federal reserve
bank
of cleveland

ECONOMIC REVIEW

june/july 1972

IN THIS ISSUE

WHAT HAPPENS WHEN THE UNEMPLOYMENT RATE CHANGES?

Robert A. McMillan

Would a four percent rate of unemployment today indicate the same labor market conditions as it did ten years ago? What about future years? The answers to these questions have important implications for the nation's policy makers who are responsible for making decisions for the present and establishing goals for the future.

This article reports on a study of the relationships between the aggregate unemployment rate and the unemployment rates of various labor market components. The existence of stable, predictable relationships would obviously permit a greater understanding of the consequences of a change in a given unemployment rate by defining the groups who would be affected and the extent to which they would be affected.

The first step of the analysis made use of statistical techniques to establish the degree to which a given overall unemployment rate is associated with the unemployment rates of specific labor market components. Historical series for 26 labor markets representing age-sex, race, industrial, and occupational classifications were used in the computations. The results indicate that significant statistical relationships do exist between the aggregate unemployment rate and the component rates. For example, it is possible to estimate the effect of a decrease from a 5 to a 4 percent unemployment rate on the unemployment rates of workers in wholesale and retail trade.

The results also indicate a change in the structure of unemployment over time and that some groups would be more seriously affected by changes in the overall unemployment rate now than in the past. It is possible to identify these groups and their potential unemployment rates at a given aggregate rate.

In addition to exploring the relationship between the unemployment rate and the component rates, this study examined the implications of changes in the overall rate in terms of how many people are affected, for how long, and why. In general, it was found that high rates of unemployment imply an extended duration of unemployment, more people experiencing some unemployment, and a higher proportion of job losers among the unemployed.

While there seems to be a consensus that the present level of unemployment is higher than optimal, there is no consensus over an appropriate unemployment rate.[1] The importance that policy makers attach to the attainment of alternative, and often conflicting, goals such as price stability and full employment differs. In addition, the problem of choosing appropriate unemployment targets is compounded by compositional changes in the labor force over the past decade. These changes have led some observers to suggest that an upward revision in the unemployment goal is appropriate.

Before a meaningful choice of an aggregate unemployment goal can be made, some questions must be answered about the composition of unemployment under varying labor market conditions. It must be determined if the same unemployment rate in two different periods implies two widely divergent sets of labor market conditions, and if the difference between two unemployment rates, for example, 4 and 5 percent, is only one of scale or if it also represents major changes in the composition of unemployment.

The purpose of this study is to determine the implications of the overall unemployment rate on individual labor markets and to answer questions such as: Does a movement in the aggregate rate of unemployment from 5 to 4 percent have a disproportionate impact on unemployment rates of various labor market subgroups, such as blue-collar workers, teenagers, construction workers, and nonwhites? Does a 5 percent aggregate rate imply a different composition of unemployment today than a decade ago? Who is affected and how are they affected?

THE NATURE OF UNEMPLOYMENT RELATIONSHIPS

It would be impossible to draw systematic conclusions about the composition of unemployment if individual labor markets responded erratically relative to changes in the overall rate of unemployment. Therefore, it is important to establish whether or not consistent, reasonably stable relationships exist between individual subgroup unemployment rates and the aggregate unemployment rate.[2] The technique of linear regression was used to examine the relationship between the overall rate of unemployment in the United States, as measured by the Bureau of Labor Statistics, and unemployment rates of selected labor market groups. Quarterly unemployment data representing 26 age-sex, industrial, race, and occupational classifications and extending as far

[1] A 4 percent "interim" unemployment goal gained wide acceptance after it was first officially proposed in 1962 by the Council of Economic Advisors. Recently, the Joint Economic Committee of Congress advocated a 4 percent rate as an "interim" goal and a 3 percent rate as a long-term goal. See U. S., Congress, Joint Economic Committee, *1972 Joint Economic Report,* (Washington, D. C.: Government Printing Office, 1972). Others have stated that a 4 percent unemployment rate is a "myth" as a peacetime norm and that pushing the unemployment rate significantly below 5 percent by monetary and fiscal policy alone is no longer possible without adding significantly to inflationary pressures. See *Wall Street Journal,* January 21, 1972, p. 26.

[2] This study focuses exclusively on the composition of unemployment. Other important aspects of unemployment are the effect of changes in unemployment on labor force participation and hours worked. At high rates of unemployment, persons might become "discouraged" after a period of searching for a job and leave the labor force, and many workers might involuntarily work less than full time. For example, see this author, "Discouraged Workers and the Unemployment Rate," *Economic Commentary,* Federal Reserve Bank of Cleveland, March 27, 1972; Michael L. Wachter, "A Labor Supply Model for Secondary Workers," *Review of Economics and Statistics,* May 1972; and Claire Hodge and James Wetzel, "Short Workweeks and Underemployment," *Monthly Labor Review,* September 1967.

back as 1948 were used in the regressions.[3] The results of these regressions and a discussion of some of the technical details are in the Statistical Appendix.

All 26 equations are highly significant and indicate a close relationship between the aggregate rate of unemployment and the rates of the various subgroups.[4] The high R^2's in most of the equations indicate that the regression equations explain by far the bulk of movements in the unemployment rate of the groups. For example, the R^2 of .95 in the regression for white-collar workers indicates that 95 percent of the variation in their unemployment rate is explained statistically by the aggregate unemployment rate and time trend.

Moreover, a highly stable and predictable relationship is indicated between the aggregate unemployment rate and rates in manufacturing, wholesale and retail trade, and the services. In the mining and government wage and salary groups, the relationship is not as strong as for the other groups. Only 39 percent of the variation in the unemployment rate of mining workers and 42 percent of the variation in the unemployment rate of government workers can be explained by the regression equations. Government employment is not as responsive to changes in economic conditions as employment in most private industries. Demand for some types of government services, such as police and fire protection, has little relationship to overall economic conditions; demand for other government services may even expand and require more workers during economic contractions than during expansions.

Also, both white and nonwhite groups show a highly predictable relationship to the overall unemployment rate. Ninety-seven percent of the white group's unemployment rate and 84 percent of the nonwhite group's rate could be explained by the equations. However, the standard errors of estimate indicate that the unemployment rate for whites conforms more closely with the overall rate than the rate for nonwhites.

Finally, unemployment rates for selected occupational groups are closely associated with the overall unemployment rate. The unemployment rate of the sales workers group showed the least association with the aggregate rate, although the bulk of the variations in the unemployment rate for this group can be explained by the regressions.

IS UNEMPLOYMENT MORE CONCENTRATED?

Many economists have been concerned about the changing composition of the labor force and its implications for the composition and level of aggregate unemployment.[5] Unless structural changes in the composition of unemployment are

[3] Unemployment data are compiled by the U. S. Department of Labor, Bureau of Labor Statistics from the monthly *Current Population Survey* of approximately 50,000 households.

[4] Even though the periods selected are different, these results are similar to those derived in Paul M. Ryscavage, "Impact of Higher Unemployment on Major Labor Force Groups," *Monthly Labor Review,* March 1970. Also see, Joint Economic Committee, *Higher Unemployment Rates, 1957-1960: Structural Transformation or Inadequate Demand,* Washington, D. C., 1961.

[5] For a discussion of the problems of changing labor composition see G. L. Perry, "Changing Labor Markets and Inflation," *Brooking Papers on Economic Activity,* 3, 1970, pp. 411-441; Robert A. Gordon, "Has Structural Unemployment Worsened," *Industrial Relations,* May 1964, pp. 53-77; Richard G. Lipsey, "Structural and Deficient-Demand Unemployment Reconsidered," *Employment Policy and the Labor Market,* ed. Arthur M. Ross (Berkeley: University of California Press, 1965), pp. 210-255; and, Robert M. Solow, *The Nature and Sources of Unemployment in the United States* (Stockholm: Almquist and Wicksell, 1964).

taken into consideration, an estimated relationship between the aggregate unemployment rate and the rates for individual labor market groups would not be very accurate as a predictive tool. A time trend variable, therefore, was included in the regression equations to determine if a given aggregate rate implies different group rates at different points in time.[6]

Results of the regressions show an improvement (decrease) over time in the adult male unemployment rate that is associated with any specific aggregate rate (see Statistical Appendix for regression results and an interpretation of the time variable in the regressions). For the adult female group, there is no indication of a change in the unemployment rate associated with a given aggregate rate. The teenage unemployment rate associated with a specific overall rate, however, shows a dramatic worsening (increase) over time. For example, over the last decade, the teenage unemployment rate associated with a given aggregate rate increased over 2 percentage points. This is most likely a result of the tremendous increase in the number of teenagers in the labor force since the late 1950's and a somewhat smaller expansion of job opportunities for this group.[7]

With respect to industrial classifications, the regressions indicate an increase in the unemployment rates for finance, insurance, and real estate workers, relative to a given overall rate (in part because of rapid increases in the number of women searching for jobs in that industry; no discernible trend for trade and government workers; and a decrease for most other groups.

No major change is indicated in the unemployment rate for whites relative to the aggregate rate. The rate for nonwhites, however, shows some improvement (decrease). Apparently, both demand (a more enlightened populace, antidiscrimination laws, etc.) and supply (for example, more education) considerations have favorably affected nonwhite employment. This may explain why rates for nonwhites that are associated with a specific aggregate rate are somewhat lower today than a decade ago.

The regressions indicate that unemployment has become less concentrated among blue-collar workers and more concentrated among white-collar workers. In particular, professional and technical workers and clerical workers experience somewhat higher rates of unemployment at specific aggregate rates now than in the past. This may reflect some difficulties in absorbing the increasing supply of workers with more training and education in the labor market, as well as a slackened demand, particularly in defense and space industries. At the same time, unemployment among craftsmen and foremen and laborers has been moderating relative to the aggregate unemployment rate.

