Regional Differences in Mortgage Financing Costs

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# REGIONAL DIFFERENCES IN MORTGAGE FINANCING COSTS

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## I. INTRODUCTION

THE EXISTENCE of regional differences in mortgage financing costs in the United States has long been recognized and lamented. Fragmentary data indicate that the situation improved substantially in the first part of the twentieth century, with the limits of the spread narrowing from about 4.0 percentage points as reported in the Census of 1890 to less than 1.0 percentage point by the end of the 1930's.[1] In the period since World War II, however, regional differentials have remained about the same.[2]

The existence of regional differences in mortgage yields has been attributed to a number of factors. In the main, these causal explanations are of two types. One cites the existence of true differences in the investment value of the mortgages, due to variations in risk, terms, liquidity, and the like. The other stresses market imperfections, such as ignorance and legal barriers, which prevent the establishment of like prices for like commodities. Insofar as market imperfections are the cause, the further conclusion is justified that regional differentials represent an undesirable and inefficient situation which is conducive to resource misallocation.

Unfortunately, until recently systematic data on regional mortgage yields have not been available on a scale that would permit any empirical investigation of the causes of regional differences. In 1963, however, the Federal Home Loan Bank Board began the compilation and publication of a monthly series of the average interest rates and loan fees charged by the four major institutional lenders on conventional, single-family loans in 18 Standard Metropolitan Statistical Areas. Our objective here is to explore these data with reference to some of the characteristics that have been thought to play a role in determining differences in regional mortgage yields.

A few initial precautions should be noted. Data are not available for testing all possible relationships, although the relationships that we do test appear to account for a large share of the total regional yield variation. Furthermore, it should be noted that we are observing the situation only in one time period, and only as it pertains to the areas studied. Post-war data on both FHA-VA and conventional mortgage yields indicate that regional mortgage yield differ-

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1. Leo Grebler, David M. Blank, and Louis Winnick, *Capital Formation in Residential Real Estate: Trends and Prospects* (Princeton: Princeton University Press, 1956), pp. 229f.

2. Saul B. Klaman, *The Postwar Residential Mortgage Market* (Princeton: Princeton University Press, 1961), pp. 96f. See also data in Table 1 of this article.

ences tend to widen in tight money periods.[3] Also, it has been traditional to hold that mortgage financing costs are typically higher in smaller towns and rural areas than in the larger cities in the same major geographical region. Thus the 18 SMSAs studied here should probably not be regarded as a representative sample of all local mortgage markets in the United States in all time periods. Finally, as is true with any regression study, correlation is not synonomous with causation.

## II. Quantitative Measures of Selected Causal Factors

Table 1 contains the average monthly yields from March 1963 to April 1964 on conventional mortgages secured by new and existing properties in each of the 18 SMSAs included in the study. It also contains data on certain independent variables that are at least plausible causes of regional yield variations. We will group these possible causal factors into three main categories.

1. Import needs and transfer costs
2. Risks
3. Local market structures.

In this section we examine the data relating to these three variables. This examination will form the basis for the multiple regression analysis that follows in Part III.

A. *Import Needs and Transfer Costs.* The causal factor considered under this subheading actually contains three elements, each of which must be present in order to give rise to regional differences in mortgage yields. The first element is a maldistribution or regional imbalance in locally held savings. The second element is a regional variation in local demands for mortgage funds. Finally, some costs of transferring funds from one area to another must exist. The first two elements jointly give rise to a need to import mortgage funds into a local market, while the third element means that higher financing costs must be paid in order to overcome the reluctance of lenders in one region to invest in mortgages originated and secured in another region. If either relative credit shortages or lender reluctance are absent, regional yield variations should not exist insofar as our first causal factor is concerned.

