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A Reexamination of the"Full
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A REEXAMINATION OF
THE "FULL EMPLOYMENT" GOAL

Robert A. McMillan

For several years, a 4.0 percent unemployment rate has been considered an appropriate target for stabilization policy. Recently, however, a number of economists and other observers of the nation's economy have questioned the appropriateness of the 4.0 percent target because of structural changes in the composition of the labor force. A number of studies have indicated that changes such as the increased proportion of women and teenagers in the labor force have altered the meaning of the aggregate unemployment rate by exerting upward or downward pressure on unemployment.

This study examines the origin of the 4.0 percent target, the positions of those who believe it should be changed, and then considers implications of some alternative definitions of full employment. The main conclusions that emerge are:

1) A 4.0 percent unemployment rate was adopted as an "interim" goal of public policy in the early 1960's. The selection of this particular rate came about more through general acceptance than from special studies or legislation.

2) Although many changes have occurred in the labor force in recent years, they have been largely offsetting and, on balance, have had a relatively small impact on the overall unemployment rate. Studies that concentrate on one aspect of changes in the labor force, such as the age-sex composition, ignore other, possibly offsetting, changes such as those involving occupation, education, length of workweek, etc.

3) There are a number of other plausible definitions of full employment, but they yield different, and frequently conflicting, unemployment targets.

4) There have been some who have questioned the appropriateness of a numerical unemployment target. However, as long as concepts such as the full employment budget and potential gross national product are used as tools of public policy, it would seem that numerical estimates of full employment are warranted.

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Over most of the last decade, a 4.0 percent rate of unemployment was widely accepted as a reasonable approximation of full employment in the United States. This rate of unemployment received official government sanction in 1962, when the Council of Economic Advisers designated it as an interim target for public policy. The Council wrote:

> ...the target for stabilization policy is to eliminate the unemployment which results from inadequate aggregate demand without creating a demand-induced inflation. A situation in which this is achieved can appropriately be described as one of "full employment", in the sense that further expansion of expenditure for goods and services, and for labor to produce them, would be met by only minor increases in employment and output, and by major increases in prices and wages....In the existing economic circumstances an unemployment rate of about 4.0 percent is a reasonable and prudent full employment target for stabilization policy[1]....

Recently, many policymakers, economists, and businessmen have questioned the appropriateness of a 4.0 percent rate of unemployment as a full employment target.[2] Much of this discussion was generated by the failure of the unemployment rate to show improvement in the first 19 months of the economic recovery that began in November 1970. Moreover, numerous studies have indicated that structural changes in the labor force have not only accounted for the lack of responsiveness of unemployment, but have also altered the meaning of an aggregate rate of 4.0 percent unemployment.[3] Others have asserted that 4.0 percent unemployment was never an appropriate goal. It has even been suggested that it is inappropriate to set any numerical goal.[4]

This study examines the origins of a 4.0 percent unemployment rate as an appropriate numerical measure of the amount of unemployment that would remain even in a full employment economy. Arguments that the target of 4.0 percent unemployment should be altered are then evaluated. The results indicate many of the structural changes that have occurred in the labor force over the past decade have had offsetting impacts and, on balance, these changes are not persuasive reasons for altering the 4.0 percent unemployment goal. Some alternative definitions of "full employment" are also discussed; these definitions yield conflicting numerical estimates of an unemployment rate that would be compatible with full employment. Finally, the need for numerical goals is examined, along with the difference between specific goals such as 4.0 percent instead of 5.0 percent.

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[1]*Economic Report of the President,* January 1962, (Washington, D. C.: Government Printing Office, 1962), p. 46.

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[2]Even the Council of Economic Advisers recently questioned the suitability of a 4.0 percent unemployment target. See *Economic Report of the President*, January 1973, (Washington, D. C.: Government Printing Office, 1973), pp. 71-74.

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[3]Many of these arguments build on the work of George Perry. See G. L. Perry, "Changing Labor Markets and Inflation," *Brookings Papers on Economic Activity,* 1970, 3, pp. 411-441. A similar debate took place in the early 1960's. See, for example, R. A. Gordon, "Has Structural Unemployment Worsened?," *Industrial Relations,* Vol. 3, No. 3, May 1964, pp. 53-77.