IMPLICATIONS OF CHANGES IN RATES OF UNEMPLOYMENT

The regression equations discussed in the preceding sections have established that stable and predictable relationships exist between the overall unemployment rate and the rates for labor market groups as defined by age, sex, industry, race and occupation. It was also established that the composition of unemployment associated with a

[6] The time trend variable tells whether or not a particular aggregate rate today implies a different, perhaps higher rate (if the coefficient is positive), for a group than the same rate did at some previous point in time.

[7] Between 1960 and 1971, the number of teenagers in the labor force increased from 4.8 million to 7.4 million. This represented an increase of 54 percent compared with only a 21 percent increase in the total civilian labor force.

TABLE I

Projected Group Unemployment Rates at Selected Aggregate Rates of Unemployment

	Projected Rates			
	Based on 5.0% Aggregate Rate for I Q 1973	Based on 4.0% Aggregate Rate for I Q 1974	Point Change	Percent Change
Age-Sex				
1 Both sexes 16-19	16.7%	15.2%	1.5	−9.6%
2 Males 20 and over	3.7	2.7	1.0	−28.0
3 Females 20 and over	4.8	4.0	0.8	−16.3
Industries				
4 Nonagricultural goods production	5.5	3.7	1.8	−31.8
5 Mining	4.7	2.2	2.5	−52.6
6 Construction	9.6	7.3	2.3	−24.3
7 Manufacturing	5.4	3.8	1.6	−29.6
8 Durables	5.3	3.4	1.9	−36.1
9 Nondurables	4.5	3.3	1.2	−26.2
10 Service industries	4.9	4.1	0.8	−17.5
11 Transportation and public utilities	2.9	1.8	1.1	−39.2
12 Trade	5.4	4.4	1.0	−17.2
13 Finance, insurance and real estate	3.0	2.8	0.2	−9.2
14 Government	2.3	1.9	0.4	−14.9
Race				
15 Whites	4.4	3.5	0.9	−20.6
16 Nonwhites	8.4	6.8	1.6	−19.7
Occupations				
17 White collar	3.4	3.0	0.4	−13.0
18 Professional and techinical	2.4	2.0	0.4	−16.5
19 Managers, officials and proprietors	1.2	0.9	0.3	−23.0
20 Clerical	4.4	3.8	0.6	−14.1
21 Sales	3.5	3.0	0.5	−15.8
22 Blue collar	5.6	3.9	1.7	−30.7
23 Craftsmem and foremen	3.5	2.3	1.2	−35.1
24 Operatives	7.1	5.3	1.8	−25.5
25 Nonfarm laborers	8.9	6.7	2.2	−24.9
26 Service	5.1	4.3	0.8	−16.0

Source: Federal Reserve Bank of Cleveland

specific overall rate of unemployment today differs from that which accompanied the *same* overall rate in the past; that is, unemployment is more concentrated in certain labor markets today than it was formerly, and less concentrated in others. This section deals with the composition of unemployment at a *given* overall rate and the effect of changes in the aggregate rate.

Who Is Affected by a Given Unemployment Rate? The implications of given aggregate unemployment rates for the various labor force groups can be seen from the data presented in Table I.

Some groups, such as teenagers, construction workers, laborers, and nonwhites, have higher than average unemployment rates, no matter what the aggregate unemployment rate is. Other groups, such as adult males and professional and technical workers, have lower than average rates. For example, the distribution of unemployment based on a hypothetical 5.0 percent aggregate rate for the first quarter of 1973 shows a 16.7 percent rate for teenagers, which is more than three times the aggregate rate. Among industries, unemployment rates for workers in durable goods and trade are somewhat above the 5 percent aggregate rate, while the rate for construction workers is nearly twice the overall rate. Conversely, the rates for government workers and professional and technical workers are less than one-half the overall rate.

Who is Affected by a Change in the Unemployment Rate? The effects of changes in the overall unemployment rate on individual labor markets can be examined using the regression results. For example, the hypothetical case in Table I presents the projected distribution of unemployment at an assumed overall unemployment rate of 5.0 percent in the first quarter of 1973 and the distribution if the unemployment rate were reduced to 4.0 percent by the first quarter of 1974.[8] The table shows that such a reduction would have different impacts on the various labor market groups. For example, such a change (20 percent) in the overall unemployment rate would entail about a 28 percent reduction in the unemployment rate of adult males compared with reductions of 10 percent and 16 percent for teens and adult females, respectively. While the percentage reduction in the adult male unemployment rate is much larger than the reduction in the rate for teenagers, the *point change* in the rate for teenagers is somewhat larger than the change in the adult male rate (1.5 compared with 1.0). The difference in the two measures occurs because the average unemployment rate for teenagers is so much higher than the adult male rate that the same percentage change translates into a higher *point change.* A change from 5 percent to 4 percent in the aggregate unemployment rate would imply approximately a 20 percent reduction for both the white and nonwhite groups, but the point change for nonwhites would be almost twice as large as the change for whites.

Among the broad occupational groupings, blue-collar workers benefit much more than white-collar workers by a reduction in the overall unemployment rate, as indicated by both measures of change. Likewise, by both measures, government and the finance, insurance and real estate groups benefit less from a reduction in the overall rate than the construction and manufacturing group. Of course, it should be pointed out that these equations imply that the groups benefiting the most from a reduction in unemployment are also hurt the most by an increase.

HOW ARE THE UNEMPLOYED AFFECTED?

A change in the overall unemployment rate implies changes not only in the specific groups experiencing unemployment, but also in the number of people who are unemployed, the number of weeks they are unemployed, and the reasons for their unemployment. These aspects of unemployment are examined in the remaining sections of this article. Although in many cases, data are limited (for example, data series on reasons for unemployment are available for only

[8] These dates were selected for purposes of exposition and do not represent a projection of unemployment rates for these periods.

TABLE II

Average Unemployment, Total Number of Individuals with Unemployment, and Average Weeks of Unemployment per Person Experiencing Unemployment 1957-1970

	Unemployment Rate	Average Number Unemployed	Total Number Unemployed During Year	Average Weeks of Unemployment—Total During Year
1957	4.3	2,859	11,423	13.0
1958	6.8	4,602	13,977	17.1
1959	5.5	3,740	11,994	16.2
1960	5.5	3,852	13,950	14.4
1961	6.7	4,714	14,898	16.5
1962	5.5	3,912	15,057	13.5
1963	5.7	4,071	14,010	15.1
1964	5.2	3,785	13,839	14.2
1965	4.5	3,365	12,131	14.4
1966	3.8	2,878	11,387	13.1
1967	3.8	2,977	11,564	13.4
1968	3.6	2,816	11,332	12.9
1969	3.5	2,832	11,744	12.5
1970	4.9	4,088	14,565	14.6

NOTE: Data refer to individuals 16 years and over; the figures for total individuals with unemployment before 1965 have been adjusted to exclude 14 and 15 year olds.

Sources: U. S. Department of Labor and Federal Reserve Bank of Cleveland

the last five years), they do permit some tentative conclusions. In general, it will be shown that rising rates of unemployment imply a lengthening in the duration of unemployment, a larger number of people experiencing some unemployment, and a higher proportion of job losers.

Numbers Experiencing Unemployment. During periods of rising unemployment, such as 1957-1958, 1960-1961, and 1969-1970, both the total number of people experiencing some unemployment and the average number of weeks they were unemployed increased (see Table II).[9] For example, when the unemployment rate increased from 3.5 percent in 1969 to 4.9 percent in 1970, it reflected a rise in the average number unemployed from 2.8 to 4.1 million persons. During the same period, the total number of people experiencing some unemployment rose from 11.7 to 14.6 million persons, while the average number of weeks that they were unemployed rose from 12.5 to 14.6. The same pattern is evident in other periods of rising unemployment, indicating that higher unemployment is reflected in both the number unemployed as well as the number of weeks unemployed.

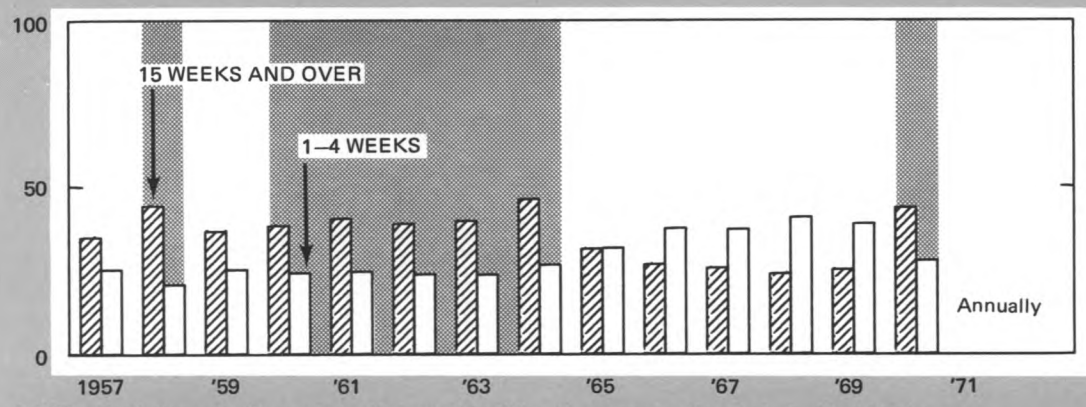
Time Spent in Unemployment. Disaggregation of data on "number of weeks unemployed" into Bureau of Labor Statistics' groupings of 1-4 weeks, 5-14 weeks, and 15 weeks and over shows that, at high unemployment rates, the number of people

[9] The number of unemployed can be looked at in two ways the average number unemployed at a point in time and the total number experiencing one or more periods of unemployment during a year. The total number of unemployed excludes those who did not work at least one week out of the year. The average number of weeks of unemployment refers to a total for a year, rather than the average length of any one period of unemployment.