The data in columns 2, 3, and 4 of Table 1 provide measures of the degree of variation in local needs to import mortgage funds. It comes as no surprise to find that savings per capita vary greatly between the states in which the 18 SMSAs are located (as noted in the footnotes to Table 1, comprehensive and consistent savings data are not available for SMSAs). However, very little direct relationship exists between savings per capita and mortgage yields. The coefficient of determination ($r^2$) is .04 for new houses and .18 for existing houses. This means that only four percent and 18 percent of the total variation in regional yields in the new-house and used-house markets, respectively, is explained by differences in per capita savings. Population

3. For example, see the comparisons between Los Angeles and Boston mortgage yields in the 1958-1962 period in Leo Grebler and Eugene F. Brigham, *Savings and Mortgage Markets in California* (Pasadena: California Savings and Loan League, 1963), p. 96. The period studied here would be characterized as one of monetary ease.

growth, probably the best single measure of the intensity of real estate demand, also has varied widely among the SMSAs and shows a much greater coefficient of determination ($r^2 = .42$ for new houses and .33 for used houses) than does savings per capita. However, when credit supply and demand forces are combined in the statistic *savings per average annual dwelling unit constructed, 1962-1963*, the coefficient of determination increases still more ($r^2 = .53$ for new houses and .69 for used houses).

The matter of transfer costs is a more difficult one to measure and interpret. Clearly, several factors tend to make a locally based institution prefer mortgages secured by properties in its own area. Among these factors are lack of knowledge concerning the economic characteristics of distant real estate markets, greater possible mortgage servicing costs, and public pressures to reserve local funds for local use. As a result, borrowers in areas that require a substantial inflow of external funds must expect to pay a rate somewhat higher than borrowers in surplus credit areas. In the absence of such a differential, no stimulus would exist to overcome the preferences of local lenders for locally secured mortgages.

How to measure the relative disadvantage of a given urban area with regard to mortgage transfer costs is not entirely clear, however. The most common notion would be to relate transfer costs to distance and it has been traditional in the mortgage market to regard the northeast as the low-yield, surplus area with mortgage costs rising as one moves south and west. In today's communication technology, however, it seems a bit archaic to view credit transfer costs as a straight line function of distance.

Be that as it may, we do employ a simple distance measure in this study. The statistic used in Table 1 to measure the transfer costs associated with each SMSA is *road miles from Boston* and it shows a fairly high coefficient of determination ($r^2 = .55$ for new houses and .57 for used houses). The choice of Boston as the base city is not without question. Boston has always had the lowest mortgage yields of major U. S. urban areas and, as shown in Table 1 by the statistic *savings per average annual dwelling unit constructed, 1962-1963*, has by far the greatest relative credit surplus.

It might be argued, however, that the more important consideration is the absolute size of the pool of exportable funds, and in this respect New York is considerably more important than Boston. In any case, the selection of either city over the other has little effect on the results of the study. Boston and New York are only 200 miles apart. Also, since New York is closer than Boston to all of the other SMSAs studied here, the use of New York rather than Boston as "ground zero" would simply decrease the distance statistic associated with each of the other 16 areas. Only the places of Boston and New York would be changed in the distance rankings.

B. *Risks*. It is to be expected that mortgage yields will vary directly with the lender's estimate of the probability of delinquent payments. However, no general mortgage risk classification system exists, and mortgage risk evaluation is somewhat subjective, making it difficult to define and measure in a study such as this. For example, a high rate of recent population growth, a statistic