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[4]See statement of Herbert Stein and Ezra Solomon before the Joint Economic Committee, October 26, 1972. This argument is not new, however. See, for example, statement of Arthur Burns to Joint Economic Committee in January 1955, *Economic Report of the President: Hearings,* 84th Cong. 1st sess., (Washington, D. C.: Government Printing Office, 1955), p. 45.

THE ORIGINS OF 4.0 PERCENT UNEMPLOYMENT AS A POLICY GOAL[5]

Prior to the Great Depression, there was virtually no discussion of a concept of "full employment". The term came into wide use with Keynes' *The General Theory of Employment, Interest, and Money* in 1936. During the Presidential campaign of 1944, the two major political parties advocated the attainment of "full employment," although neither party attempted to quantify the term. At that time, however, full employment was defined by one study in terms of an unemployment level of two million persons.[6] Another study proposed that full employment is a condition of "having always more vacant jobs than unemployed men" and stated that Government should attempt to attain this level.[7]

In 1945, Senator James E. Murray authored a bill that became the Employment Act of 1946, which made the Federal Government responsible for promoting "maximum employment". The concept of full employment received its first official quantification in 1947 in the *Economic Report of the President* when the Council of Economic Advisors proclaimed that the level of slightly over two million persons unemployed at that time (3.9 percent of the labor force) was, "...close to the minimum unavoidable in a free economy of great mobility such as ours."[8] The Council reiterated this view a year later. In 1951, Thomas K. Hitch suggested the unemployment rates of 1947 and 1948 (3.9 percent and 3.8 percent, respectively) could be taken as approximations of full employment.[9] In 1951, the Council stated the 3.6 percent unemployment rate of that year was near a practical minimum for a peacetime economy.[10]

In 1954, a study by the Joint Economic Committee of Congress assumed that when unemployment was at 4.0 percent, the unemployed would primarily be new entrants into the labor force, frictionally unemployed workers, and workers shifting to new industries after being displaced by technological advances. The Committee also pointed out that 4.0 percent was the average rate of unemployment in the postwar years.[11] In the 1955 Congressional hearings on the *Economic Report of the President,* Arthur F. Burns, then Chairman of the Council of Economic Advisors, indicated that 4.0 percent is "...widely regarded as an approximate measure of the average amount of frictional and seasonal unemployment...", but he said the Council did not favor a specific figure to trigger stimulative action by the Federal government or to serve as a measure of performance. [12] Nevertheless, the following year,

[5]A more complete discussion can be found in *The Goal of Full Employment* by Robert A. Gordon, (New York: John Wiley & Sons, Inc., 1967), Chapter 3.

[6]Everett E. Hagen and Nora Boddy Kirkpatrick, "The National Output at Full Employment," *The American Economic Review,* 1944, pp. 472-537.

[7]See William H. Beveridge, *Full Employment in a Free Society,* (New York: Norton, 1944).

[8]*Economic Report of the President,* January 1947, (Washington D. C.: Government Printing Office, 1946), p.1.

[9]Thomas K. Hitch, "Meaning and Measurement of 'Full' or 'Maximum' Employment," *The Review of Economics and Statistics,* XXXIII, February 1951, p. 2.

[10]*Economic Report of the President,* January 1951, (Washington, D. C.: Government Printing Office, 1951), p. 22. Later revisions placed the unemployment rate in 1951 for those over 16 years of age at 3.3 percent.

[11]U. S. Congress, Joint Committee on the Economic Report *Potential Economic Growth of the United States During the Next Decade,* Joint Committee Print, (Washington, D. C.: Government Printing Office, 1954), p.6.

[12]*Economic Report of the President: Hearings,* 84th Cong., 1st sess., (Washington, D. C.: Government Printing Office, 1955), p. 45.

TABLE I

Age-Sex Compostion of the Labor Force
1960 and 1972

	1960		1972		
	Number (Thousands of Persons)	Percent of Total	Number (Thousands of Persons)	Percent of Total	Unemployment Rate
Civilian Labor Force	69,629	100.0%	86,542	100.0%	5.6%
Males 20 years and over	43,603	62.6	48,808	56.4	4.0
Females 20 years and over	21,185	30.4	29,710	34.3	5.4
Both sexes 16-19 years	4,841	7.0	8,024	9.3	16.2

Source: U. S. Department of Labor

the Council of Economic Advisors indicated that, at the end of 1955 (when the unemployment rate was 4.2 percent), "the nation had practically reached full employment," suggesting at least implicit acceptance of a 4.0 percent level.[13]

In summary, the use of a 4.0 percent unemployment rate as an appropriate measure of full employment developed over many years after first being placed at roughly that level in 1947. The target seems to have arisen more through general acceptance rather than as a response to a particular study or from legislation.