CHART 1

DISTRIBUTION OF UNEMPLOYMENT BY TOTAL WEEKS OF UNEMPLOYMENT

Percent of Total Unemployment



NOTE: Shaded areas indicate years when over 11 million persons experienced some unemployment.
Last entry: 1970
Source: U. S. Department of Labor

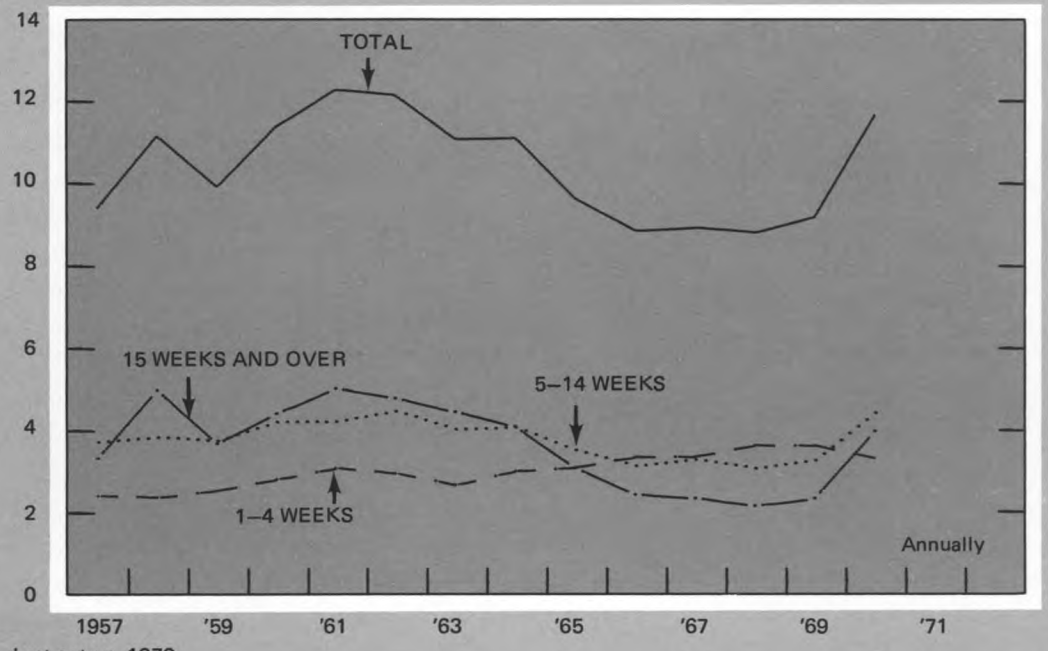
experiencing over 15 weeks unemployment within a year increases dramatically. In periods of high unemployment, such as 1958 and the early 1960's, the proportion of unemployed with less than 5 weeks of unemployment was low, while in periods of low unemployment, such as 1967-1969, the less-than-5-weeks group typically constituted a much larger share of the total with unemployment (see Chart 1). On the other hand, the group with unemployment over 15 weeks made up a much larger share of the total in high unemployment years and a smaller share in low unemployment years. The proportion of unemployed in the group with 5-14 weeks unemployment did not vary greatly in the period studied. Therefore, just as the composition of those who are unemployed at low and high unemployment rates can be identified, it is apparent from this analysis that the amount of time spent in unemployment at high and low rates can also be identified.

In addition to examining the *proportion* of total unemployed in the three categories, it is also important to look at the change in the *numbers* of unemployed by length of unemployment because the two measures may yield somewhat different conclusions. For example, a large change in the total number with unemployment could be spread among the categories in such a way as to leave the proportion the same, although the absolute numbers in each group increased appreciably. The number of individuals who experience 1-4 weeks of unemployment has been trending upward (see Chart 2). This probably reflects both a larger total workforce and increases in the number of women and teenagers in the workforce, as women and teenagers have a preponderance of short-term unemployment. Since 1957, there has been little correspondence between changes in the number

CHART 2

NUMBER OF PERSONS WITH UNEMPLOYMENT BY NUMBER OF WEEKS UNEMPLOYED

Millions of Persons



Last entry: 1970

Source: U. S. Department of Labor

experiencing unemployment and the number with 1-4 weeks of unemployment. Conversely, the number experiencing 15 weeks or more of unemployment has moved closely with the total unemployed. This suggests that high levels of unemployment involve a *substantially* greater number of weeks of unemployment for the unemployed than do low levels.[10]

[10] For a discussion of long-term unemployment see Susan S. Holland, "Long-Term Unemployment in the 1960's," *Monthly Labor Review,* September 1965, pp. 1069-1076; or Edward J. O'Boyle, "America's Less Fortunate: The Long-Duration Unemployed," *Monthly Labor Review,* April 1970, pp. 35-43.

Although the data are limited to the period since 1962, the adult male group appears to account for most of the shifts toward the 15-weeks-and-over unemployment category as the total number with unemployment rises and away from that category as total unemployment falls (see Table III). The adult female and teenage groups also contribute to the lengthening in the unemployment structure.

It should be noted that at any level of unemployment, teenagers with unemployment tend to be clustered in the 1-4 weeks group far more than adult men and considerably more than

TABLE III

Part-Year Workers* by Number of Weeks Unemployed
(Thousands of Workers and Percent Distribution)
1962-1970

Year	Total	1-4 Weeks	5-14 Weeks	15 Weeks and Over
16-19 Years Old				
1962	1,631	36.5%	31.7%	31.9%
1963	1,457	34.3	34.5	31.2
1964	1,682	39.0	30.7	30.2
1965	1,743	46.5	29.0	24.4
1966	1,720	51.3	27.7	21.0
1967	1,808	53.1	27.9	19.0
1968	1,877	53.0	26.9	20.2
1969	1,824	53.0	28.3	18.3
1970	1,915	38.5	32.4	29.0
Males 20 and Over				
1962	7,044	19.1	38.8	42.1
1963	6,308	19.7	38.4	41.9
1964	6,009	21.6	40.2	38.2
1965	4,945	24.9	39.9	35.2
1966	4,236	30.4	40.6	29.1
1967	4,239	29.4	42.1	28.5
1968	3,952	34.0	39.7	26.3
1969	4,353	31.5	40.9	27.6
1970	6,013	23.0	41.3	35.7
Females 20 and Over				
1962	3,467	28.7	34.3	37.0
1963	3,302	27.6	32.0	40.4
1964	3,471	30.5	32.4	37.1
1965	2,931	35.8	34.0	30.2
1966	2,888	40.9	30.8	28.3
1967	2,883	39.9	33.3	26.7
1968	2,968	43.6	32.0	24.4
1969	3,008	42.5	31.2	26.6
1970	3,736	31.6	34.4	34.0

* Worked at least one week during year.

Source: U. S. Department of Labor

adult women. In turn, unemployment of adult women is clustered in the 1-4 weeks group more than unemployment of adult men. Compared with the adult male unemployment group, the adult female group has about the same proportion in the 15-weeks-and-over unemployment category, but a far smaller proportion in the 5-14 weeks category.

Reasons for Unemployment. While there are many *explanations* for unemployment,[11] a comprehensive, regularly published series of data on the *reasons* for unemployment covers only the period since 1967. The data, however, do cover periods of tight and slack labor markets. Table IV shows the distribution of unemployment for 1967-1971 by reason for unemployment. Less than one-sixth of the average number unemployed in any of those years were people who were working but left their last job. Likewise, less than one-sixth of the unemployed were new entrants. Those who lost their last job made up the largest proportion of the unemployed, with reentrants the next largest group. When unemployment increased in 1970 and 1971, the number of persons who lost their last job increased dramatically as a proportion of the total unemployed.

Among the adult male group, loss of job was far and away the primary reason for unemployment. In the adult female group, job losers were also very important, although not to the extent that they were in the adult male group. In the teenage group, reentrants and entrants accounted for most of the unemployed.

[11] Some economists have suggested that high unemployment rates are predominately the result of increased frictions in the market; i.e., that individuals search longer for jobs, often as a result of imperfect information and unrealistic wage expectations. See for example, Armen A. Alchian, "Information Costs, Pricing, and Resource Unemployment," *Western Economic Journal,* June 1969, pp. 109-128. These authors treat much of the unemployment as a voluntary phenomenon. However, in times of high unemployment, declining quit rates and an increasing number of job losers cast doubt on frictional and voluntary unemployment as adequate explanations of the high unemployment rates.

TABLE IV

Unemployed Workers by Reasons for Unemployment
(Percent Distribution of Annual Averages)
1967-1971

	1967	1968	1969	1970	1971
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Lost last job	40.9	38.0	35.9	44.3	46.3
Left last job	14.6	15.3	15.4	13.4	11.8
Reentered labor force	31.4	32.3	34.1	30.0	29.4
New entrant	13.2	14.4	14.6	12.3	12.6
Males 20 years and over	100.0	100.0	100.0	100.0	100.0
Lost last job	63.9	60.3	57.7	65.1	66.3
Left last job	15.6	16.8	17.0	12.8	11.4
Reentered labor force	18.3	20.6	22.4	19.4	19.6
New entrant	2.4	2.2	2.8	2.7	2.7
Females 20 years and over	100.0	100.0	100.0	100.0	100.0
Lost last job	36.9	34.6	33.0	40.5	42.2
Left last job	16.5	17.0	16.8	15.9	14.2
Reentered labor force	41.7	42.8	44.8	39.3	39.3
New entrant	5.0	5.6	5.4	4.3	4.3
Both Sexes 16-19 years	100.0	100.0	100.0	100.0	100.0
Lost last job	17.6	15.5	14.8	18.1	18.5
Left last job	10.9	11.6	11.8	11.4	9.2
Reentered labor force	34.6	33.5	34.5	34.3	32.5
New entrant	36.9	39.3	38.8	36.3	39.8

Source: U. S. Department of Labor

From the data available, it appears that *rising* unemployment rates are closely associated with an increase in job losers among the unemployed. Even though the composition of unemployment by reason is different in the teenage, adult male, and adult female groups, there was a sizable increase in the proportion of job losers in all of these groups when unemployment rose between 1969-1971.

Based on data since 1968, job losers experienced longer duration unemployment than job leavers, new entrants, or reentrants (see Table V). In addition, when unemployment *increased,* not only did the number of job losers increase disproportionately to the other groups, but the amount of time spent in unemployment by job losers also increased disproportionately. For example, when unemployment increased by 1.9 million persons between 1969 and 1971, some 1.3 million were job losers. The percentage of job losers who were unemployed 15 weeks or more rose from 17.6% to 31.0%. Although the percentage of leavers, entrants, and reentrants with long-term unemployment also increased, the increase among these groups was not as dramatic.

