

# REDLINING: AN ECONOMIC ANALYSIS

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## I.

### INTRODUCTION

The role of redlining in the quality decline of housing units in urban neighborhoods has been the subject of heated debate in recent years. Various consumer and neighborhood organizations contend that, whether figuratively or literally, lending institutions draw red lines on maps around particular city neighborhoods and either refuse to grant mortgage credit or offer comparatively more stringent terms in the areas bounded by the lines. As evidence, they often cite statistics showing a lower volume of lending, often with a higher cost to borrowers, in particular urban compared to suburban neighborhoods. The antiredlining groups argue that such behavior by institutional lenders is at best overly risk averse and at worst discriminatory and arbitrary. They claim that redlining is a major cause of neighborhood decline since it denies the neighborhood the mortgage funds necessary to maintain stability of property values.

Many observers, however, argue that it is not necessary to construct a Devil Theory based on irrational behavior by lenders to explain the statistics cited by antiredliners. Instead, by examining rational lender response to economic conditions and regulatory constraints, these analysts seek to explain the relatively low supply of mortgage funds in certain neighborhoods. In part, this explanation stresses numerous borrower and neighborhood characteristics that increase the risk of lending beyond an acceptable level. In this view, low levels of mortgage activity in urban areas stem from general socioeconomic problems in those areas such as the flight of the middle class to the suburbs, low average incomes of city residents, aging of the housing stock, and inadequate inner city public services. It is also argued that usury ceilings often prevent lenders from charging a rate of interest sufficient to compensate for the high risk of mortgage lending in certain areas.

Coinciding with this debate has been a growing quantity of so-called antiredlining legislation, enacted at all levels of government. In California, state-licensed financial institutions are prohibited from denying a mortgage loan or adjusting the terms of a

loan on the basis of the age, location, or other "... conditions, characteristics or trends in the neighborhood or geographic area surrounding the housing accommodation unless the financial institution can demonstrate that such consideration in a particular case is required to avoid an unsafe and unsound business practice."<sup>1</sup>

At the Federal level, the Community Reinvestment Act (CRA) encourages "regulated financial institutions to fulfill their ... obligation to help meet the credit needs of their communities, including low and moderate income neighborhoods ..."<sup>2</sup> The encouragement is that an institution's compliance with the CRA will be considered by its supervisory agency when it applies for an expansion of services.

Local governments have also enacted antiredlining legislation. A city law in Cleveland, Ohio empowers the city to withdraw its accounts from financial institutions that fail to make sufficient loans within the city. In particular, the law requires that the percentage of loans granted to city borrowers by a financial institution must equal the percentage of deposits held by city residents in that institution, or else the city may withdraw its funds [2].

Supporting these and other antiredlining actions are numerous empirical studies showing significant differences in the type, number, and terms of mortgages granted across neighborhoods. In particular, these studies have found that lending institutions located in certain urban neighborhoods, and obtaining a significant proportion of their deposits from urban residents, are directing the majority of their conventional mortgages to suburban properties. In some quarters, this is viewed as evidence that urban neighborhoods are not receiving their "fair share" of mortgage funds, which in turn, allegedly contributes to depressed property values and neighborhood deterioration. There are, however, major deficiencies in many of the studies upon which antiredlining actions are based. Generally, the studies simply present evidence of differences in the relative number and terms

<sup>1</sup> State of California, Health and Safety Code. Section 35810.

<sup>2</sup> 12 United States Code Annotated Sections 2901 et seq. (1977).

of conventional mortgages granted between urban and suburban properties and conclude that the cause is irrational redlining behavior by lenders. Totally ignored are any underlying economic causes for such differences in mortgage activity. The result may be to foster legislation that produces a costly misallocation of mortgage funds. Specifically, if there are rational economic reasons behind low levels of mortgage investment in certain areas, then legislation that requires or "encourages" institutions to lend to these areas may be counterproductive in the long run. The purpose of this article, therefore, is to determine the economic causes, if any, behind redlining behavior and to briefly evaluate the impact of antiredlining legislation on the mortgage market.

Before doing so, however, it is necessary to establish a working definition of redlining. As defined here redlining occurs when lenders base any element of the mortgage decision, including whether or not to lend and the terms of the loan, on the geographic location of the property or on the characteristics of surrounding properties. This narrow definition directs attention to one of the primary allegations of antiredliners, namely that geographic location is not a proper consideration in mortgage lending. Moreover, because of the existence of legislation that prohibits redlining as defined above [see 15], it is necessary to determine how geographic location and neighborhood characteristics affect the risk of a mortgage loan so that the economic impact of such legislation may be evaluated.

The remainder of this article contains five sections. Section II develops a simple model of the mortgage market that describes how mortgage funds are allocated among properties and borrowers possessing different risk characteristics. In Section III a number of market constraints that act to reduce the availability of relatively high risk mortgage loans are considered. Section IV reviews problems with FHA mortgage loans in urban areas, while racial discrimination in mortgage lending is addressed in Section V. Conclusions are presented in Section VI.