TABLE 1

SELECTED CHARACTERISTICS OF EIGHTEEN MAJOR U. S. STANDARD METROPOLITAN STATISTICAL AREAS

| Standard Metropolitan Statistical Area | (1) Average Conventional First Mortgage Yield, Mar. 1963 to Feb. 1964[a] | (2) Savings Per Capita 1963[b] | (3) Per Cent Increase in Population 1950-1960[c] | (4) Savings, 1963, per Average Annual Dwelling Unit Constructed 1962-1963[d] ($ 000's) | (5) Road Miles from Boston[e] | (6) Average Conventional First Mortgage Loan-Value Ratio, Mar. 1963 to Feb. 1964[a] | (7) FHA-VA First Mortgage Debt as Percentage of Total One-Unit Homeowner Debt 1960[f] | (8) Per Cent of Conventional First Mortgage Debt Held by Interregional Lenders 1960[f] | (9) Per Cent of Conventional First Mortgage Debt Held by Leading Lender, 1960[f] |
|---|---|---|---|---|---|---|---|---|---|
| A. *New Houses* | | | | | | | | | |
| Los Angeles—Long Beach | 6.17 | 1738.1 | 45.5 | 91.3 | 3042 | 78.1 | 45.2 | 33.1 | 47.9 |
| Denver | 6.06 | 1110.4 | 51.8 | 84.1 | 1997 | 77.0 | 48.4 | 21.9 | 52.9 |
| San Francisco—Oakland | 6.04 | 1738.1 | 24.0 | 129.3 | 3162 | 75.7 | 60.7 | 46.0 | 24.1 |
| Dallas | 6.04 | 778.4 | 45.7 | 41.2 | 1821 | 77.4 | 51.2 | 51.3 | 43.0 |
| Miami | 6.02 | 1136.7 | 88.9 | 119.1 | 1542 | 77.4 | 33.3 | 18.7 | 62.1 |
| Atlanta | 6.02 | 582.9 | 39.9 | 32.3 | 1074 | 73.6 | 57.0 | 26.6 | 57.3 |
| Houston | 5.99 | 778.4 | 54.1 | 45.2 | 1856 | 76.3 | 51.9 | 35.7 | 37.8 |
| Seattle | 5.91 | 1186.0 | 31.1 | 109.7 | 3024 | 72.5 | 54.9 | 17.0 | 32.5 |
| New York | 5.89 | 2582.4 | 11.9 | 364.3 | 216 | 77.3 | 50.3 | 7.3 | 48.8 |
| Memphis | 5.87 | 613.6 | 27.4 | 111.0 | 1350 | 77.4 | 60.3 | 11.3 | 44.7 |
| New Orleans | 5.85 | 636.1 | 27.3 | 81.0 | 1544 | 72.4 | 48.9 | 8.1 | 62.1 |
| Cleveland | 5.75 | 1346.0 | 24.6 | 202.7 | 631 | 67.0 | 37.8 | 10.0 | 58.9 |
| Chicago | 5.73 | 1626.8 | 20.1 | 290.1 | 972 | 68.9 | 26.8 | 9.4 | 65.6 |
| Detroit | 5.66 | 1049.6 | 24.7 | 223.4 | 699 | 70.7 | 54.3 | 31.7 | 33.1 |
| Minneapolis—St. Paul | 5.66 | 1289.3 | 28.8 | 138.4 | 1377 | 69.8 | 47.8 | 19.7 | 40.3 |
| Baltimore | 5.63 | 836.3 | 22.9 | 125.4 | 399 | 72.9 | 46.9 | 8.6 | 64.4 |
| Philadelphia | 5.57 | 1315.3 | 18.3 | 259.5 | 304 | 68.7 | 51.1 | 18.7 | 54.3 |
| Boston | 5.28 | 2081.0 | 7.5 | 428.2 | 0 | 67.8 | 31.7 | 2.0 | 52.4 |
| Coefficient of Determination ($r^2$) with Col. (1) | | .04 | .42 | .53 | .55 | .65 | .14 | .34 | .04 |

TABLE 1 (*Cont.*)