TABLE V

Unemployment by Reason and Length
(Thousands of Workers and
Percent Distribution of Annual Averages)
1968-1971

	Total Unemployed	Less Than 5 Weeks	5-14 Weeks	15 Weeks and Over
Total Unemployed				
1968	2,817	56.6%	28.8%	14.6%
1969	2,831	57.5	29.2	13.2
1970	4,088	52.3	31.5	16.1
1971	4,993	44.7	31.6	23.7
Lost Last Job				
1968	1,070	49.4	31.4	19.2
1969	1,017	50.6	31.8	17.6
1970	1,809	44.6	34.7	20.7
1971	2,313	36.3	32.7	31.0
Left Last Job				
1968	431	59.6	26.0	14.4
1969	436	60.6	27.8	11.7
1970	549	57.3	28.5	14.3
1971	587	46.3	32.5	21.2
Reentered Labor Force				
1968	909	61.9	27.4	10.7
1969	965	62.3	26.4	11.3
1970	1,227	59.4	28.6	12.0
1971	1,466	54.2	29.5	16.3
Never Worked Before				
1968	407	60.7	27.8	11.6
1969	413	60.3	30.8	8.9
1970	503	57.1	30.4	12.5
1971	627	52.2	31.6	16.3

Source: U. S. Department of Labor

SUMMARY AND CONCLUSIONS

This study concludes that there are identifiable and reasonably stable relationships between the overall unemployment rate and rates for individual labor markets. As a result, the impact of various aggregate unemployment rates on individual labor market groups can be estimated, and the groups who are affected the most by a *change* in the aggregate rate can be ascertained. It was also found:

(1) A specific aggregate rate of unemployment today implies a different composition of unemployment than the same rate, say, a decade ago, with respect to the age, sex, race, occupation, and industry makeup of the unemployed.

(2) A high aggregate rate of unemployment at a point in time implies a different distribution of unemployment than a low rate. Also, an increase or decrease in aggregate unemployment has an uneven impact on the various labor market groups. For example, in relative terms, adult males, blue-collar workers, and manufacturing workers are disproportionately affected by changes in aggregate unemployment.

(3) Different overall rates of unemployment are associated with differences in the way the unemployed are affected. At higher average rates of unemployment, *both* a larger number of people are affected *and* the number of weeks of unemployment are greater. Moreover, the proportion of those with long-term unemployment rises, while the proportion of those with short-term unemployment falls. Finally, the reasons for unemployment differ. For example, at high rates of unemployment, job losers represent a much larger proportion of the unemployed than at low rates.

The implications of these findings suggest that the consequences of specific aggregate unemployment targets on various labor market groups in terms of length, amount, and distribution of unemployment can be predicted with a reasonable degree of certainty. However, it is important to note that the difference between alternative aggregate unemployment rates is not simply a matter of scale.

STATISTICAL APPENDIX

This Appendix reports the results of regressions that examine the relationship between the aggregate unemployment rate and the unemployment rate of various labor market groups. In each case, the dependent variable is the unemployment rate of various labor market groups, classified by age, sex, race, industry, and occupation. Each equation has two independent variables—the aggregate rate of unemployment and a time trend. The regression equations for age, sex, and industry employ quarterly data from the first quarter of 1948 through the first quarter of 1972. The regressions for unemployment rates by race use data for the period first quarter of 1954 through first quarter 1972, and the occupational data cover the first quarter of 1958 through the first quarter of 1972. The time periods for race and occupation were shorter because data for earlier years are not available.

Some serial correlation appears in various original regressions. The results reported in the Table are adjusted for serial correlation through the Cochran-Orcutt transformation. In no case was more than one iteration required, and there were no substantial changes introduced in the coefficients by this process.

The coefficient on the aggregate rate of unemployment in each regression shows the association between movements in the aggregate rate and movements in individual market unemployment rates. For example, the coefficient of .99 in the "males 20 and over" regression indicates that a movement of one percentage point in the aggregate rate is associated with a .99 percentage point change in the unemployment rate of adult males. The coefficient on the time variable measures whether or not unemployment is becoming increasingly concentrated among various labor market groups. As an example, the coefficient of .056 on the time variable in the regression for teenage group indicates that for a *given* aggregate rate of unemployment in any quarter, the teenage rate will be .056 of a percentage point higher than it would have been the previous quarter given the same aggregate rate.

A simple test was constructed to determine if there is a different relationship between the aggregate unemployment rate and the rate for various individual groups at high levels of unemployment from the relationship at low levels. If this were the case, a regression model in which the aggregate unemployment rate was entered linearly would be a biased, inefficient tool in forecasting the composition of the labor force at various aggregate unemployment rates. In order to test for this possible source of bias, the regressions were run again with the data reordered according to size of the aggregate unemployment rate. A careful check of the Durbin-Watson statistic and the pattern of residuals was then made to determine if the equations were misspecified. In no case was the Durbin-Watson statistic less than 1.39, and in most cases it was 1.80 or higher, indicating that "serial" correlation (which here would imply a systematic relationship other than a linear one between aggregate unemployment and the dependent variable) was not a problem. However, it should be noted, that at high aggregate rates, there was some tendency to overestimate the teenage rate and to underestimate the white-collar rate. At low aggregate rates, the regression tended to *underestimate* the manufacturing rate and to *overestimate* the construction rate. To repeat, none of these groups exhibit behavior that would make it necessary to estimate different equations at different aggregate unemployment rates, and corrections can readily be made for the small biases discussed.

Regression Results of Relationships Between Unemployment Rates of Individual Labor Market Groups and the Aggregate Unemployment Rate
Selected Time Periods By Quarters

	Dependent Variable Unemployment Rate	Constant	Aggregate Unemployment Rate	Time Variable	Adjusted R^2	F Test	Durbin-Watson	Standard Error of Estimate
Age-Sex 1948 I - 1972 I								
1	Both sexes 16-19	1.54	1.85 (17.50)	0.056 (9.59)	.82	212.80	2.02	.59
2	Males 20 and over	−0.27	0.99 (44.85)	−0.013 (−10.03)	.96	1030.15	2.17	.12
3	Females 20 and over	0.89	0.78 (26.87)	0.001 (0.57)	.89	365.00	2.09	.19
Industries 1948 I - 1972 I								
4	Nonagricultural goods producing wage and salary	−0.82	1.66 (33.37)	−0.019 (−4.44)	.92	561.15	2.08	.23
5	Mining wage and salary	−1.59	2.25 (7.29)	−0.052 (−3.40)	.39	30.74	2.20	2.01
6	Construction wage and salary	1.55	2.21 (17.13)	−0.028 (−4.21)	.76	151.19	1.99	.79
7	Manufacturing wage and salary	−1.41	1.57 (26.41)	−0.015 (−2.82)	.88	350.04	2.09	.28
8	Durables wage and salary	−3.11	1.89 (21.00)	−0.014 (−1.76)	.82	220.97	2.06	.42
9	Nondurables wage and salary	1.01	1.09 (21.20)	−0.015 (−5.92)	.83	234.40	2.07	.33
10*	Service producing industries wage and salary	0.62	0.86 (25.76)	−0.004 (−2.85)	.87	331.97	1.85	.38
11	Transportation and public utilities wage and salary	−0.37	1.05 (16.51)	−0.020 (−6.82)	.76	151.70	2.06	.50
12	Trade wage and salary	0.76	0.92 (26.01)	0.001 (.61)	.88	341.56	2.03	.26
13*	Finance, insurance and real estate	0.43	0.32 (11.93)	0.008 (7.19)	.69	106.28	1.79	.31
14	Government wage and salary	0.58	0.34 (8.28)	−0.001 (−0.55)	.42	34.30	2.01	.23
Race 1954 I - 1972 I								
15	White workers	−0.13	0.91 (70.39)	0.001 (1.43)	.97	2535.83	2.24	.07
16	Nonwhite workers	2.07	1.58 (18.31)	−0.017 (−3.07)	.84	182.39	2.01	.35
Occupations 1958 I - 1972 I								
17*	White collar	−0.43	0.52 (32.56)	0.015 (13.80)	.95	539.51	1.61	.11
18	Professional and technical	−1.20	0.47 (13.25)	0.020 (8.01)	.77	88.85	1.86	.17
19*	Managers, officials and proprietors	−0.18	0.28 (16.20)	0.003 (2.30)	.86	167.40	1.83	.12
20*	Clerical	−0.33	0.70 (25.46)	0.018 (9.69)	.93	341.76	1.67	.18
21	Sales workers	0.74	0.56 (8.70)	0.005 (0.92)	.63	46.68	2.03	.32
22	Blue collar workers	−1.38	1.64 (23.26)	−0.015 (−2.48)	.92	320.29	1.91	.22
23	Craftsmen and foremen	−1.03	1.15 (23.20)	−0.020 (−5.73)	.95	494.91	1.90	.27
24	Operatives	−2.77	1.86 (17.55)	0.005 (0.48)	.86	166.69	2.01	.33
25	Nonfarm laborers	1.87	2.02 (20.63)	−0.053 (−7.70)	.94	451.15	2.07	.51
26	Service workers	1.85	0.78 (14.07)	−0.005 (−1.30)	.83	135.79	1.84	.24

NOTE: Figures in Parentheses are t-values.

* Not reestimated.

Source: Federal Reserve Bank of Cleveland

DEFINING THE PRODUCT MARKET IN COMMERCIAL BANKING

Joel M. Yesley

The products or services provided by commercial banks and the markets in which these products are merchandised are viewed in two ways. Under one concept, commercial bank services are considered to complement each other to such a degree that banks operate within a narrow product market–competing only with other banks. The other concept holds that commercial bank services can be considered on an individual basis and that banks operate in a broad product market–competing with banks and other financial insititutions.