## II.

### A MODEL OF THE MORTGAGE MARKET <sup>3</sup>

**Demand** For simplicity, suppose there are two households, one relatively poor and one relatively wealthy, that desire to obtain a mortgage loan to purchase a house in the same neighborhood. Assume

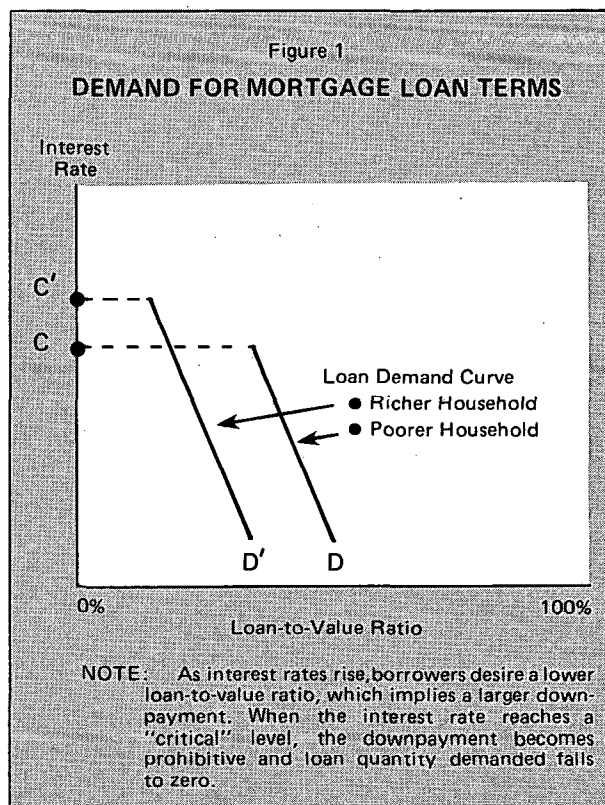
<sup>3</sup> This section draws heavily on Glenn B. Canner's "Redlining and Mortgage Lending Practices" [6].

further that in this neighborhood all housing units possess identical economic characteristics such that the present market value, the expected future value, and the expected variance (change) in future values of each unit are the same. Thus, given the characteristics of the property, it is reasonable to expect that, for any given rate of interest, the poorer household will demand a larger loan (i.e., a smaller downpayment) with a longer term to maturity than will the richer household. The poorer household requires a larger loan because it possesses fewer cash assets to finance the downpayment. Similarly, it desires a longer term to maturity in order to reduce the monthly mortgage payment.

It is also assumed that a household's demand for mortgage loans varies inversely with the cost of borrowing, i.e., as interest rates rise both households will demand a relatively smaller loan. For a given property, a smaller loan of course implies a greater downpayment. Thus, the higher the cost of money, the less will be the loan-to-value ratio desired by borrowers.<sup>4</sup>

Figure 1, demand for mortgage loan terms, illustrates the loan-to-value ratio desired by the poor and

<sup>4</sup> The loan-to-value ratio is the value of the loan divided by the market value of the property.



wealthy households, denoted by D and D', respectively, as interest rates vary.<sup>5</sup> Note first that the loan demand D of the poorer household lies to the right of comparable loan demand D' of the richer household, indicating that for a given property, the poorer household desires a relatively greater loan than the richer household at every rate of interest. Next, note the horizontal dotted lines C and C'. These represent "critical" rates of interest for the poorer and richer households respectively, at which demand falls to zero. The idea behind the critical rate is simple. As interest rates rise, borrowers desire smaller loan-to-value ratios due to the increased cost of borrowing. This implies greater downpayments at higher rates of interest. Thus, once the interest rate reaches the critical level, prospective home buyers become either unwilling or unable to afford a greater downpayment and choose not to purchase the property. Quantity demanded therefore falls to zero.

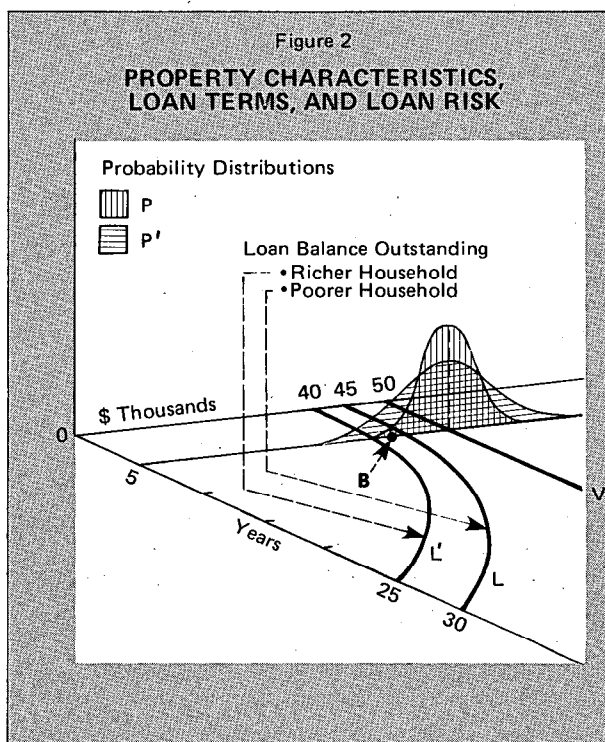
**Supply** To facilitate the analysis of mortgage loan supply, it is assumed that the market is purely competitive, that there are no government restrictions on lenders and that all information relevant to the lending decision is available to market participants at zero cost. It is also assumed that lenders are risk averse and therefore willing to accept additional risk only if compensated with higher rates of interest. The analysis of mortgage loan supply focuses on the relationship between the risk of default on a mortgage loan and (a) the terms of the loan, (b) the characteristics of the property, and (c) the characteristics of the borrower.

Holding the characteristics of the borrower constant, the risk of default on a mortgage loan and the cost to the lender in the event of default are closely related to the terms of the loan, the market value of the property at the time of sale, and future market values of the property over the life of the mortgage. The impact of these variables on risk and therefore on interest rates is illustrated in the following numerical example as well as in Figure 2.