| Standard Metropolitan Statistical Area | (1) Average Conventional First Mortgage Yield, Mar. 1963 to Feb. 1964[a] | (2) Savings Per Capita 1963[b] | (3) Per Cent Increase in Population 1950-1960[c] | (4) Savings, 1963, per Average Annual Dwelling Unit Constructed 1962-1963[d] ($ 000's) | (5) Road Miles from Boston[e] | (6) Average Conventional First Mortgage Loan-Value Ratio, Mar. 1963 to Feb. 1964[a] | (7) FHA-VA First Mortgage Debt as Percentage of Total One-Unit Homeowner Debt 1960[f] | (8) Per Cent of Conventional First Mortgage Debt Held by Interregional Lenders 1960[f] | (9) Per Cent of Conventional First Mortgage Debt Held by Leading Lender, 1960[f] |
|---|---|---|---|---|---|---|---|---|---|
| B. *Existing Houses* | | | | | | | | | |
| Dallas | 6.39 | 778.4 | 45.7 | 41.2 | 1821 | 73.1 | 51.2 | 51.3 | 43.0 |
| Los Angeles—Long Beach | 6.39 | 1738.1 | 45.5 | 91.3 | 3042 | 77.3 | 45.2 | 33.1 | 47.9 |
| Atlanta | 6.28 | 582.9 | 39.9 | 32.3 | 1074 | 70.8 | 57.0 | 26.6 | 57.3 |
| San Francisco—Oakland | 6.26 | 1738.1 | 24.0 | 129.3 | 3162 | 75.3 | 60.7 | 46.0 | 24.1 |
| Denver | 6.25 | 1110.4 | 51.8 | 84.1 | 1997 | 75.6 | 48.4 | 21.9 | 52.9 |
| Houston | 6.10 | 778.4 | 54.1 | 45.2 | 1856 | 71.7 | 51.9 | 35.7 | 37.8 |
| New Orleans | 6.06 | 636.1 | 27.3 | 81.0 | 1544 | 71.0 | 48.9 | 8.1 | 62.1 |
| Seattle | 6.00 | 1186.0 | 31.1 | 109.7 | 3024 | 68.7 | 54.9 | 17.0 | 32.5 |
| Miami | 6.00 | 1136.7 | 88.9 | 119.1 | 1542 | 74.3 | 33.3 | 18.7 | 62.1 |
| Memphis | 5.98 | 613.6 | 27.4 | 111.0 | 1350 | 75.8 | 60.3 | 11.3 | 44.7 |
| Cleveland | 5.93 | 1346.0 | 24.6 | 202.7 | 631 | 71.0 | 37.8 | 10.0 | 58.9 |
| Chicago | 5.80 | 1626.8 | 20.1 | 290.1 | 972 | 71.3 | 26.8 | 9.4 | 65.6 |
| Detroit | 5.80 | 1049.6 | 24.7 | 223.4 | 699 | 71.0 | 54.3 | 31.7 | 33.1 |
| Minneapolis—St. Paul | 5.79 | 1289.3 | 28.8 | 138.4 | 1377 | 70.0 | 47.8 | 19.7 | 40.3 |
| Baltimore | 5.76 | 836.3 | 22.9 | 125.4 | 399 | 72.2 | 46.9 | 8.6 | 64.4 |
| Philadelphia | 5.74 | 1315.3 | 18.3 | 259.5 | 304 | 70.9 | 51.1 | 18.7 | 54.3 |
| New York | 5.70 | 2582.4 | 11.9 | 364.3 | 216 | 69.1 | 50.3 | 7.3 | 48.8 |
| Boston | 5.33 | 2081.0 | 7.5 | 428.2 | 0 | 68.9 | 31.7 | 2.0 | 52.4 |
| Coefficient of Determination ($r^2$) with Col. (1) | | .18 | .33 | .69 | .57 | .42 | .15 | .52 | .05 |

that we are able to measure, might be considered by some lenders as enhancing risk due to possibilities of overbuilding and excessive optimism on the part of developers and appraisers. Other lenders, however, might regard rapid population growth as evidence of a strong local economy and as promise of buoyancy in real estate values.

The statistic used in this study to measure risk is *loan-value ratio* and it shows a fairly high coefficient of determination ($r^2 = .65$ for new houses and .42 for used houses). Loan-value ratio would undoubtedly be considered by lenders as the most important single mortgage risk characteristic. The size of the borrower's initial equity serves as evidence of his economic capabilities. A large downpayment is also an incentive for him to avoid the loss of his ownership of the asset. And, of course, the greater the owner's equity the more the lender is protected against declines in the value of the property securing the mortgage.