This article examines these opposing viewpoints in academic literature, court decisions, and statistical studies. Most of the theoretical and statistical work has supported the broad market concept. The Supreme Court decisions, however, have favored the narrow market concept.

The similarity of financial services provided by nonbank financial institutions and by commercial banks has stimulated a considerable amount of controversy among economists, bankers, administrators of banking regulations, and courts regarding the institutional scope of the product markets in which banks operate. Most are of the opinion that the similarities among the individual services provided by these two general types of institutions–with only a few exceptions such as checking accounts–place them in direct competition with each other. Others, however, hold a considerably narrower view of the scope of the product market in commercial banking. This group contends that banks sell their services in "packages" rather than individually and, in effect, produce a single composite product that cannot be duplicated by other types of institutions. Furthermore, in this view, customers are limited to banks if they wish to satisfy all their financial needs at one institution. Therefore, nonbank financial institutions, which generally provide only one or two basic deposit or loan products, are not able to compete effectively with banks.

The definition of the product market is a central issue in determining the competitive significance of structural changes in banking markets caused by the entry of new institutions and mergers of existing ones. Those who regard banks as multiple product firms that compete in several product markets attach less significance to the loss of an independent bank in a specific geographic market because of a merger than adherents of the narrow product market concept. The latter group, by excluding the products of nonbank financial institutions from consideration,

would regard a bank merger as contributing to a greater concentration of financial resources in a given market area.

The report of the Hunt Commission, which was made public in December 1971,[1] has generated considerable interest and discussion regarding the degree of competition among the various types of depository financial institutions (commercial banks, savings and loan associations, mutual savings banks, and credit unions). The Commission recommended that these financial institutions be permitted to provide a wider range of financial services and that all depository institutions be subject to the same reserve requirements, tax treatment, and interest rate regulations. The primary aim of the Report is to improve the efficiency of the financial system by eliminating differences in regulations that may have inhibited open competition among depository institutions. Implementation of these recommendations would pave the way for a considerably more homogeneous financial structure and significantly enlarge the institutional scope of the product market in commercial banking.

This article reviews the development of the controversy concerning the product market in commercial banking in both economic literature and in the courts. In the absence of a universally accepted body of economic theory on this vital issue, courts have been left to define the business of banking. As will be illustrated in this article, decisions between the lower courts and the Supreme Court have frequently differed. A number of recent empirical studies that have analyzed the significance of various influences on the demands for the assets of depository institutions are also briefly reviewed. The article concludes with a discussion of possible areas for further research that should be useful in appraising changes in banking structure.

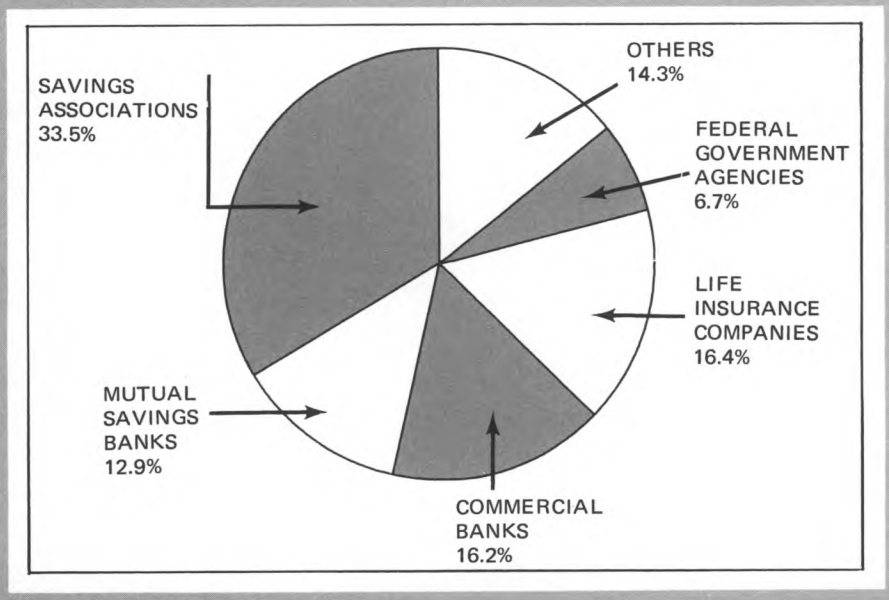
NATURE AND RECENT GROWTH OF FINANCIAL INSTITUTIONS

Nature. Financial intermediaries channel funds from savers to borrowers by purchasing primary securities (debt or equity instruments of nonfinancial institutions) with funds obtained from depositors. These intermediaries can be divided into two broad classifications: commercial banks and nonbank financial institutions. The latter category includes depository institutions such as savings and loan associations, mutual savings banks and credit unions, as well as life insurance companies, investment companies, and finance companies. The major difference between these two types of intermediaries is in the form of debt that each creates. Commercial banks substitute money (deposits and currency) for primary securities, whereas nonbank financial institutions create various forms of nonmonetary claims on themselves, such as savings deposits, shares, equities, and other assets. In addition, commercial banks administer the national payments mechanism by transferring deposit credits among spending units.

The assets and liabilities of commercial banks are, in general, considerably broader than those of nonbank financial institutions. Commercial banks generally receive short- and intermediate-term deposits (ranging from balances in checking accounts payable on demand up to certificates of deposit with wide-ranging maturities) from individuals and all forms of governmental and business organizations, and they supply funds of varying maturities to an equally diverse group of

[1] Hunt Commission, *The Report of the Presidents Commission on Financial Structure and Regulation* (Washington, D. C.: Government Printing Office, 1971).

DISTRIBUTION OF MORTGAGES BY SOURCE OF LENDING 1970



Source: U. S. Savings and Loan League

borrowers in a number of forms (e.g., rediscounts, term loans, instalment loans). In addition, banks provide a number of specialized services, such as trust facilities and safe deposit boxes.

Other types of depository institutions, however, receive the bulk of their funds from households. The purchases made by nonbank financial institutions, including those that do not accept deposits, are usually concentrated in one type of liquid asset. Credit unions, which concentrate their assets in consumer loans to members, and investment companies (e.g., mutual funds), which concentrate in corporate equities, are the most specialized types of nonbank intermediaries. Savings and loan associations, which accept funds that may generally be withdrawn without notice, are the next most specialized institutions because of legal restrictions limiting them to the financing of residential structures. As of yearend 1970, savings and loan associations had allocated just over 85 percent of their total assets to mortgage loans and accounted for one-third of the total credit extended to the mortgage markets (see Chart 1). Mutual savings banks, which are nonprofit thrift organizations operated solely for the benefit of depositors, also allocate most of their total assets (73 percent as of yearend 1970) to residential mortgages.

Specialization of assets is least pronounced for finance and life insurance companies. There are two types of finance companies: sales finance and consumer finance or small loan companies. Sales finance companies make loans, generally on a short- or intermediate-term basis, for the purchase of durable and capital goods by individuals and businesses. Consumer finance companies lend only

TABLE I

Total Assets of Financial Intermediaries
1950-1970
(Billions of Dollars, Percent Distribution and Growth Rates)

Intermediary	1950		1960		1970		Growth Rates 1950-1960	Growth Rates 1960-1970
Commercial banks	$149.9	54.1%	$230.9	41.0%	$516.9	40.9%	4.4%	8.4%
Savings and loan associations	16.9	6.1	71.5	12.7	176.2	13.9	15.5	9.4
Mutual savings banks	22.4	8.1	40.6	7.2	79.0	6.2	6.1	6.9
Credit unions	0.9	0.3	5.0	0.9	15.4	1.2	18.7	11.9
Life insurance companies	62.6	22.6	115.9	20.6	200.5	15.9	6.4	5.6
Private pension funds	6.7	2.4	38.2	6.8	110.8	8.7	19.0	11.2
State and local government pension funds	5.0	1.8	19.6	3.5	58.0	4.6	14.6	11.5
Finance companies	9.3	3.4	24.1	4.3	60.4	4.8	10.0	9.6
Open-end investment companies	3.3	1.2	17.0	3.0	47.6	3.8	17.8	10.9
TOTAL	$277.0	100.0%	$562.8	100.0%	$1,264.8	100.0%	7.4%	8.4%

Source: Board of Governors of the Federal Reserve System, Flow of Funds Account

to individuals for a wide range of purposes, including the purchase of goods and services. Both types of finance companies acquire funds by issuing commercial paper and long-term bonds and by borrowing short-term from banks. Life insurance companies accumulate funds from premium payments and issuing stock, and they invest primarily in corporate and government bonds.

Growth. The total assets of all financial intermediaries have increased fivefold since World War II. Commercial banks, however, have shared considerably less in this growth than other types of financial intermediaries. For example, between 1950 and 1960, the assets of commercial banks grew at an average annual rate of 4.4 percent, which is well below the growth rate of other types of financial institutions (see Table I). Over the past decade, the growth of commercial bank assets accelerated to an 8.4 percent annual rate, the average growth rate for all financial institutions over this period. Most nonbank financial institutions, however, still grew at significantly faster rates. In 1950, about 54 percent of the total assets of financial intermediaries was accounted for by commercial banks (see Table I). By 1960, this share had declined to 41 percent and has remained fairly stable since then. A substantial part of the decline was caused by the growth of other financial intermediaries, particularly savings and loan associations and life insurance companies. Regulatory restrictions on commercial banks and a shift in public preferences away from demand deposits and business loans toward interest-bearing liquid assets and consumer and mortgage loans have been cited as the major causes of this uneven growth.[2]

[2] Jules Backman and Arnold W. Sametz, "Workable Competition in Banking," *The Bulletin of the C. J. Devine Institute of Finance,* New York University, No. 22 (November 1962), p. 30.

ECONOMIC THEORY AND BANKING MARKETS

The question of what constitutes the product market in commercial banking has received a considerable amount of attention in the literature on banking structure.[3] Economists generally agree that nonbank financial institutions are collectively able to produce close substitutes for the individual financial services provided by commercial banks, with the major exception of checking accounts. However, the concept of the bank as a multiple product firm competing in several markets with various nonbank institutions is not universally accepted.

