 11 percent of renters and 6 percent of purchasers; among Hispanics denial affected 7 percent of renters and 5 percent of purchasers. Other forms of discrimination include providing less information about availability; making less sales effort; and steering to neighborhoods with greater proportions of minority residents, low-value homes, or lower income residents.

Similar results were obtained in comparing Hispanic auditors with whites.¹⁵

In addition to direct investigations of discrimination, economists have sought for almost three decades to infer whether housing market discrimination exists by analyzing the relative prices of housing purchased or rented by white and nonwhite households. If price discrimination based on race exists, owners of residential real estate may demand rent or price premiums when they lease or sell their housing to black households (Yinger 1979). Also, if discrimination restricts blacks to certain parts of the housing market (i.e., predominantly black or transitional areas), blacks may pay more than whites for housing of similar quality, and, on average, housing prices may be higher in these areas.

Studies of housing sales prices and rent differentials among whites and blacks provide mixed results. Some find that blacks typically pay more for comparable housing (Kain and Quigley 1975; King and Mieszkowski 1973; Schafer 1979; Yinger 1975, 1979). Others find no significant differential or even a price or rent discount (Follain and Malpezzi 1981; Lapham 1971; Schnare and Struyk 1977). Results that find no price differential or a price or rent discount, however, may reflect the difficulty of controlling for all relevant neighborhood characteristics (Chambers 1992).

Even in carefully specified models with sufficient control for neighborhood variables, inferring that discrimination does not exist from the absence of a price or rent differential may be unjustified. Whites may discriminate against blacks and, at the same time, be willing to pay premiums themselves for housing in all-white neighborhoods (Yinger 1979). The result is segregation, although no price effects may be observed.¹⁶

¹⁵ Compared with Anglos, Hispanic home buyers faced a 12 percent greater chance of being shown a neighborhood with fewer whites, an 11 percent greater likelihood of being steered to lower income neighborhoods, and a 17 percent greater chance of being shown neighborhoods with lower housing values. Despite significant evidence of racial steering, the authors report that the actual differences among neighborhoods shown to whites and nonwhites were small. Significant incidence of steering is also documented in two local housing audits conducted in Cincinnati and Memphis (Galster 1990).

¹⁶ The higher price of housing in minority communities caused by refusal to sell to nonminorities may not be reflected in higher prices if nonminority preferences cause racial sorting (Schelling 1969, 1972). Moreover, in cases in which house prices are shown to be higher in black submarkets, it is important not to overlook variation among neighborhoods with different proportions of blacks. Galster (1982) shows that price levels are higher in black submarkets,

Public as well as private landlords have engaged in racially discriminatory acts that may contribute to the segregation of housing markets. As already discussed, PHAs frequently constructed public housing in predominantly minority neighborhoods.¹⁷ In addition, PHAs engaged in discrimination in assigning tenants to public housing developments. Until the mid-1950s, racial discrimination was official government policy in many cities (Chandler 1992; Friedman 1968): Black households were assigned to certain developments and whites to others (Hirsch 1983). Even after federal court rulings and a presidential directive outlawing discrimination based on race, the practices continued (Schill 1993).

In one of the best known public housing discrimination cases, a federal court ruled in *Gautreaux v. Chicago Housing Authority* (1969) that the Chicago Housing Authority violated the Fair Housing Act by discriminating on the basis of race in its site selection and tenant assignment policies. At the time of the litigation, 99 percent of the tenants who lived in Chicago family projects were black.¹⁸ More recently, a federal court in Texas found HUD and two housing authorities liable for a pattern of de jure segregation in public housing (*Young v. Pierce* 1985).

Geographic discrimination in the home mortgage lending process

Racial discrimination may not be limited to real estate agents, sellers, and public and private landlords. Although the FHA has presumably stopped redlining minority communities, there have been many allegations that private sector mortgage originators deny credit to predominantly minority areas. These allegations

which is consistent with the hypothesis of discrimination. The study also finds that within submarkets with more than 25 percent black households, white owners have an aversion to higher proportions of minority households, as reflected in lower housing prices. This latter result is consistent with the hypothesis that segregation occurs as a result of household preferences rather than just discrimination.

¹⁷ HUD currently has Site and Neighborhood Standards that are intended to prevent the location of public and assisted housing in racially and economically impacted areas. However, these standards were not codified until 1980, by which time 83 percent of the current public housing stock was already in place. The effectiveness of these standards has also been criticized because HUD lacks the necessary data for monitoring and enforcement (Rabin 1994).

¹⁸ This number excludes four projects that were composed entirely of white households.

have intensified with the release of detailed data, pursuant to the Home Mortgage Disclosure Act of 1975 (HMDA), which show large disparities in acceptance rates between predominantly white and nonwhite neighborhoods (Canner and Smith 1991).

Disparities in acceptance rates across geographic areas do not necessarily imply discrimination, since neighborhood characteristics that are related to loan default risk may also be correlated with area racial composition. Therefore, social scientists have tested for discrimination using regression models that seek to control for most, if not all, relevant risk variables. Virtually all studies that test for redlining use one of two methodologies. *Aggregate* studies examine the aggregate supply of home mortgage loans made in particular neighborhoods to determine whether the communities' racial compositions are related to the amount of funds made available by lending institutions. *Accept/reject* studies, on the other hand, examine the relationship between the racial composition of neighborhoods and the probability that applications for home loans are accepted or rejected in those neighborhoods.