STRUCTURAL CHANGE FACTORS AFFECTING FULL EMPLOYMENT

A number of economists have recently claimed that the changing composition of the labor force, at least since the early 1960's, has altered the meaning of a 4.0 percent unemployment rate as a measure of full employment. Many of these economists have asserted that the unemployment target should be revised upward and that the 5.9 percent unemployment rate of 1971 did not imply as much labor market slack as it seemed. However, in the last year there have been those who have argued that the changing composition of the labor

force should result in a lower target for the unemployment rate. Thus, claims that changing labor force composition have put upward pressure on the unemployment rate are countered by claims that other developments have put downward pressure on it.

In this section, various structural changes in the labor force are examined to determine their effect on the aggregate unemployment rate. The results are derived by determining what the aggregate unemployment rate would be if the composition of the labor force today were the same as it was a number of years ago. For example, if teenagers, adult males, and adult females each made up the same share of the labor force in 1972 as in 1960, what would the effect be on the aggregate unemployment rate. An example of the calculations developed for the results of this section is given in the Appendix.

In Support of a Higher Unemployment Target. One of the more recent arguments for an upward revision in the unemployment goal is based on the increased labor force participation of adult women and teenagers. These two groups account for a larger portion of the labor force today than they did at the beginning of the 1960's, and their unemployment rates are typically higher than those of adult men (see Table I). For example, between 1960 and 1972, teenagers increased their

TABLE II

Unemployment Rates Actual and Weighted
by 1960 Age-Sex Composition of Labor Force
1950-1972

Year	Actual Unemployment Rate	Weighted Unemployment Rate	Difference
1950	5.3	5.3	—0—
1951	3.3	3.4	—0.1
1952	3.0	3.1	—0.0
1953	2.9	3.0	—0.1
1954	5.5	5.6	—0.1
1955	4.4	4.5	—0.1
1956	4.1	4.2	—0.1
1957	4.3	4.3	—0—
1958	6.8	6.8	—0—
1959	5.5	5.5	—0—
1960	5.5	5.5	—0—
1961	6.7	6.7	—0—
1962	5.5	5.6	—0.1
1963	5.7	5.7	—0—
1964	5.2	5.2	—0—
1965	4.5	4.4	+0.1
1966	3.8	3.6	+0.2
1967	3.8	3.4	+0.2
1968	3.6	3.4	+0.2
1969	3.5	3.3	+0.2
1970	4.9	4.7	+0.2
1971	5.9	5.7	+0.2

share of the labor force from 7.0 percent to 9.3 percent. It is, therefore, concluded that this compositional change in the labor force has put upward pressure on the overall unemployment rate. An estimate of the effect of these compositional changes can be derived by weighting the teenager, adult male and adult female unemployment rates in 1972 by the proportion of the labor force accounted for by each of these groups in 1960. Using this method of weighting, the overall unemployment rate in 1972 would have averaged 5.3 percent rather than 5.6 percent. On this basis, it could be claimed that 4.0 percent unemployment in 1972 would have been equivalent to a somewhat lower level of unemployment than 4.0 percent in 1960. This 0.3 percent adjustment for

age-sex differences in the labor force, however, is hardly significant enough to warrant a change in the overall unemployment goal.

It should be pointed out that these long-run structural changes in the labor force cannot be used to explain short-run movements in the unemployment rate. For example, if one seeks a structural change explanation for the upward movement in the unemployment rate between 1969 and 1972, then the appropriate comparison would be based on weighting *both* years using 1960 as the base. The overall rate in 1969—a year of tight labor markets—would have been 3.3 percent rather than 3.5 percent. Thus, the weighting procedure results in a downward adjustment of *both* 1969 and 1972 (see Table II).