The Bank as a Single Product Firm. Donald Hodgman is the major advocate of the single product market concept of commercial banking. His theoretical model of the banking firm emphasizes relationships of complementarity or interdependency among financial services provided by commercial banks.[4] Individual banks encourage deposit retention by assuring deposit customers of immediate loan accommodation and favorable terms. Hodgman uses the term "customer relationship" to describe the high degree of complementarity between deposits, loans, and other financial services, such as trust administration, payroll preparation, account collection and investment counsel.

He asserts that the prevailing concept of the relevant product market in literature pertaining to bank regulation is developed primarily around the lending and investing activities of commercial banks, rather than the input or deposit market. Hodgman argues that this popular conception of the bank as an institutional investor, maximizing the interest return available from a wide range of lending and investing alternatives carrying acceptable risks, is misleading. In Hodgman's opinion, this view, which supports the multiple product concept, ignores the dependence of deposits and loans upon the provision of banking services.

He refers to two widespread practices in banking that cannot be explained by the prevailing concept. One is nonprice credit rationing, which is frequently adopted by banks in periods of credit restraint. Banks usually cite a responsibility to long-term deposit customers when declining loan requests from nondepositors instead of quoting unrealistically high rates. This preference for depositors is based on the contribution of service

[3] This question also has important implications in the area of monetary policy. John G. Gurley and Edward S. Shaw assert that control over the stock of money as narrowly defined (currency in circulation plus demand deposits at commercial banks) is not sufficient to stabilize the economy since consumer expenditures are determined by the total stock of liquid assets including those held at nonbank intermediaries. Since they regard these institutions as direct competitors of banks, they question the effectiveness of monetary policy, especially in inflationary times when depositors at commercial banks are likely to shift funds into nonbank financial institutions for higher returns. This increases the lending ability of those institutions at a time when monetary policy is attempting to restrict bank loans. See Gurley and Shaw, "Financial Intermediaries and the Saving-Investment Process," *Journal of Finance,* May 1956 and *Money in Theory of Finance* (Washington, D. C.: The Brookings Institution, 1960). On the other hand, Milton Friedman has adopted a considerably narrower view of the product market in commercial banking, asserting that neither mutual savings bank deposits nor savings and loan shares are very close substitutes for time deposits at commercial banks. This conclusion is based mainly on observations of patterns in the growth rates of these types of deposits from 1954 to 1958. See Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States, 1867-1960* (Princeton: Princeton University Press, 1963).

[4] Donald R. Hodgman, *Commercial Bank Loan and Investment Policy* (Champaign, Illinois: University of Illinois, 1963).

income to long-run bank profits rather than a maximization of interest returns on loans. Hodgman asserts that a bank can charge a lower contract rate on a loan to a depositor than to a nondepositor and still earn a higher effective rate of return because of charges for complementary services. Furthermore, a loan to a depositor constitutes a smaller drain on a bank's lending capacity than an identical loan to a nondepositor. The other practice that does not support the concept of banks as institutional investors is the tendency of bankers to sell government securities at a capital loss to accommodate prime borrowers in times of tight money.

In view of the close relationship between deposits and loans, Hodgman bases his definition of the product market on the totality of services provided by banks. He does not believe that commercial banks compete significantly with other types of financial intermediaries since the latter are not individually capable of duplicating the basic product of commercial banks—the safeguarding and transfer of money—or the wide range of services that comprise the "customer relationship."

The customer relationship hypothesis was confirmed in a study of 30 Massachusetts municipalities that borrowed in anticipation of tax revenue.[5] The tax anticipation notes issued by Massachusetts towns are generally purchased by commercial banks that also hold deposits of these towns. This group of bank borrowers was considered ideal for testing the hypothesis, since their notes were homogenous, the nonprice terms of the loan were standardized, and no lines of credit were in effect.

This study indicated that interest rates charged by banks were the lowest where the purchasing bank handled all of a town's business instead of merely holding the proceeds of a note issue as they were being spent. Furthermore, concessions on loan rates tended to be greater as the loan size increased, a practice attributed to bankers' expectations of larger and more profitable deposit accounts. It was concluded that "nonprice terms and deposit relationships are of sufficient importance in explaining the determinants of commercial bank pricing behavior to warrant further, more comprehensive investigation."[6]

The Bank as a Multiple Product Firm. Economists who view banks as multiple product firms generally make a distinction between the business and nonbusiness customers of a bank in analyzing the strength of product interdependencies. David Alhadeff, a leading spokesman for the broad market concept, maintains that

> The available evidence suggests that package sales are typically made compulsory only for business borrowers (and not to all of them) in the form of a compensating balance requirement. Significantly, the tie-in sales are restricted to those services (business loans and transactions deposits) for which banks are the dominant or sole suppliers whereas bank services that nonbanks also supply (such as home mortgage loans, consumer loans, and savings accounts) can usually be negotiated separately.[7]

[5] Neil B. Murphy, *A Test of the Deposit Relationship Hypothesis,* Staff Economic Study No. 38 (Washington, D. C.: Board of Governors of the Federal Reserve System, 1970).

[6] *Ibid.,* p. 59.

[7] David A. Alhadeff, "Monopolistic Competition and Banking Markets," in *Monopolistic Competition Theory: Studies in Impact,* ed. by Robert C. Kuenne (New York: John Wiley & Sons, Inc., 1967), pp. 364-365.

He views commercial banks as department stores of finance, producing a number of distinct services. He has divided these services into five categories: loans, safekeeping facilities (e.g., deposit accounts and safety boxes), investment outlets for the public in the form of time and savings accounts, checking facilities in the form of demand deposit accounts, and miscellaneous specialized services such as trust facilities.

Alhadeff, along with Clifton Kreps, believes that competition between banks and other types of financial institutions is more significant in credit product markets than in the deposit markets, partly because their deposit services tend to be more homogeneous than their lending services.[8] Both economists have focused their analyses on the consumer, mortgage, and business loan markets. They assert that commercial banks compete with a wide range of other institutions, including finance companies, credit unions, savings and loan associations, mutual savings banks, life insurance companies, and a number of Federal agencies in the consumer and mortgage loan markets. Alhadeff and Kreps agree that banks are generally isolated from significant competition in the business loan market, especially in the small loan segment. Alhadeff notes that, other than commercial finance companies, nonbank financial institutions are not very active in this market. However, he does not regard finance companies as effective competitors since they specialize in serving marginal risk borrowers, who would likely have difficulty obtaining loans from commercial banks.

[8]David A. Alhadeff, "A Reconsideration of Restrictions on Bank Entry," *The Quarterly Journal of Economics,* May 1962, and Clifton H. Kreps, Jr., "Characteristics of Local Banking Competition," *Banking and Monetary Studies* (Homewood, Illinois: Richard D. Irwin, Inc., 1963).

Alhadeff has also asserted that some nonbank financial institutions compete with commercial banks for demand deposits, even though the former institutions do not offer third-party payment facilities. He divides demand deposits into two categories: those held for transactions purposes and those held as liquid reserves to serve as buffers against unexpected expenditures. Although commercial banks are unique in satisfying the transactions needs of the demand depositor, Alhadeff contends that credit unions, savings and loan associations, and mutual savings banks provide highly liquid interest bearing deposit substitutes for demand deposits held as a liquid reserves. A more generalized form of this hypothesis was originally proposed by James Tobin and William J. Baumol, who maintained that the volume of idle transactions balances increases at a slower rate than total transactions and income and is inversely related to the level of interest rates available on alternative assets.[9]

JUDICIAL INTERPRETATION OF THE PRODUCT MARKET IN COMMERCIAL BANKING

The Federal laws that were designed to promote competition in the banking industry have not attempted to define the product market in commercial banking.[10] The three Federal bank regulatory agencies—Federal Deposit Insurance Corporation (FDIC), the Comptroller of the

[9]William J. Baumol, "The Transactions Demand for Cash: An Inventory Theoretic Approach," *Quarterly Journal of Economics,* November 1952; and James Tobin, "The Interest-Elasticity of Transactions Demand for Cash," *Review of Economics and Statistics,* August 1956.

[10]For a discussion of these laws see "Federal Laws Regulating Bank Mergers and the Acquisition of Banks by Registered Bank Holding Companies," *Economic Review,* Federal Reserve Bank of Cleveland, January 1971.

COMPETITIVE IMPLICATIONS OF THE BANK MERGER ACT OF 1966

The primary purpose of the *Bank Merger Act of 1966,* which amended the *Bank Merger Act of 1960,* is to clarify the application of antitrust laws to bank mergers. It permits some acquisitions that would have been illegal under a strict application of the competitive standard established in the *Clayton Act,* providing any anticompetitive effects were clearly outweighed by increased public benefits. The language of Section 7 of the *Clayton Act,* which prohibits acquisitions of business concerns that would substantially lessen competition in any line of commerce in any section of the country, was incorporated in the 1966 Merger Act with only one change, the exclusion of the phrase "in any line of commerce,"

The Supreme Court has not attached any significance to the omission and continues to regard bank services in total as the relevant line of commerce or product market of commercial banking. The defendant banks in merger cases, however, have argued that Congress intended that the competitive implications of mergers be judged on a multiple product basis, which would permit the consideration of nonbank financial institutions as competitors of banks. The determination of a merger's legality would, therefore, require some judgment as to the community's need for each of the bank's services.*

* Franklin R. Edwards asserts that the courts were directed to ascertain the overall competitive impacts of mergers on the basis of a weighing of the effects on the separate product lines, including "commercial banking" as a distinct product. See "Bank Mergers and the Public Interest: A Legal and Economic Analysis of the 1966 Bank Merger Act," *The Banking Law Journal,* September 1968.

Currency, and the Board of Governors of the Federal Reserve System—have therefore had a more or less free hand in determining the competitive significance of nonbank financial institutions in ruling on bank mergers. The decisions of these agencies, however, are subject to review for possible violation of anti-trust laws by the Department of Justice. If the decisions are challenged, the cases are initially tried in the U. S. District Courts and may come before the Supreme Court if an appeal is made.