Suppose that the market value of some property is \$50,000, and for simplicity, that the expected future value of the property remains constant at \$50,000 over time. This does not mean that the property's value will always be \$50,000, but rather, that its most

likely (i.e., expected) value at any time is \$50,000. There is of course some probability that its value will deviate from this amount. In Figure 2, the horizontal line V represents the expected value of the property over time and P and P' represent two possible probability distributions of the property's future value. These probability distributions depict the likelihood that the property's value will fall within some particular range. If P is the relevant distribution, for example, then there is, say, approximately a 70 percent chance that the property's value, at any time, will be between \$47,000 and \$53,000. If P' is the relevant distribution, then there is only a 50 percent chance that the property's value will fall within the \$47,000 to \$53,000 range. Thus the flatter or the more spread out the probability distribution, the more likely it is that the value of the property will deviate from its expected value of \$50,000. The term variance will hereafter be used to describe the relative flatness or spread of the probability distributions. The greater the variance of the distribution the greater the probability that the property's value will deviate from its expected value.

Now suppose two households, one relatively poor and one relatively wealthy, wish to purchase this \$50,000 property. The poor household desires a \$45,000 loan with a 30-year maturity and the wealthy household desires a \$40,000 loan with a 25-year maturity. In Figure 2, the downward-sloping bowed



<sup>5</sup> In this analysis, the loan-to-value ratio is used rather than the dollar size of the loan so that the demand and supply curves are adjusted for differences in property value. Also, term to maturity of the loan is ignored throughout since it would greatly complicate the analysis and is relatively unimportant.

out curves represent the outstanding balance of each loan over time for the poor and wealthy households respectively. Notice that in both cases, the outstanding loan balance declines at an increasing rate. This is because for the first few years, most of the monthly mortgage payment goes to the interest charge, so that initially, the principal declines very slowly. Then, as the outstanding loan balance is reduced, the proportion of the mortgage payment that is applied to the interest charge is reduced, thereby increasing the proportion of the payment that is applied to the principal.

Having established this analytical framework, it is a simple task to show how loan terms and property characteristics influence the risk and cost of default. In Figure 2, notice that for each probability distribution P and P' the likelihood that the value of the property will at any time fall below the outstanding loan balance is greater for loan L than for loan L'. More generally, the greater the loan-to-value ratio and the longer the term to maturity of a mortgage loan, the greater is the chance that the property's market value may fall below the outstanding loan balance. And if the property's value does fall below the loan balance, the borrower has an economic incentive to default on the loan. For example, suppose that after five years the value of the property in Figure 2 falls to \$42,500 (point B) and for some reason the borrower with loan L has to relocate. He could either sell his property at its market value and prepay the mortgage or default on the loan. If he prepays the mortgage his loss will be \$7,500 (\$50,000 - \$42,500), whereas if he defaults his loss will be only \$6,000 (the \$5,000 downpayment + \$1,000 of repaid principal). Thus, he has an economic incentive to default on the loan. In effect, by defaulting he is selling the property to the lender at a price above its market value. Note that under the same circumstances, the borrower with loan L' has no incentive to default as the property's value at B is still greater than his outstanding loan balance. The upshot is that for a given property and borrower, lenders will charge a higher rate of interest the greater the loan and the longer its term to maturity in order to compensate for the increased risk of default. This implies an upward sloping loan supply curve such as S in Figure 3, where the interest rate is measured on the vertical axis and mortgage credit per dollar of property value (e.g., the loan-to-value ratio) is measured on the horizontal axis.

Differences in the expected variance of a property's future value also influence risk. Specifically, the greater the variance the greater the probability

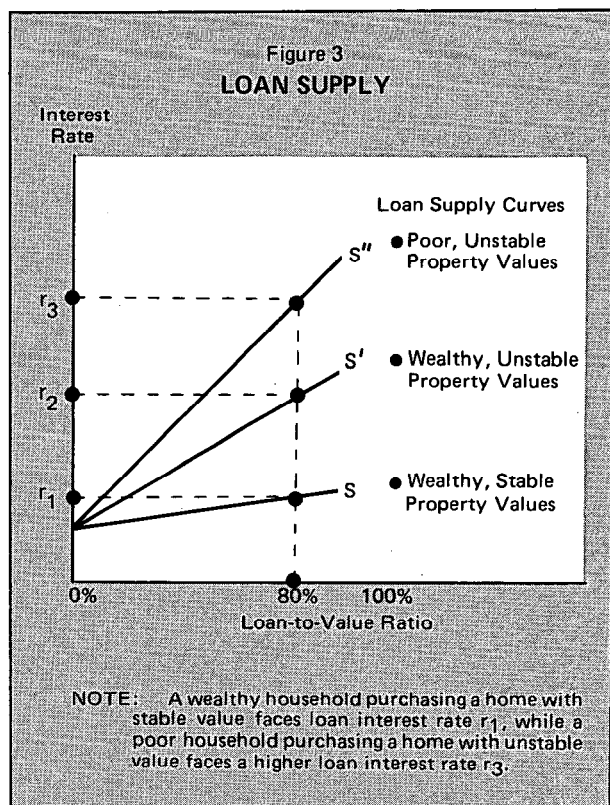
that a property's value may fall below the outstanding loan balance for any given loan terms. Thus, greater variances of property values imply a greater risk of default and thus a higher interest rate for any particular combination of loan terms.<sup>6</sup> Higher variances therefore increase the slope of the supply schedule.

Differences in borrower characteristics, such as level and stability of income, will also alter the slope of the supply schedule. Borrowers with low incomes and/or whose job stability is closely related to the business cycle pose a higher risk of default due to inability to meet mortgage payments than do borrowers with relatively high incomes and secure occupations. Therefore, holding all else constant, lenders will require higher interest rates from households with low or highly variable incomes.<sup>7</sup>

Taken together, the above factors imply that for each combination of borrower and property characteristics there is a unique supply schedule repre-

<sup>6</sup> It should be noted that lenders are only interested in the lower half of the probability distribution of the property's future value. That is, the probability that the property's value falls below its mean.

<sup>7</sup> The value of the property being purchased relative to the borrower's income is an important determinant of default risk. Although ignored here by assuming all else constant, this factor is discussed in Section III.