CHART 1

RELATIONSHIP BETWEEN WAGE INCREASES AND RATE OF UNEMPLOYMENT 1948-72

Percent Change in Average Hourly Compensation
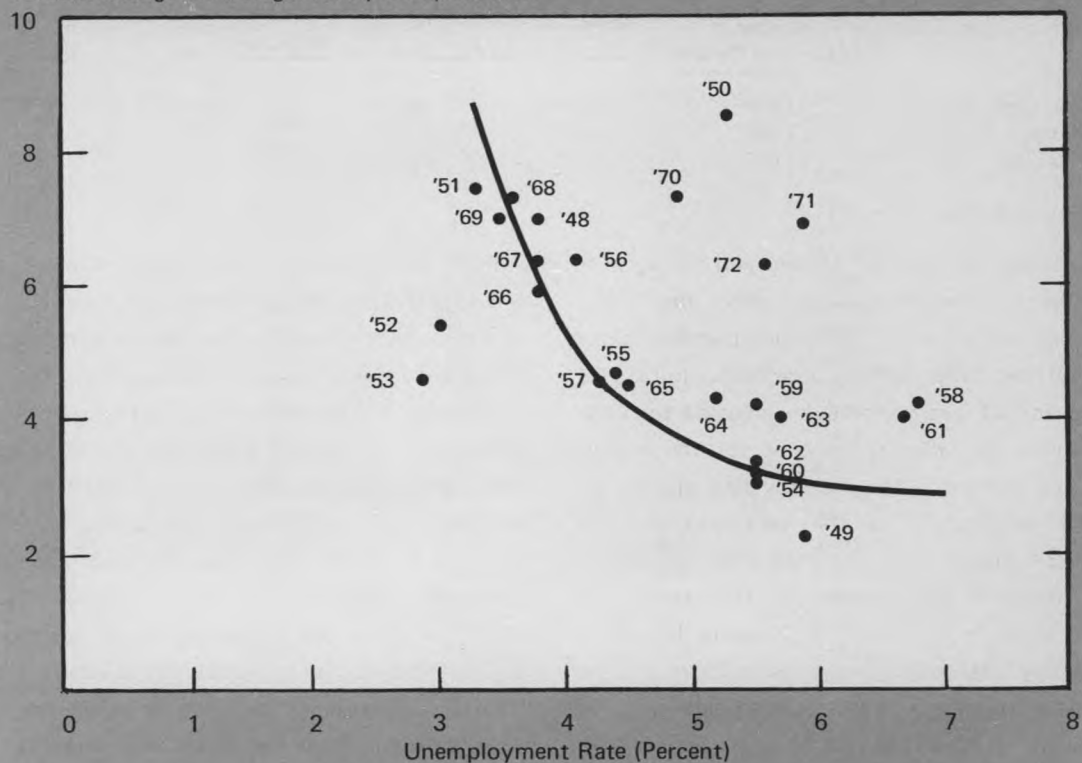
Sources: U. S. Department of Labor and Federal Reserve Bank of Cleveland

A more complex variation of the effect of increased labor force participation by females and teenagers on the unemployment rate was set forth by George Perry. He postulates that this compositional change has resulted in an upward shift in the relationship between a particular unemployment rate and the rate of wage-price increases, i.e.,

the so-called Phillips curve.[14] Perry uses this shift to explain why 1970 represented a sharp deviation from the Phillips curve (see Chart 1). However, the

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[14]See, Perry, *op. cit.* An upward shift in the Phillips curve would mean that at a particular unemployment rate prices would be rising at a faster rate than they did before the shift.

TABLE III

Labor Force Composition; Part-time and Full-time
1963 and 1972

	1963		1972		
	Number (Thousands of Persons)	Percent of Total	Number (Thousands of Persons)	Percent of Total	Unemployment Rate
Civilian Labor Force	71,834	100.0%	86,542	100.0%	5.6%
Part-time	7,822	10.9	12,513	14.5	8.6
Full-time	64,012	89.1	74,028	85.5	5.1

Source: U. S. Department of Labor

accelerated entrance of women and teenagers to the labor force occurred throughout the 1960's, and not just between 1969 (a point on the Phillips curve) and 1970. If Perry's method is to be used, data for all years should be adjusted for comparability in order to account for the compositional changes. Table II shows data adjusted for 1960 weights. It can be seen that the low unemployment rates of 1966-1969 are revised downward as well as the high 1970-1972 rates. The effect is that 1970-1972 would be still in relatively the same position as in Chart 1 if the Chart were redrawn with adjusted data—only the axis would have changed. Thus, the Perry thesis does not appear to explain much of the recent deviation from the Phillips curve.[15]