The first case in which the Supreme Court treated the product market as a major issue in evaluating bank competition involved a proposed merger between the second and third largest banks in Philadelphia.[11] The lower court accepted the narrow product market concept, stressing the unique scope of commercial banking services and the high degree of interdependency among them. The action to enjoin the merger, however, was dismissed on the basis of a finding of no violation of the anti-trust laws.

The Supreme Court reversed the decision of the lower court, primarily because of a difference of opinion regarding the geographic market. However, the higher court agreed with the district court's product market definition, mainly because of the uniqueness and significance of the demand deposit.

> (T)hey [commercial banks] alone are permitted by law to accept demand deposits. This distinctive power to accept demand deposits...makes banks the intermediaries in most financial transactions (since transfers of substantial moneys are almost always by check rather than by cash) and, concommitantly, the repositories of very

[11] United States v. Philadelphia National Bank, *et. al.* 210 Supp. 348 (1962); 83 S. Ct. 1715 (1963).

> substantial individual and corporate funds.[12]

The court further reasoned that the dominance of highly liquid demand deposits in the deposit portfolios of banks made them the most important source of short-term business credit. Moreover, it found that other bank services are not subject to competition from nonbank financial institutions, even though the services are similar. The court mentioned consumer loans and savings deposits as examples, arguing that banks can obtain funds more cheaply than finance companies and therefore lend at lower rates, and also that savings deposits of commercial banks enjoyed a "settled consumer preference" over those of other institutions.

In the Lexington Bank Case (1964),[13] the Supreme Court reaffirmed its narrow concept of the product market in commercial banking, emphasizing once again both the uniqueness of the checking account and the wide scope of banking services, specifically mentioning deposit boxes, Christmas Club accounts, correspondent bank facilities, collection services, and trust department services.

The first major merger case to come before a district court under the *Bank Merger Act of 1966* was the Crocker-Anglo Citizens Bank Case (1967), which involved the fifth and seventh largest banks in California.[14] The district court adopted a considerably broader concept of the product market than the Supreme Court had in previous decisions. This lower court ruled that savings and loan associations, commercial finance companies, government lending agencies, credit unions, and life insurance companies provided reasonable substitutes for many of the financial services offered by banks. The court also noted that the combined share of the deposits and loans of all financial institutions in California accounted for by the two banks proposing to merge would be only one-half the comparable percentage based only on commercial bank resources. This difference of product market perspective was an important factor inducing the judge to rule against the Department of Justice, which did not appeal the decision.

The Provident Bank Case[15] was the first merger case to reach the Supreme Court under the *Bank Merger Act of 1966* in which the definition of the product market became a major issue. After the case was remanded to the district court for further consideration on procedural grounds, the district court reversed its original decision and ruled the proposed merger between the fifth and seventh largest banks in the four-county Philadelphia market was in violation of the law. The court however, rejected the narrow concept of the product market held by the Department of Justice on grounds that by omitting the phrase "in any line of commerce" in the *Bank Merger Act of 1966,* Congress had intended a test of the overall competitive impact of a merger in a number of individual product markets.

The lower court alluded to the uniqueness of demand deposits and the interdependency of commercial bank services, especially for corporate customers. However, the interrelationships of

---

[12] *Ibid.,* p. 326 (Footnote omitted).

[13] United States v. First National Bank and Trust Company of Lexington, *et. al.,* 208 Supp. 457 (1962); 84 S. Ct. 1033 (1964).

[14] United States v. Crocker-Anglo National Bank, *et. al.,* 263 Supp. 125 (1966); 277 Supp. 133 (1967).

[15] United States v. Provident National Bank, *et. al.,* 262 Supp. 297 (1966); 87 S. Ct. 1088 (1967).

these services were not strong enough to preclude direct competition from other types of financial institutions, which the court limited to mutual savings banks and savings and loan associations on the basis that "they alone offer direct and meaningful competition to commercial banks..."[16] In stressing competition for savings deposits, the lower court denied that commercial banks enjoyed a "settled consumer preference," as the Supreme Court had asserted in the Philadelphia Bank Case. The increasing importance of this competition in recent years was noted, as illustrated by the decline in the proportion of demand to time deposits at all national banks from 70 to 30 percent in 1960 to a rough equivalency as of the end of 1967.

The Supreme Court's most recent affirmation of the narrow concept of the product market occurred in the Phillipsburg National Bank Case (1970).[17] The proposed merger was between the third and fifth largest banks located in the two-city area of Phillipsburg, New Jersey, and Easton, Pennsylvania. Finding that banking as a whole was not the relevant line of commerce, the lower court analyzed competition in terms of individual product lines. Competition between the banks involved in the merger and other types of financial institutions, such as savings and loan associations, credit unions, insurance and finance companies, was emphasized. The lower court also noted that the banks involved in the merger were operated more in the manner of savings institutions than larger commercial banks.

The Supreme Court took issue with the lower court regarding the appropriateness of analyzing competition between commercial banks on a submarket or separate product basis. It asserted that the use of submarkets should be confined to cases involving mergers between commercial banks and other types of financial institutions. The Court emphasized customers' desires to satisify all their financial needs at a single institution, making nonbank financial institutions less attractive than banks. It also appeared to accept Hodgman's notion of the customer relationship in referring to interdependencies among the services provided by banks:

> For some customers, full service banking makes possible access to certain products or services that would otherwise be unavailable to them; the customer without significant collateral, for example, who has patronized a particular bank for a variety of financial products and services is more likely to be able to obtain a loan from that bank than from a specialty financial institution to which he turns simply to borrow money. In short, the cluster of products and services termed commercial banking has economic significance well beyond the various products and services involved.[18]

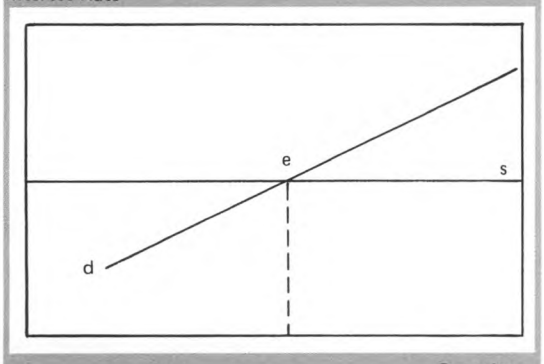
The Court distinguished between small and large banks in applying this version of the "customer relationship" hypothesis, since this was the first merger case involving two relatively small (less than $30 million in total deposits) banks to come before it. The Court asserted that customers who would tend to hold relatively small accounts would be likely to have their checking and savings accounts in the same local bank, even when higher savings

[16] United States v. Provident National Bank, *et. al.*, District Court Opinion (1968), p. 40.

[17] United States v. Phillipsburg National Bank and Trust Company, *et. al.*, 306 Supp. 645 (1969); 90 S. Ct. 2035 (1970).

[18] U. S. Supreme Court Disallows Bank Merger", *The Banking Law Journal,* April 1971, p. 353.

DEMAND AND SUPPLY OF FINANCIAL ASSETS



Economic theory postulates that the demand curves for financial assets are upward sloping (line d). If it is assumed that the quantity supplied is infinitely elastic at the observed yield (line s), the quantity of a particular asset will then be determined solely by the level of demand at the point of intersection with the horizontal supply schedule (point e).

interest rates were available elsewhere. This general banking relationship would prevail because the convenience factor and the advantages of a good relationship with the local banker would be more important for small depositors and borrowers, who would have less access to a variety of financial institutions than larger customers.

In summary, the district courts have generally accepted a somewhat broader concept of the product market in commercial banking than the Supreme Court. The Supreme Court has emphasized both the uniqueness of some of the individual services provided by commercial banks and the high degree of interdependence among them. The Court attributed this interdependence to the desire of bankers to handle all the banking business of their customers and the preference of the public for one-stop banking and the ready accommodation of borrowing needs. On the other hand, the district courts have maintained that the specialized nature of nonbank financial institutions has not significantly hindered their ability to compete with commercial banks, especially in the markets for savings deposits and home mortgage loans.

STATISTICAL EVIDENCE

While the controversies in economic theory and in the courts over the relevant product market have been unresolved, the statistical evidence strongly supports the broad market concept. This section reviews five recent statistical studies on the substitutability of time deposits among different types of depository institutions and one study that directly tested the theory of a bank as a single product firm. Four of the five studies on substitutability and the other study support the broad product market concept. An implicit assumption of the studies on deposit substitutability is that the supply curves of deposits are infinitely or highly elastic with respect to their "own" rate of interest (see Figure).[19] One

[19] Least squares multiple regression techniques were generally used in these studies to describe how a dependent variable (to be explained) is related to a number of independent or explanatory variables. A demand equation is estimated to fit the actual observations of the dependent variable in such a way that the sum of the squared deviations between these observations and those predicted by the estimated equation is minimized. The independent variables have generally included an income or wealth constraint on deposit holders, the "own" rate of interest of an asset, the yields on substitute assets, and sometimes a variable to measure the transactions or convenience costs associated with the acquisition of assets. These studies have hypothesized that the income and "own" price or yield elasticities are positive (i.e., more of a particular asset will be demanded as its yield or the income of the asset holder increase) and that an increase in the yield of an alternative asset will depress the demand for the asset whose relative yield declined (i.e., the assets are substitutes).

analyst, who has extensively reviewed empirical studies estimating the substitutability relationships among financial assets, has accepted the validity of this implicit assumption "because the regulation of the savings deposit market by Federal Agencies and state commissions, as well as the stickiness of the rates set by deposit-type intermediaries, make it reasonable to assume that individual savings institutions determine a yield and accept deposits at that set rate."[20]

The first study to employ multiple regression techniques utilizing observations across geographic areas and over time in exploring the product market was by Edgar Feige.[21] He concluded on the basis of the pooled data (observations from all states for the 1949-1959 period) that demand deposits were either weak substitutes or independent of savings and loan associations shares and mutual savings bank deposits in demand. He also concluded that time deposits at commercial banks and savings and loan shares were independent of each other and that time deposits and mutual savings bank deposits were either weak substitutes or independent. Finally, Feige did not find any strong substitutability or complementary relationship between savings and loan association shares and mutual savings bank deposits.