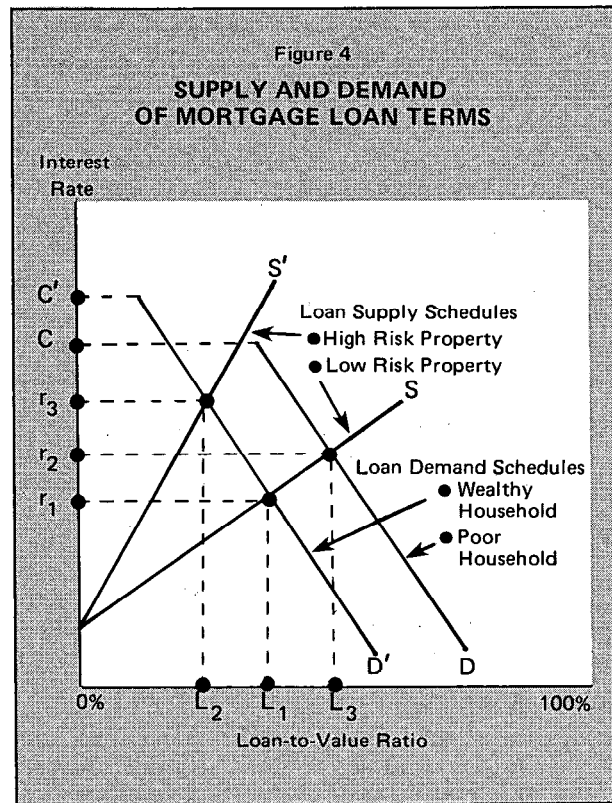


senting the loan terms available at each interest rate. In Figure 3, the loan supply schedule becomes steeper as (1) the expected variance in property value increases and (2) as borrower income declines (or becomes more variable).

**Supply and Demand** Figure 4 combines the loan demand schedules of a poor and a rich household with the supply schedules available for two properties, one with low risk  $S$  and one with high risk  $S'$ . To simplify the exposition, it is assumed that lenders ignore risk differentials between poor and wealthy households. Note that for the low risk property both households can obtain a loan. The richer household will get loan  $L_1$  at an interest rate of  $r_1$  while the poorer household will get loan  $L_2$  at a rate of  $r_2$ . Concerning the high risk property, note that although the richer household and the lender may reach mutually acceptable loan terms of  $L_3$  at rate  $r_3$ , there are no mutually acceptable loan terms at which the poorer household and the lender can agree for that property. That is, the poorer household will not obtain a loan for the high risk property because the household demands a greater loan-to-value ratio at every rate of interest than the lender is willing to supply. The same is true for all households with still lower wealth.

Now consider an urban neighborhood undergoing a change in residents where the upper and middle income households are moving to the suburbs and being replaced by relatively low income households. Because low income households require more liberal financing terms and also pose a higher risk of default, many of the new residents may be priced out of the mortgage market. That is, at every rate of interest the relatively poor households demand a greater loan-to-value ratio than lenders are willing to supply. Put differently, given the risks involved the lender will not make a loan on terms that prospective borrowers are willing to accept. This may be what has been occurring in urban neighborhoods during the past twenty years. Due to the migration of middle and upper income households to the suburbs, there has been a corresponding shift in central city population distributions from high and middle income households to low income households.

This demographic shift produces several effects. First, it causes the demand for owner-occupied housing units in the central city to decline and, given a fixed supply of housing units, acts to lower property values in the city relative to the suburbs. Second, since high income households are replaced with relatively low income households, the risk of lending to the new residents is greater. Thus by increasing risk,



these two factors cause a reduction in the supply of mortgage credit (e.g., an increase in the slope of the loan supply schedule) to city relative to suburban neighborhoods. Finally, since low income households desire relatively greater loan-to-value ratios than high income households at each rate of interest and cease borrowing altogether at lower critical rates, a relatively larger number of the new lower income residents may be priced out of the mortgage market.

The implication of this analysis is that neighborhoods characterized by declining property values and/or low resident incomes will receive relatively little mortgage financing. The mortgages that are granted will tend to embody relatively higher interest rates than mortgages made to higher income neighborhoods where property values are rising. The reason is not that lenders arbitrarily restrict credit to these areas. Rather, high risk levels produce a price of mortgage credit that is beyond the financial means of the borrowers. Thus, although certain neighborhoods may be redlined in the sense that mortgage terms and availability are unfavorable relative to those of other neighborhoods, this does not necessarily signify the existence of unreasonable lending practices.

Note, however, that while the above framework explains how rational economic behavior may lead to

differences in the number and terms of mortgage loans made across areas, it totally ignores government regulation and costly information, two constraints under which all lenders must operate. The next section describes how these factors act to reduce mortgage supply, especially to high risk borrowers and properties.

### III.

#### MARKET CONSTRAINTS

Virtually all depository institutions in the United States are subject to extensive examinations by Federal and/or state regulatory agencies. One aspect of these examinations, portfolio regulation, consists of a review of the institution's loan portfolio and the classification of its loans into risk categories [14]. Generally, the categories are termed standard, substandard, doubtful, and loss. If too many loans fall into the last two categories, the regulator will conduct a detailed analysis in an attempt to establish the cause of the situation. Moreover,

... a formal letter is sent out to the bank's directors, asking for a detailed explanation of the portfolio problems. The institution's directors must respond by mail and promise to correct the situation. The regulator's letter is a form of moral suasion. Ultimately, the regulators may resort to more stringent measures. These measures include: publication of examination reports, the institution of proceedings designed to remove bank officers and directors that continue unsound or unsafe practices, the placement of the bank into receivership, the termination of insurance and the requirement that more funds be placed into the category, loss reserves.<sup>8</sup>

These sanctions act as a strong disincentive to making relatively risky mortgage loans, even if lenders are able to compensate for the risks with high interest rates. The reason is that portfolio regulation is more concerned with the number of "poor" loans than with the overall risk/return relationship of the portfolio. Thus, the net effect of portfolio regulation is to reduce the supply of institutional mortgage credit to high risk borrowers and areas.