Another argument that might be used to lend support to an upward revision in the nation's unemployment goal is based on the increasing number of part-time workers in the labor force (see Table III). Part-time workers have higher unemployment rates than full-time workers, and it is therefore claimed that a 4.0 percent unemployment target is more difficult to attain today than previously. To test this hypothesis, the 1972 and 1969 unemployment rates were weighted by the proportion of full- and part-time workers in the labor force in 1963 (the first year such a breakdown was available). For 1972, the result was a reduction in the overall unemployment rate from 5.6 to 5.5 percent; for 1969, the reduction was from 3.5 to 3.4 percent. The adjusted figures differ so little from the actual unemployment rates that this argument would neither alter the 4.0 percent target nor explain the rise in unemployment between 1969 and 1971-1972.

In Support of a Lower Unemployment Target. Changes in the characteristics of the labor force are also used to support claims that a 4.0 percent unemployment goal is easier to attain today than in former years.[16] One such change is the higher

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[15]This analysis covered only the compositional change part of Perry's work. Perry also showed that the dispersion of unemployment has changed. That is, the unemployment is concentrated among women and teenagers more than it was formerly. However, in order for a shift in the Phillips curve to explain the 1970 experience, unemployment dispersion would have had to change between 1969 and 1970 rather than 1960 and 1970. This reasoning is the same as that applied to the compositional change argument.

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[16]See, Edgar L. Feige, "The 1972 Report of the President's Council of Economic Advisors: Inflation and Unemployment," *American Economic Review,* September 1972, pp. 509-516.

TABLE IV

Educational Attainment of Labor Force*
March 1962 and 1972

	1962		1972		
School Years Completed	Number (Thousands of Persons)	Percent of Total	Number (Thousands of Persons)	Percent of Total	Unemployment Rate
Civilian Labor Force	67,988	100.0%	85,410	100.0%	6.1%
None	586	0.9	281	0.3	5.0
1-4 years	2,533	3.7	1,484	1.7	6.1
5-7 years	6,191	9.1	4,328	5.1	7.1
8 years	9,015	13.3	6,662	7.8	6.9
9-11 years	13,144	19.3	16,383	19.2	10.1
12 years	21,810	32.1	33,082	38.7	5.6
College 1-3 years	7,251	10.7	11,586	13.6	4.9
4 years	4,730	7.0	6,900	8.2	3.1
More than 5 years	2,728	4.0	4,614	5.4	1.6

*Includes only labor force participants over 18 years of age.

Source: U. S. Department of Labor

level of educational attainment of today's labor force participants (see Table IV). As the number of years of education increases, the unemployment rates of various groups tend to fall. This situation may exist because jobs requiring higher education are more stable than other jobs or that highly educated people search for jobs more efficiently and thus find them more rapidly. To test the effect of the changing educational level of the labor force on the unemployment rate, the 1972 unemployment rate was weighted by the educational levels of the 1962 labor force. (Data on the educational level of the labor force have only been available since 1962 and relate to the month of March.) The results indicate that the unemployment rate in March 1972 for those over 18, which was 6.1 percent, would have been 6.3 percent, on the basis of 1962 weights.

A recent study that could be used to support a downward revision in the unemployment goal examined the effect of government work-training programs on unemployment.[17] These programs included Neighborhood Youth Corps, College Work Study, Job Opportunities in the Business Sector (JOBS), Public Employment Program (PEP), Manpower Development and Training (MTDA), Work Incentive Program, and Concentrated Employment Program. It was found that a monthly average of 961,000 persons was enrolled in major work-training programs in 1971 of which 794,000 were classified as employed, 145,000 as unemployed, and 22,000 as not in the labor force. In the absence of these programs 182,000 would have been employed, 206,000 unemployed and 406,000 not in the labor force.

[17] Sylvia S. Small, "Statistical Effect of Work-Training Programs on the Unemployment Rate," *The Monthly Labor Review*, September 1972, pp. 7-13.

TABLE V

Occupational Composition of Labor Force
1960 and 1972

	1960		1972		
	Number (Thousands of Persons)	Percent of Total	Number (Thousands of Persons)	Percent of Total	Unemployment Rate
Civilian Labor Force	69,629	100.0%	86,542	100.0%	5.6%
White collar	29,300	42.1	40,460	46.8	3.4
Blue collar	26,089	37.5	30,551	35.3	6.5
Service	8,519	12.2	11,702	13.5	6.3
Farm	5,318	7.6	3,151	3.6	2.6
Never worked	403	0.6	677	0.8	--

Source: U. S. Department of Labor

The study concluded that without these programs the unemployment rate in 1971 would have been 6.2 percent rather than 5.9 percent.