A different conclusion emerged from the work of Cohen and Kaufman, who found that time deposits at commercial banks and "near-bank" deposits were close substitutes for each other because time deposit growth was related positively and in a significant degree to the ratio of interest paid on these deposits by banks to that paid on near-bank deposits, whereas near-bank deposit growth was negatively related to this ratio by an even higher degree.[22] Their estimated demand equations for annual changes in total deposits, demand deposits and time deposits were based on pooled data for all states for 1951-1961. They found that almost 30 percent of the variance in percent change in time deposits and 27 percent of the variance in near-bank deposits were explained by the independent variables.

Jerry L. Jordan also found a strong substitutability between time deposits at commercial banks and savings and loan shares, based on a significantly negative relationship between the demand for time deposits and the ratio of the yield on savings and loan shares to the yield on time deposits.[23] His regression results, based on state data from 1956 through 1966, also indicated that both mutual savings bank deposits and savings and loan shares are close substitutes for time deposits on the basis of convenience cost, and, to a smaller extent, the relative yield. More than half of the variation among the states in per capita holdings of these three types of assets was consistently explained by the independent variables in his demand equations.

A variation of Milton Friedman's permanent income formulation of the demand for money was developed by Tong Hun Lee, who attempted to determine by regression analysis the most significant interest rate variable affecting the

[20] George K. Kardouche, *The Competition for Savings,* Studies in Business Economics No. 107 (New York: National Industrial Conference Board, 1969).

[21] Edgar L. Feige, *The Demand for Liquid Assets: A Temporal Cross-Section Analysis* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1964).

[22] Bruce C. Cohen and George G. Kaufman, "Factors Determining Bank Deposit Growth by State: An Empirical Analysis," *Journal of Finance,* March 1965.

[23] Jerry L. Jordan, "The Market for Deposit-Type Financial Assets," *Project for Basic Monetary Studies, Working Paper No. 8,* Federal Reserve Bank of St. Louis, March 1969.

demand for money.[24] Lee began by fitting data for 1951-1965 to his demand for money equations, using one interest rate differential on an alternative asset (e.g., the difference between the yield on savings and loan shares and the yield on money) at a time as an independent variable in each equation. Lee also computed regression equations using varying combinations of the difference between the yields of savings and loan shares and money and the difference between the yields of another alternative asset and money as independent variables, finally including all the yield differentials in one equation. In all of these regressions, the negative coefficients of the yield on savings and loan shares remained highly significant, while those of the yield on time deposits were progressively less significant as more variables were introduced.

Lee concluded on the basis of his tests that savings and loan shares were the closest substitutes for money among time deposits, short-term paper, long-term bonds, and equities. Lee also noted that these empirical results were consistent with the substitution hypothesis of Gurley and Shaw and the Baumol-Tobin hypothesis, which emphasized the influence of opportunity cost (i.e., interest foregone by not purchasing alternative assets) in the holding of demand deposits.

Using a different approach, V. Karuppan Chetty concluded that time deposits were the closest substitutes for money, followed by mutual savings bank deposits and, finally, savings and loan shares.[25] He estimated the elasticity of substitution between money and other liquid assets by using a utility function approach to generate a number of indifference curves between money and other assets.[26]

The validity of the single market concept in commercial banking was directly tested by Alan McCall.[27] He hypothesized that a bank's loan and demand deposit service prices would be higher and the rates on time and savings deposits lower than those of another bank in a more competitive market, other things being equal. McCall employed conventional multiple regression techniques to isolate the influence of competitive market structure on pricing performance from that of noncompetitive factors such as bank deposit size, local economic activity, and type of market (e.g., city, county). All the banks in his sample group had less than $50 million in deposits and were located in the Ohio-Kentucky region of the Fourth Federal Reserve District. The regression equations indicated that only the service charge rate on demand deposits was related to competitive structure, thereby implying that banks compete with varying degrees of intensity in different product markets. McCall concluded that

> Such inconsistent pricing results clearly support rejection of the single line of commerce hypothesis for small- and medium-sized banks...Specifically, small- and medium-sized banks have multiple lines of commerce and geographic markets...[28]

[24] Tong Hun Lee, "Alternative Interest Rates and The Demand for Money: The Empirical Evidence," *American Economic Review,* December 1967.

[25] V. Karuppan Chetty, "On Measuring the Nearness of Near-Moneys," *American Economic Review,* June 1969.

[26] A utility function approach relates the level of enjoyment or appreciation of a good to the rate of consumption. The indifference curves represent the various combinations of two goods that will yield the same total satisfaction.

[27] Alan S. McCall, *A Statistical Investigation of Commercial Banking as a Single Line of Commerce,* Working Paper No. 69-10, (Washington, D. C.: Federal Deposit Insurance Corporation, 1970).

[28] *Ibid.,* pp. 9-11.

TABLE II

Sources of Short-term Funds for Nonfinancial Corporations
Selected Years
(Percent Distribution)

Source	1963	1967	1971p
Open market paper	n.a.	12.5%	10.3%
Short-term bank loans	29.9%	30.0	20.7
Finance company loans	7.5	n.a.	17.2
Other sources	62.7	57.5	51.7

p Projected.

Source: Bankers Trust Company, New York

TABLE III

Percent Distribution of Selected Financial Assets by Type of Institution
Selected Years

Institution	1963	1967	1971p
Consumer Credit			
Commercial banks	45.5%	39.1%	48.9%
Nonbank financial corporations*	28.6	13.0	10.9
Credit unions	9.1	15.2	16.3
Others	16.9	32.6	23.9
Mortgage Loans on Single-Family Dwelling Units			
Commercial banks	13.7	14.9	15.1
Savings and loan associations	43.4	43.8	44.8
Mutual savings banks	13.6	14.2	13.4
Life insurance companies	15.0	12.6	9.5
U. S. agencies	3.4	4.5	7.6
Individuals and others	11.0	10.0	9.6

p Projected or preliminary.

* Includes finance companies, factors, mortgage companies, and real estate investment trusts.

Source: Bankers Trust Company and Federal Home Loan Bank Board

Relatively little statistical work has been done on the degree of loan substitutability between banks and other types of financial institutions. However, evidence of significant shifts in the share of credit extended by commercial banks in some of these markets, especially the consumer loan and business loan markets, is an indication of inter-institutional competition (see Tables II and III). Proponents of the narrow product market approach have sometimes argued that commercial banks have a competitive advantage over other institutions offering credit in these markets, since finance companies must rely on banks for a substantial portion of their funds. However, data collected by Raymond Goldsmith indicate that business finance companies, personal finance companies, and sales finance companies acquired only 24 percent, 20 percent and 12 percent, respectively, of their funds from commercial banks in 1965.[29] Competition between commercial banks and finance companies is concentrated in the consumer loan market in which finance companies devote about two-thirds of their total funds.

With regard to competition in mortgage loan markets, one study concluded that the rates charged by savings and loan associations are very responsive to competitive pressures from commercial banks.[30] Another investigator found that increased competition between commercial banks and savings and loan associations in the Chicago area over the 1960 to 1965 period, as a result of a liberalization of regulations on commercial banks, almost completely eliminated rate differences at these institutions.[31]

[29] Raymond W. Goldsmith, *Financial Institutions* (New York: Random House, 1968).

[30] Phoebus J. Dhrymes and Paul J. Taubman, "The Savings and Loan Business: An Empirical Survey," *Savings and Residential Financing: 1969 Conference Proceedings,* Donald O. Jacobs and Richard T. Pratt, co-editors (Chicago: United States Savings and Loan League, 1969).

[31] Allen F. Jung, "Terms on Conventional Mortgage Loans—1965 vs. 1960," *National Banking Review,* Vol. 3, No. 3, March 1966.

CONCLUSION

The Supreme Court has consistently accepted the narrow product market concept of commercial banking, although the multiple product concept of the banking firm has received more support from economists. The latter concept has been indirectly verified by statistical studies that have revealed a close substitutability between deposits provided by commercial banks and those of other more specialized depository institutions. Few investigators, however, have attempted to estimate directly the strength of inter-relationships among the services provided by commercial banks. The use of tie-in arrangements, whereby the seller attempts to condition the availability of some of the goods or services he provides upon the acceptance by the customer of others, has generally been outlawed in banking. Nevertheless, banks can legally grant more favorable terms on loans to customers who agree to accept, or have accepted, other services. Hodgman's theory of the customer relationship appears plausible for business or corporate customers, who are likely to maintain large demand deposit balances at banks where they expect to borrow. However, the compensating balance requirement, which is at the core of Hodgman's theory of the customer relationship, does not generally apply to the average loan customer who may be interested in a consumer or mortgage loan.

The willingness of the typical personal demand deposit customer of a commercial bank to satisfy his other major financial needs at other banks or nonbank financial institutions would probably depend to a large extent upon the importance of the convenience of one-stop banking to him. He is likely to find a similar degree of accommodation of particular needs at both types of institutions. The use of customer surveys would provide more direct evidence than statistical studies as to how the public evaluates comparable services provided by banks and other financial institutions and the importance of one-stop banking.

The improved understanding of the product market in commercial banking resulting from such surveys would permit more uniformity in the analyses of competitive effects of bank acquisitions that are conducted by the regulatory agencies, the Department of Justice and the courts. Ideally, a weighting scheme that would reflect the ability of nonbank financial institutions to compete with banks would be devised for each major product market in which banks operate. Factors such as legal constraints (e.g., maximum interest rates payable on savings deposits) as well as the lending policies of nonbank financial institutions (e.g., maximum acceptable credit risks) would be considered in the analysis of competitive strength. This approach would be an improvement over the sole criterion of size that is currently used in the analysis of competitive effects of structural changes in banking markets.