One manifestation of portfolio regulation that is of particular importance to the redlining issue has been the development and widespread use of rules of thumb to estimate risk in mortgage lending. Although such rules would certainly exist in the absence of portfolio regulation due to high information costs, it is portfolio regulation which sets the standard of acceptable risk for the rules of thumb. For example, the most widely used rule is that the value of the

home being purchased should not exceed  $2\frac{1}{2}$  times the borrower's gross annual income and that total monthly mortgage payments should not exceed 25 percent of the borrower's gross monthly income [11]. Thus, whereas loans in excess of these amounts would be available if there were no portfolio constraint, (albeit at a relatively high rate of interest), under the constraint such high risk loans are generally not available. The way in which these rules contribute to redlining is described below.

First, it should be emphasized that the above rule applies to an average size family with an average income. Low income families generally have to spend a greater proportion of their income on nonhousing related necessities (such as food, clothing, and transportation), leaving a relatively smaller proportion of their income to finance a mortgage. Thus, as income declines, lenders will reduce the amount they are willing to lend *per dollar of income*. The purpose is to reduce the risk associated with making loans to lower income households to a level comparable to that of an average income family falling within the rule of thumb.

Recall from the framework developed in Section II that low income families face a steeper loan supply schedule than high income families. Although low income groups are charged a higher rate of interest for a given loan, they are able to obtain a loan if they are willing to pay the necessary rate of interest. In contrast, the consequence of substituting risk reducing rules of thumb for higher interest rates is that lenders will automatically refuse a mortgage loan application if it possesses more risk than is generally acceptable. That is, the automatic price rationing of the market is replaced with rules-of-thumb rationing of lenders.

Figure 5 demonstrates this graphically in terms of the model developed in Section II. S represents the supply schedule for a loan of *average* risk where the borrower has an income of \$15,000 and the market value of the property is \$30,000. S' represents the supply schedule for a higher risk loan where the value and characteristics of the property are the same, but where the borrower has an income of only \$10,000. D is the demand schedule of the low income borrower. Notice that without any market constraints the borrower can obtain loan terms  $L_1$  at an interest rate of  $r_1$ . Recalling that the interest rate is in part a compensation for risk, a regulatory constraint that restricts the amount of risk may be viewed as a limit on interest rates. Therefore, if, because of portfolio regulation, lenders are unwilling to make any loans at interest rates above  $r_p$  (represented by the horizontal dotted line), then

<sup>8</sup> Statement by Leo Labell, Chief Examiner of the Federal Reserve Bank of Boston, contained in "Redlining and Mortgage Lending Practices," pp. 152-153 [6].

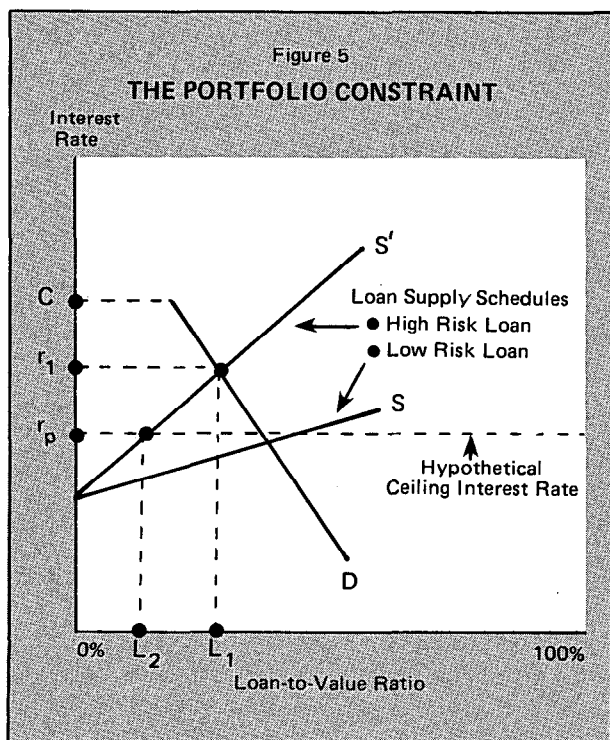
the borrower will be unable to obtain these terms. Lenders are willing to grant terms  $L_2$  at an interest rate of  $r_p$  to the low income borrower, but he is either unwilling or unable to purchase the home on such restrictive terms. Using a rule of thumb, the lender may determine that in order for the low income borrower to face the average risk supply schedule,  $S$ , the value of the property being purchased should be no more than twice his annual income, or \$20,000. Thus, the borrower is unable to obtain conventional mortgage financing for any home valued at more than \$20,000. If perfect and costless information were available, the lender might find this particular low income borrower to be so frugal that even for the \$30,000 home he should face the average risk supply schedule. But since lenders do not have such information, they must base their actions on past experience which tells them that generally, low income borrowers are greater risks. Therefore, given the portfolio constraint and imperfect information, lenders will push the borrower onto the average risk supply schedule,  $S$ , by granting a loan only for property worth \$20,000 or less. Thus, in neighborhoods where home values are high relative to resident incomes, one would expect fairly low levels of conventional mortgage investment and relatively few owner-occupied units. And, since many redlining studies focus on conventional mortgage activity and the percentage of owner-occupied units, lenders in such areas

may be cited for not meeting the credit needs of their community. However, although lenders may be willing to make such high risk loans in low income neighborhoods (albeit at high rates of interest), they are unable to do so because of the portfolio constraint.