Average maturity terms could also have been used as a risk characteristic in this study. However, one recent investigation indicates that a slower repayment schedule does not seem to increase foreclosure rates.[4] If anything, risk of delinquency and defaults is reduced when maturities are longer. The probable reason for this result is that a longer amortization period reduces the size of the monthly payment, thereby making it less of a strain on the borrower's resources.

C. *Local Market Structures.* Higher mortgage financing charges in one local market as compared to another could be due to differences in the degree of competition. Entry is typically imperfect in financial markets, particularly by virtue of legal restrictions. Such circumstances, together with price collu-

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[a] U. S. Federal Home Loan Bank Board, *Home Mortgage Interest Rates and Terms* (March 1963-February 1964). Monthly yields were calculated by adjusting the contract interest rate for reported fees and charges assuming an effective maturity of 10 years.

[b] U. S. Savings and Loan League, *Savings and Loan Fact Book, 1964,* Table 4 and U. S. Bureau of the Census, *Current Population Reports, Population Estimates,* Series P-25, November 5, 1964, Table 1. SMSA savings per capita were assumed equal to statewide savings per capita.

[c] U. S. Bureau of the Census, *Current Population Reports, Technical Studies,* Series P-23 December 5, 1963, Table 1.

[d] Total SMSA savings estimated as described in footnote b. Dwelling units constructed in SMSA in 1962 and 1963 tabulated from U. S. Housing and Home Finance Agency, *17th Annual Report,* 1963, Table B-8. The average annual construction volume for the two years was then divided into the savings figure.

[e] Rand McNally, *Rand McNally Road Atlas, 1964.*

[f] U. S. Bureau of Census, *Census of Housing,* 1960, Vol. V, Part I, Tables 3 and 4 for all SMSAs except Denver, Houston, Memphis, Miami, and New Orleans. For the latter five SMSAs the ratios in columns 7, 8, and 9 were assumed equal to statewide ratios. Statewide FHA-VA and conventional mortgage debt totals were estimated by totaling the holdings of the four leading institutional lenders and the Federal National Mortgage Association and then increasing this total by 15 per cent (assumed to be all conventional) to account for all other holders. Sources for the statewide holdings were Federal Home Loan Bank Board, *Savings and Home Financing Source Book 1961,* Tables 14 and 15; Institute of Life Insurance, *Life Insurance Fact Book, 1962,* p. 89; Federal Deposit Insurance Corporation, *Assets, Liabilities and Capital Accounts of Commercial and Mutual Savings Banks,* December 31, 1960; and Federal National Mortgage Association, *Semi-Annual Report,* December 13, 1960, Table VII. Interregional debt totals were assumed to equal all holdings of life insurance companies and the Federal National Mortgage Association and all holdings of mutual savings banks outside of Massachusetts, New York, and Pennsylvania.

4. Leon T. Kendall, *Anatomy of the Residential Mortgage: Loan, Property, and Borrower Characteristics* (Chicago: U. S. Savings and Loan League, 1964).

sion by firms already in the market, could result in charges higher than those prevailing in local areas where entry barriers and price collusion are not as great.[5]

The evidence of this study, while by no means conclusive, indicates that the level of competition is of little significance as an explanation of regional differences in mortgage yields. This conclusion is based in part on the evidence presented in Table 1, as discussed below. More importantly, it is based on the fact that most of the regional yield variations are explained by other factors, as shown by the multiple regression analysis discussed in the next section. However, we shall see that a good measure of the degree of local competition was not available in this study. Furthermore, an absence of any apparent relationship between regional yields and market structures does not mean that prices higher than competitive levels are not being charged. It may simply mean that in *all* of the local mortgage markets studied here a uniform degree of noncompetitiveness prevails.