Changes With an Indeterminant Effect. If the labor force is classified by occupations, white collar and service workers make up a larger proportion of the labor force today than in 1960, whereas blue collar and farm workers make up a smaller proportion (see Table V). Changes in the occupational makeup of the labor force have produced changes in the unemployment rate that are not clear-cut in direction. For example, the 1972 unemployment rate weighted by 1960 occupational composition is 5.4 percent, *lower* than the actual 5.6 percent, while the 1969 weighted rate is *higher* than the actual (3.6 percent compared with 3.5 percent). In this case it is possible that secular trends in composition are obscured by cyclical developments altering composition.

Concluding Comments on Labor Force Changes. There are many other possible structural changes in the labor force that could be considered

factors in making it either more or less difficult to attain a 4.0 percent unemployment rate today than a decade ago. For example, more information on job opportunities in the labor market today than a decade ago may make an unemployment goal of 4.0 percent easier to attain today. On the other hand, technological changes may have eliminated certain jobs, putting people out of work and making it harder to attain 4.0 percent. However, from the effects of structural changes on unemployment that could be measured, two principal conclusions can be drawn:

1) None of the structural changes examined in this study affected the unemployment rate by more than 0.3 percentage points; see Table VI. It should also be pointed out that the results are not additive because the groups overlap. For example, many part-time workers are also teenagers.

2) Structural changes have occurred in many sectors of the labor force; and, depending upon the perspective from which the

TABLE VI

The Weighted Effect of Selected Structural
Changes in Labor Force on 1972
Unemployment Rate

Labor Force Composition Defined by	Base Year	1972 Actual Rate Minus Adjusted Rate
Adult male, adult female, teenagers	1960	0.3%
Part-time, full-time	1963	0.1
Educational attainment	1962	−0.2
Occupational structure	1960	0.2
Work-training programs*	1962	−0.3

*End year was 1971.

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

labor force is examined, many of these changes tend to be offsetting. Therefore, the importance of these changes is in their *net* effect on the unemployment rate. This effect would be evidenced in a trend (upward or downward) in the unemployment rate after taking account of business fluctuations; but there is little evidence that such a trend has occurred.[18]

A review of the effects of structural changes in the labor force on the overall unemployment rate indicates that they have had diverse, and often offsetting effects, but no large quantitative impact.

As a result, there appears to be little reason to change the unemployment goal because of compositional changes.

IS THERE A "BETTER" GOAL THAN 4.0 PERCENT?

Although structural changes in the labor force do not appear to provide a sufficient reason for changing the unemployment goal, it might be argued that the 4.0 percent goal was not appropriate in the first place. There are a number of plausible definitions for "full employment." a few of which will be examined here. These alternative definitions imply different full employment targets for the unemployment rate.

Unemployment Greater Than or Equal to Vacancies. Lord Beveridge was the first to use job vacancies in a definition of full employment.[19] He defined full employment as a condition where aggregate job vacancies exceed aggregate unemployment. Later Benoit-Smullyan relaxed this criteria, asserting that the two factors should be equal.[20]

Lack of available data on job vacancies precludes a direct evaluation of the level of unemployment that would prevail with these definitions of full employment. However, limited data have been compiled for the manufacturing sector since 1969, from which very tentative conclusions can

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[18]A simple regression was run with the monthly unemployment rate as the dependent variable and a dummy variable for time to determine whether there has been a secular trend to unemployment. For the period 1950-1972, this trend was positive and indicated that the unemployment rate moved upward at the rate of 0.3 percentage points in a decade. However, for the period 1960-1972, the trend was *reversed*; and it is this period that most of the recent structural change analysis has been concentrated on. It was during this period (1962) that the 4.0 percent goal was set.

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[19]See Beveridge, *op. cit.* The analysis in this study uses vacancy data compiled by the Bureau of Labor Statistics, which are not necessarily comparable to a theoretical definition of a job vacancy.

[20]Emile Benoit-Smullyan, "On the Meaning of Full Employment," *The Review of Economics and Statistics,* XXX, 1948, pp. 127-134.