Rules of thumb may also be applied at the neighborhood level, in which case they are often dubbed "statistical discrimination." For example, if there is a significant difference in the average default rate for individuals in various educational, occupational, racial, or income groups, then the average risk of default in a neighborhood composed of a particular mix of individuals can be estimated. If the composition of neighborhood residents is such that lenders determine that the risk of lending to the area is too great, then conceivably, lenders may draw a red line around the neighborhood and refuse to make any mortgage loans within its boundary. This may occur if lenders believe that the cost of processing applications that will be denied exceeds the benefit from those few applications that are approved. A similar situation may arise if property values in the neighborhood are declining. Under these circumstances, even credit-worthy applicants may be denied mortgage credit.

Such drastic forms of redlining behavior, although rational from the individual lender's point of view, may not be socially optimal. This is an important point often raised by antiredlining groups. The argument is that when lenders, although acting independently, decide as a group that lending to a particular neighborhood is too risky, the result of their decision is a self-fulfilling prophecy. That is, as mortgage money becomes scarce in a certain geographic area, property values will decline more rapidly than otherwise as sellers are forced to compete for those few buyers who can obtain credit. And, as property values drop, the degree of risk and the severity of redlining in the neighborhood will increase. Although one lender granting mortgages in such an area is likely to lose his investment, participation of an entire group of lenders may not only stem the neighborhood's decline, but may also show a profit.<sup>9</sup> In short, because of portfolio regulation and costly information, actions that are rational from the individual lender's point of view may prevent an outcome that is beneficial to all involved.

The last market constraint to be considered here, usury ceilings, are laws that place a limit on the interest rate that may be charged on residential mort-



<sup>9</sup> Working on this premise, a number of cooperative ventures have been undertaken in various cities throughout the United States. For a summary of several such programs, see [1].



gage loans. The impact of usury ceilings on the mortgage market is, therefore, very similar to that of portfolio regulation. Recall that, by restricting risk in mortgage lending, portfolio regulation effectively limits the interest rate charge to some maximum. Similarly, by limiting the interest rate charge, usury ceilings restrict the risk that lenders may assume on mortgage loans to some maximum. Thus, both portfolio regulation and usury ceilings reduce the availability of relatively high risk mortgage credit.<sup>10</sup> There is, however, a quantitative difference in the impact of these two constraints that depends upon (a) the general level of interest rates and (b) the difference in the maximum interest rate allowable under the portfolio and usury constraints.

The level of interest rates is important because usury ceilings limit the *nominal* rate of interest whereas portfolio regulation, in effect, limits the *real* rate of interest.<sup>11</sup> When interest rates are rising, as during periods of inflation, the implied portfolio constraint limit on interest rates will also rise so that lenders will be able to extend loans up to the same risk level as before the general interest rate rise. However, under the same circumstances, a *fixed* usury ceiling will force lenders to grant progressively safer and safer loans as mortgage interest rates approach the ceilings. Even when interest rates for average risk mortgage loans are well below usury ceilings, the ceiling may still restrict high risk mortgage credit if the interest rate necessary to compensate for the risks is above the ceiling. The respective impact of a usury ceiling and a portfolio constraint on the mortgage market will, therefore, depend critically upon where their interest rate limits are set in relation to each other and where they are set in relation to rates on mortgage and other long term investments.

There is, however, a method by which lenders may raise the effective interest rate on a mortgage loan above a fixed usury ceiling. This is done, where legal, by charging points or closing fees when the mortgage is made. A point is equal to one percent of the value of the mortgage loan, and, as a rule of thumb, lenders will charge two points for every one-quarter of a percent that the market rate is above the usury ceilings [10]. For example, if there is a 9

percent usury ceiling and market interest rates are 10.25 percent, then lenders will charge ten points. On a \$30,000 mortgage loan ten points requires a \$3,000 payment to the lender in addition to the regular downpayment. In effect, the lender is making a \$27,000 loan (\$30,000 — \$3,000) but receives monthly payments as if a \$30,000 loan had been made. The increase in the effective yield to the lender will therefore depend upon how soon the mortgage is repaid. If it is repaid in one year, then the yield on the mortgage is increased by approximately 11 percent (\$3,000, the value of the points, divided by \$27,000, the effective value of the loan). The greater the repayment period, the less will be the increase in effective yield.

The use of points to raise yields to market rates has important implications for the redlining issue. Although the effective interest rate may not be greater than the market rate if the repayment period is lengthy, the cash burden at the time of purchase is substantially increased by the use of points. In the previous example, if the downpayment were 10 percent on a \$33,000 home, then the cash burden at the time of purchase would be increased from \$3,300 (the regular downpayment) to \$6,300 (the downpayment plus the value of the points). Such increases in the effective downpayment resulting from usury ceilings are especially detrimental to low-income households inasmuch as they are more likely to be able to afford a slightly larger monthly payment resulting from a higher interest rate than a much greater downpayment resulting from the payment of points.

#### IV.

#### THE FHA IN URBAN NEIGHBORHOODS

A major issue in the redlining controversy is the predominance of government insured FHA mortgage loans in central city neighborhoods. Antiredlining organizations often criticize the FHA for allegedly contributing to the deterioration and abandonment of certain urban neighborhood properties. These criticisms are ironic inasmuch as amendments to the National Housing Act in 1968 directed the FHA to extend credit insurance to properties located in older declining urban areas with the goal of encouraging inner city homeownership and social stability. The difficulty the FHA has experienced in achieving these goals, however, is understandable given the characteristics of the FHA mortgage loans.

First, FHA mortgage loans are generally insured for 100 percent of the outstanding loan balance. That is, the FHA guarantees that the lender will

<sup>10</sup> Figure 5, illustrating the effect of portfolio regulation, may also be used to illustrate the impact of usury ceilings. Rather than  $r_p$  representing the portfolio constraint on interest rates, let it represent the usury ceiling.