The data in columns 7, 8, and 9 of Table 1 relate to variables that logically, at least, should provide some indication of the degree of competition. Columns 7 and 8 show the percentages of 1960 mortgage debt that was insured (FHA) or guaranteed (VA), and that was held by interregional lenders, respectively. We would expect that the competition of a large amount of insured and guaranteed debt and of lending by interregional lenders would lower yields. If so, the percentages in columns 7 and 8 would be negatively correlated with yields. They are positively correlated, however, for the rather obvious reason that FHA-VA loans and interregional lenders are attracted to high-yield areas. Thus, FHA-VA loans and interregional lending may well reduce the total amount of regional yield variation, but they do not help explain the reasons for the variations that remain.

The data in column 9 show the percentage of 1960 conventional debt held by the single largest lender in each SMSA. They are thus a measure of market concentration. The ratios vary from one-third to two-thirds in the 18 areas studied, with the leading lender being savings and loan associations in all areas except Boston (mutual savings banks) and Detroit (individuals). Virtually no direct relationship exists between the concentration ratios and the level of mortgage yields. However, the concentration ratios in Table 1 are very crude, since they refer to the percentage share of the largest *type* of lender rather than the largest lending firm. Data regarding the latter type of ratio are not available.

## III. Multiple Regression Results

Various least square regressions were computed between the dependent variable, *mortgage yields* (Y), and five independent variables stated in both original form and in logarithms. The independent variables were *loan-value*

5. Market structures and the degree of competition and their effects on the level of financing costs have been stressed in several recent studies of California mortgage markets. Edward S. Shaw, *Savings and Loan Market Structures and Performance: A Study of California State-Licensed Savings and Loan Associations* (Sacramento: California Savings and Loan Commission, 1962), and Grebler and Brigham, *op. cit.* See also comments of Shaw, Grebler and George J. Stigler in *Conference on Savings and Home Financing* (Chicago: U. S. Savings and Loan League, 1964).

*ratio* (L), *miles from Boston* (M), *savings per average annual dwelling unit constructed, 1962-1963* (S), *savings per capita*, and *percentage population increase, 1950-1960*. The original data for these five variables are shown in Table 1 in columns 6, 5, 4, 2 and 3 respectively. The original data for *mortgage yields* (Y) are shown in column 1 of Table 1. For all combinations of these variables four equations were computed. These consisted of equations for the new and existing house markets and for the original and logarithmic data. Scatter diagrams revealed that most of the simple relationships between yields and each of the independent variables were slightly curvilinear of the type $Y = a + b \log X$.

Three main results emerge from the various least squares regressions. In the new house market, *loan-value ratio* (L) and *miles from Boston* (M) accounted for virtually all of the explained variance. In the existing house market, a substantially higher coefficient of multiple determination resulted when *savings per average annual dwelling unit contructed, 1962-1963* (S) was added, and the latter variable improved the fit by more than did either *savings per capita* or *percentage population increase* when used separately or together. Finally, as might be expected, the use of logarithms of the independent variables improves the fit in all cases. Table 2 contains the coefficients of multiple determination between Y and various combinations of L, M, and S, both unadjusted and adjusted for the degrees of freedom. All are significant at the one percent level.[6]

The regression equations using L, M, and S in both original and logarithmic form are stated below. The standard errors of the regression coefficients are shown in the parentheses immediately below each of the independent variables. The beta coefficients are shown in the parentheses below the standard errors. The effect of each independent variable on the dependent variable is indicated by the relative size of its beta coefficient. For example, in the first equation below, L has slightly more than twice as much effect on Y as does S.

Unfortunately, in the present study the beta coefficients are of limited usefulness as indicators of the relative importance of each of the independent variables. This is because the latter are rather highly intercorrelated, as shown in Table 3. At the same time, possible explanations exist for the differences that do appear in the relative importance of the various independent variables. Thus a statement of the main findings regarding these differences is of interest, even though such findings are best thought of as plausible speculations rather than firm conclusions.