Three recent aggregate studies examining lending patterns in Baltimore (Shlay 1989), Boston (Bradbury, Case, and Dunham 1989), and Chicago (Shlay 1988) find evidence of geographic and racial disparities that is consistent with the hypothesis of redlining, whereas one nationwide study (Hula 1991) does not. Aggregate studies, however, can be criticized on the ground that they confound the effects of supply and demand.¹⁹

More recent studies use the accept/reject methodology and have not found results that support the hypothesis that financial institutions redline minority areas. Munnell et al. (1992) analyze extensive data about home mortgage loan applicants in the Boston metropolitan area. Although redlining is not the focus of their study, the authors find that the variable representing whether the proportion of nonwhite people in a census tract exceeds 30 percent is not significantly related to the decision of lenders to reject loan applicants. Similarly, Schill and Wachter (1993) use 1990 HMDA data to investigate geographic disparities based on race and ethnicity in mortgage loan acceptance rates in Boston and Philadelphia. When variables that proxy for neighborhood risk are not included in the model, the proportion of black and Hispanic households in a census tract is inversely

¹⁹ For a review of the literature on redlining, as well as a methodological critique of aggregate studies, see Schill and Wachter (1993). See also Galster (1993).

related to the probability of loan acceptance. With proxies for neighborhood risk included, however, the results do not support the hypothesis that financial institutions redline neighborhoods in these two cities. Nevertheless, because neighborhood risk variables are likely to be correlated with race, their use in accept/reject decisions may still result in racial or ethnic segregation.²⁰

Efforts to combat discriminatory practices in the home loan mortgage market illustrate the complexity of devising housing policies that do not have the perverse effect of exacerbating existing spatial differentiation of populations by race and income. Recent studies demonstrating disparities in acceptance rates between black and white loan applicants have led members of Congress and the administration to call for either enhanced enforcement or expansion of the Community Reinvestment Act of 1977 (CRA). CRA was enacted to fight home mortgage loan redlining by requiring federal financial supervisory agencies to use their authority when examining financial institutions to encourage such institutions to help meet the credit needs of the communities in which they are chartered, consistent with the safe and sound operation of such institutions (Public Law 95-128 §802(b)).

The primary tool that these federal agencies have to achieve the purposes of CRA is their power to approve or disapprove applications for bank charters, deposit insurance, branching, mergers, and the purchase of shares in other regulated financial institutions. Among the criteria the agencies have used to judge whether a mortgage originator is serving the credit needs of its local community are the geographic distribution of credit extensions, applications, and denials; its record in originating loans in its community; any practices that either discourage loan applications or constitute prohibited discrimination; and its financial participation in local community development programs.

Many financial institutions have responded to CRA by establishing elaborate community reinvestment plans to increase the flow of mortgage funds to inner-city communities and racial minorities. To the extent that CRA has enhanced the flow of home loan capital to inner-city areas, its impact on these communities and the geographic distribution of low-income and minority

²⁰ Munnell et al. (1992) find evidence that they interpret as indicating that financial institutions in Boston discriminate on the basis of the race of individual applicants. For a discussion of the methodology of this study, see Carr and Megbolugbe (1993).

households remains to be seen. On one hand, increased homeownership in the inner city may help stabilize declining neighborhoods and even encourage marginally higher income households to move in. It is also possible that federal policies to encourage affirmative efforts on the part of financial institutions to lend in inner cities may intensify the spatial concentration of low-income households by creating differential incentives to make loans more available to low-income people in these communities, as a way of enabling the institutions to meet their CRA requirements.

In a recent study (Schill and Wachter 1994), we test for loan concentration effects in the screening of home mortgage loan applications by financial institutions in Boston. We specify models in which the lending decision is a function of individual borrower characteristics and neighborhood characteristics ranging from median income to the proportion of black and Hispanic residents. Our results are consistent with the hypothesis that CRA encourages the concentration of minority applicants in minority neighborhoods and low- and moderate-income applicants in lower income neighborhoods. Predicted rejection rates are 30 percent higher for otherwise similar white households than for black households in minority neighborhoods.

The loan concentration effects we find in Boston may be attributable to the incentives created by CRA. Alternatively, they may be caused by the informational economies obtained by specialized lending institutions in geographic proximity to low- and moderate-income neighborhoods (Schill and Wachter 1994, forthcoming). Additional investigation is required to determine the sources of concentration effects and, to the extent that they are attributable to the CRA, whether benefits to inner-city communities outweigh costs.

Conclusion

The spatial stratification of the U.S. population by income and race is partly a result of local and federal regulations as well as the discriminatory conduct of housing market participants. This article reviews empirical literature on discrimination, local land use ordinances, and federal housing subsidy regulations and describes how each may contribute to the development of housing markets that are separated by income and race.

A variety of government regulations have had the effect of contributing to income segmentation throughout metropolitan

areas. Local tax powers encourage the development of communities with homogeneous household incomes. Land use regulations in higher income suburbs typically raise the price of housing, making it less affordable to low- and moderate-income households.

Racial and ethnic segregation is also caused directly by the discriminatory activities of both government and private actors. For example, in many cities, local governments constructed public housing in primarily nonwhite communities and made admissions decisions on a discriminatory basis. Further, evidence suggests discrimination by real estate agents and sellers. The effect of this discrimination may be often to reduce minority households' access to integrated communities.

Racial and economic segregation constrains the economic and social mobility of many residents of the United States. Access to jobs is restricted by distance from places of residence and by a lack of information about possible job opportunities in these communities. Residential segregation limits educational opportunity, thereby contributing to long-term economic polarization (Benabou 1994; Orfield 1994). These effects of income and racial segregation may further intensify spatial patterns of inequality.

Federal policies have the potential to alleviate income and racial segregation. However, we have shown that past public policies, frequently justified on the grounds of helping low- and moderate-income households, have in some instances actually increased income and racial stratification. In developing new approaches policy makers must bear in mind the interactions of market and nonmarket forces.

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