<sup>11</sup> The *nominal* interest rate is the rate actually charged by lenders, and is comprised of a compensation for the use of funds, plus a risk premium and an inflation premium. The *real* rate of interest is the nominal rate minus the inflation premium.



receive the entire outstanding loan balance in the event of default. This guarantee reduces the incentive to lend prudently. Without a financial stake in the property (i.e., without facing the prospect of a capital loss), the lender's primary concern is receipt of the monthly mortgage service payments. Thus, if the borrower falls behind in these payments, the lender has a strong incentive to foreclose on the property. An FHA mortgage may be contrasted with a conventional mortgage, where delayed payments are more likely to be tolerated and/or mortgage terms renegotiated in order to avoid the costs of foreclosing and a possible capital loss.

Second, FHA mortgage loans are all subject to FHA-imposed interest rate ceilings which are generally below market rates. This causes lenders to charge points (as in the case of usury ceilings), thereby raising the initial cost of the mortgage to the borrower.<sup>12</sup> Also, because points are collected at the time the mortgage is made, lenders realize a greater rate of return the sooner the loan is repaid. When this fact is combined with 100 percent FHA mortgage insurance, the result is a strong financial incentive not only to foreclose in the event of default, but also to make loans that are likely to default.<sup>13</sup> For example, a profitable practice is for speculators to purchase relatively high risk, low price properties, make minor repairs, and then resell the properties at a higher price to low income households utilizing FHA mortgage loans. When the household defaults, often within just one year, the lender forecloses, recaptures the principal from the FHA, and keeps the points.<sup>14</sup> The result is a neighborhood containing vacant, boarded up government-owned properties, which adversely affect the value of all homes in the area.

One proposal to improve FHA programs is to replace 100 percent insurance with a sliding scale where the insured portion of the mortgage increases with area and borrower risk, but is always less than 100 percent. By raising the lender's financial interest in the property, this could reduce the FHA foreclosure rate while continuing to encourage mortgage flows to relatively high risk areas. Similarly, elimi-

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<sup>12</sup> Under FHA regulations, sellers must assume responsibility for payment of point charges. However, to the extent that sellers can pass on part of this cost in the form of a higher contract selling price, it is generally the borrower who bears this cost.

<sup>13</sup> Since FHA insurance eliminates the risk of a capital loss to the lender, the portfolio regulation constraint does not apply.

<sup>14</sup> Seventy-eight percent of foreclosed FHA loans on single family homes occur within 18 months [7].

nation of point charges by eliminating interest ceilings would reduce the incentive to foreclose.

## V.

### RACIAL DISCRIMINATION AND MORTGAGE LENDING

In popular usage, the term redlining is often synonymous with racial discrimination in the mortgage market. This article, however, draws a distinction between the two. Redlining as here defined exists when lenders base any element of the mortgage decision (including whether or not to lend and the terms of the loan) on the geographic location of the property or on the characteristics of surrounding properties. Thus, racial discrimination may be viewed as a special type of redlining (hereafter referred to as racial redlining) where lenders consider the racial composition of the neighborhood surrounding the property in making their mortgage decision. This section examines the role of race in the mortgage market, and how this role effects mortgage availability.

In discussing the impact of race on the mortgage market, it is essential to distinguish two separate influences. The first is how the racial preferences of the population in general may effect neighborhood property values in racially mixed areas. The second is how racial discrimination by lenders affects the availability and cost of mortgage funds and how this in turn affects property values. The former will be examined first.

For a variety of social, historic, and economic reasons, most metropolitan areas in the United States are segregated into either predominately white or predominately black neighborhoods. Areas with a significant racial mix are often in transition from white to black. These transitional areas may experience relatively large fluctuations in property values if "panic" selling occurs as minorities enter the previously white neighborhood. In such neighborhoods, the increased variance in property values will cause lenders to decrease the supply of conventional mortgage credit to the neighborhood. As the neighborhood becomes predominantly black, however, property values should stabilize near their original level and lenders would have an incentive to increase mortgage supply to its original level. Thus, holding other characteristics of the residents constant, a U-shaped relationship between the percent minority in a neighborhood and the level of conventional mortgage activity is expected. This is illustrated in Figure 6, which depicts the level of

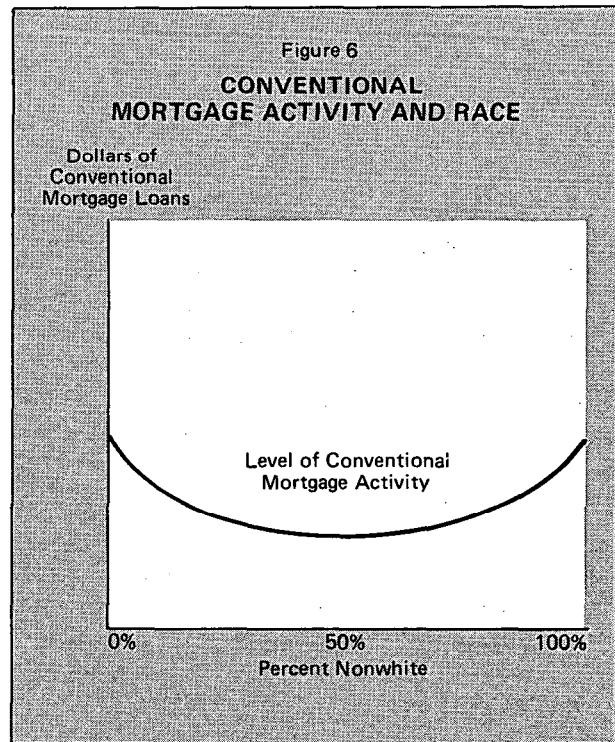
conventional mortgage activity first declining as a neighborhood changes from 100 percent white to 50 percent white, and then rising as the area becomes dominantly black.<sup>15</sup> Nondiscriminatory behavior by lenders is implied by the curve since mortgage activity in the all white and all black neighborhoods are identical. Thus, in the case where lenders are reacting to an increased variance in property values, they are not discriminating by race, but rather are adjusting to market forces out of their control, e.g., the racial prejudices of the population.