First, variation in local credit supply-demand relationships, probably the factor most commonly cited as the cause of regional mortgage yield differences, is quite important in the existing house market but negligible in the new house market. A possible reason for this result is the greater insulation of the existing house market from the effects of interregional credit supplied

6. As a check on the degree to which the results might be influenced by the uniqueness of Boston, each of the four equations was computed for 17 observations, i.e., excluding Boston. The resulting coefficients of multiple determination are .795 (New-Original), .800 (New-Log), .747 (Existing-Original), and .813 (Existing-Log). The corresponding coefficients for 18 observations, as shown in Table 2, are .819, .856, .804, and .854.

New Houses:

$$Y = 3.63 + \underset{(.00828)}{\underset{(.509)}{.0297L}} + \underset{(.0000355)}{\underset{(.317)}{.0000726M}} - \underset{(.000000275)}{\underset{(-.238)}{.000000413S}} \quad (1)$$

$$Y = -4.07 + \underset{(1.22)}{\underset{(.520)}{5.05 \log L}} + \underset{(.076)}{\underset{(.475)}{.253 \log M}} - \underset{(.100)}{\underset{(-.080)}{.0535 \log S}} \quad (2)$$

Existing Houses:

$$Y = 4.22 + \underset{(.0155)}{\underset{(.234)}{.0253L}} + \underset{(.0000469)}{\underset{(.289)}{.0000821M}} - \underset{(.00000336)}{\underset{(-.525)}{.00000110S}} \quad (3)$$

$$Y = -1.88 + \underset{(2.21)}{\underset{(.270)}{4.86 \log L}} + \underset{(.105)}{\underset{(.374)}{.248 \log M}} - \underset{(.117)}{\underset{(-.451)}{.375 \log S}} \quad (4)$$

Where:

Y = mortgage yield in SMSA
L = loan-value ratio in SMSA
M = miles from Boston to SMSA
S = pro-rata state savings in SMSA per average annual dwelling unit constructed in SMSA, 1962-1963.

through the FHA-VA secondary market and the conventional lending of life insurance companies. The latter two types of financing are most often secured by new houses; existing houses are more heterogenous and are more likely to be financed in the local, conventional market. Thus yields on mortgages secured by used houses are more apt to be affected by the relative availability of local credit than are yields on new house mortgages.

Second, distance from the surplus credit markets of the northeast is important and, in this study at least, occupies the middle position of importance among the independent variables in both the new and existing house markets.

Third, risk differences, measured here by loan-value ratios, are important and particularly so in the new house market. The latter result is presumably another manifestation of the point noted above, that the new house market is less influenced by the availability of locally supplied funds. Thus such yield differences as exist in the case of mortgages secured by new houses are more apt to reflect true differences in risk characteristics such as loan-value ratios.

## IV. Conclusions

Bearing in mind the qualifications previously discussed that should be attached to our results, three main conclusions emerge from the study:

1. A substantial part of the total regional variation in mortgage yields is accounted for by three mortgage characteristics. These are the distance of the borrower from the northeastern capital markets, the risk of mortgage default, and the relative intensity of local demands for local savings. Neither mortgage market structure nor simple differences in the amount of local savings appear to have much effect.

2. The importance of the relative intensity of local demand for local savings shows up as having a much greater effect in the existing house market than in the new house market. Conversely, mortgage risk differences play a more important role in the new house market than in the existing house market.

3. Our finding that loan-value ratios have a major effect on mortgage yield variations offers new perspective on the traditional view of chronic regional credit shortages resulting from a highly imperfect mortgage market. Loan-value ratio is a risk characteristic and differences in it represent differences in the investment quality of the mortgage. Thus yield variations due to loan-value ratios are not a product of market imperfections and would remain even if mortgage funds were perfectly mobile and mortgage investors were perfectly informed.

If the results of this study portray the true situation, it follows that a major share of the total amount of regional mortgage yield variation, particularly in new construction, is not a manifestation of an imperfect mortgage market. Nor does it signify a misallocation of mortgage funds. Rather, it is a manifestion of a necessary allocative device whereby a higher-risk borrower may secure credit by agreeing to pay a higher price.