It should be noted, however, that there is an important difference between lenders reacting to market forces, as described above, and lenders assuming before the fact that an influx of minorities will initiate property value fluctuations. The latter reaction is the case of racial discrimination which could be a cause and not a result of panic selling. For example, consider an all white neighborhood in which the majority of residents are free of prejudice, and which is experiencing a gradual inflow of minority households. If lenders use the racial composition of the neighborhood as a proxy for risk, then, as the neighborhood becomes integrated, lenders will reduce the supply of conventional mortgage credit to the area. Assuming that panic selling does not occur, i.e., that asking prices are the same as if the neighborhood were not becoming integrated, then a reduction in mortgage loan supply will force sellers to reduce their asking price thereby initiating property value declines. This occurs because reduced mortgage loan supply increases the required downpayment at every rate of interest, which in turn prices some prospective buyers out of the market at the original asking price. Thus, in order to sell, homeowners will be forced to reduce their asking price so that downpayment requirements are reduced. Nearby residents may then interpret the relatively low selling prices as a sign of panic selling on the part of their neighbors, creating an incentive for them to sell before property values decline further. Therefore, the adjustment of loan terms based on the racial composition of a neighborhood can initiate property value declines and contribute to eventual neighborhood deterioration.

Evidence suggests that the mortgage industry does indeed consider neighborhood racial composition in evaluating present and expected future changes in property values. For example, a widely used real estate appraisal text states that,

The value levels in a residential neighborhood are influenced more by the social characteristics of its

<sup>15</sup> This U-shaped relationship was found in an empirical study of redlining in Toledo, Ohio [12].



present and prospective occupants than by any other factor. Hence, social data is a major consideration in residential appraising. No matter how attractive a particular neighborhood may be, it does not possess maximum desirability unless it is occupied by people who are reasonably congenial. This implies a community of interest based upon common social or cultural backgrounds.<sup>16</sup>

Social characteristics deemed instrumental in determining value include, "... age groupings, income levels, type of employment of head of household, *race and religion*, whether owner or renter, and amount of equity in owner occupied properties"<sup>17</sup> (emphasis added). Moreover, actual and expected changes in social composition are viewed as significant.

... As a general rule, homogeneity of the population contributes to stability of real estate values. Information on the percentage of native born whites, foreign whites, and non-white population is important, and the changes in this composition has a significance. As a general rule, minority groups are found at the bottom of the socio-economic ladder, and problems associated with minority group segments of the population can hinder community growth.<sup>18</sup>

Such assumptions about the relationship between race and risk can create a self-fulfilling prophecy.

<sup>16</sup> American Institute of Real Estate Appraisers, *The Appraisal of Real Estate* [4].

<sup>17</sup> American Savings and Loan Institute, *Lending Practices and Principles* [5].

<sup>18</sup> American Institute of Real Estate Appraisers, *Student Outline-Course-I-A-Real Estate Appraisal* [3].

If lenders assume that, holding all else constant, integrated or minority neighborhoods pose higher risks than all white neighborhoods, and therefore reduce mortgage loan supply, there will be downward pressure on property values.<sup>19</sup> And since depressed property values increase risk, the prophecy of increased risk in integrated and minority neighborhoods is fulfilled.

### SUMMARY AND CONCLUSIONS

Generally, differences in mortgage terms and availability across neighborhoods appear to result from differences in the risk related characteristics of neighborhoods and borrowers and from differences in the demand for mortgage loans between neighborhoods. Specifically, in areas where property values are declining or where resident incomes are low relative to property values the supply of mortgage funds will be less than in a more affluent area because of the higher risk of lending. The impact of lower supply in such areas is compounded by the greater loan-to-value ratios demanded by potential borrowers and their lower critical rate of interest.

The upshot is that since there are sound economic reasons behind so-called redlining behavior, legislation which assumes that geographic location is not a valid risk consideration and restricts its use may be counterproductive in the long run. For example, in California it is now illegal for state-licensed institutions to deny a mortgage loan or alter the terms of such a loan based upon the conditions, characteristics, or trends in the neighborhood surrounding the property.<sup>20</sup> Clearly, these are important risk related considerations. By severing the relationship between risk and rate of return, such regulations are likely to increase default rates and reduce the overall quality of mortgage loan portfolios of the affected institutions. This in turn may adversely affect profits, deposit rates, and the quality and quantity of other services provided by these institutions.

A better way to increase the availability of urban mortgage credit would be to eliminate usury ceilings and rigid portfolio regulations that reduce the availability of funds to high risk borrowers and areas. Also, a reevaluation of FHA loan policies and procedures is in order. The present system encourages unsound lending and costly foreclosures.

<sup>19</sup> For a review of studies focusing on the relationship between race and property values see [9]. Of 17 studies reviewed, 6 found no relationship, 9 found a positive relationship, and 2 found a negative relationship.

<sup>20</sup> An institution may refuse a mortgage loan, or adjust the terms of the loan, if it can prove that failure to do so would result in an unsound business practice.

Perhaps the only case where there may be economically unjustified restrictions in mortgage loan supply is the case of racial redlining. This stems from the unfounded assumption that integrated and minority neighborhoods involve relatively greater risks. Therefore, to ensure equal housing opportunity, more vigorous enforcement of current anti-discrimination laws and a review of underwriting procedures which, in effect, may be discriminatory is desirable.

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