TABLE VII

Unemployment and Vacancies in Manufacturing
Thousands and Percents

Year	Unemployment	Vacancies	Manufacturing Unemployment Rate	Overall Unemployment Rate	Ratio Unemployment/Vacancies
1969	709	264	3.3%	3.5%	2.7/1
1970	1,197	132	5.6	4.9	9.1/1
1971	1,404	88	6.8	5.9	16.0/1
1972	1,155	128	5.6	5.6	9.1/1

Sources: U. S. Department of Labor and Bureau of Labor Statistics

be made (see Table VII). The 1969-1972 period includes one year (1969) when overall unemployment was very low—3.5 percent—and when the unemployment rate for private wage and salary workers in manufacturing—3.3 percent—was close to its twenty-year low. The data for manufacturing indicate that the job vacancy measure of full employment was not reached even in 1969, a year of historically low unemployment, when the level of job vacancies (264,000) in manufacturing was well below the level of unemployment (709,000). If the experience of the manufacturing sector can be generalized, it is probably not unreasonable to hypothesize that full employment, defined in terms of *measured* job vacancies being equal to the number of unemployed for the whole economy, would probably require an overall unemployment rate that would be below 3.0 percent.

Minimum Unemployment Concepts. Another approach to defining an appropriate unemployment target is to accept the lowest level of unemployment attained in the past. This approach has the problem of implicitly assuming that minimum is optimum. It may well be that a past minimum had many unacceptable side effects, e.g., rapidly rising prices. Alternatively, the economy

may be capable of reaching a lower level in the future than experienced in the past.

A. Minimum Total Unemployment. The unemployment rate of 1.2 percent in 1944 has been the lowest rate recorded since the Great Depression. However, this rate was achieved when the country was at war and over 11 million persons were in the armed services. Similarly, the low unemployment rates during 1951-1953 and 1966-1969 reflected increased manpower requirements of the armed services. For what could be considered peacetime conditions, the lowest unemployment rates ranged from 3.9 percent in 1947-1948 to the 4.1-4.4 percent in 1955-1957. Thus, the minimum unemployment concept in a peacetime economy would yield an unemployment rate around 4.0 percent. It should be pointed out, however, that the tight labor market conditions in 1947-1948 and 1955-1957 were associated with quite different economic environments. The unemployment rate in 1947-1948 was associated with rapidly rising prices, while prices in 1955-1957 rose at a more moderate pace.

B. Minimum Frictional Unemployment. Some economists assert that a frictional minimum level of unemployment is unavoidable for a smoothly

functioning economy. Frictional unemployment represents time spent looking for jobs by new entrants into the labor force and by people changing jobs and spending some minimum amount of time in job search. Lack of information about jobs and immobilities of some job seekers contribute to frictional unemployment. However, without this type of unemployment, many people would find themselves in less satisfactory jobs than if they had searched further. The short-term unemployment represented by the number of individuals unemployed less than 5 weeks is sometimes taken as an indicator of the amount of frictional unemployment.[21] Between 1948-1971, those unemployed less than 5 weeks never exceeded 3.0 percent of the labor force and dropped to a minimum of about 2.0 percent. However, this measure probably overstates frictional unemployment because some of those unemployed 5 weeks or less will eventually move on to longer unemployment.

C. Minimum Unemployment by Sectors. R. A. Gordon suggested that an appropriate unemployment goal should be a composite of different goals for specific labor markets to reflect changes in labor force composition so that the overall goal need not be altered.[22]

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[21]Using unpublished BLS data on single weeks of unemployment, it was determined that over three-quarters of those who become unemployed are unemployed less than one month. These same data indicate that there is a much higher probability of exit from unemployment in any one week during the first month of unemployment than there is later. These observations are consistent with defining high turnover, frictional unemployment as those with less than 5 weeks unemployment.

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[22]See Gordon, *op. cit.*

Individual labor markets tend to approach full employment at different speeds. When the economy is operating close to full employment, expansionary public policies may result in excess demand for labor in some markets, coupled with some slack in others. During such periods, monitoring individual labor markets can prove useful. However, when overall unemployment is high, targets for individual markets may not be necessary because the unemployment rates in all markets are generally high, and emphasis on the aggregate rate target is sufficient.[23] The setting of minimum unemployment targets for individual labor markets is also subject to the deficiency of equating minimum and optimum.

The Lowest Unemployment Rate Consistent with "Tolerable" Price Stabiltiy. Another possible definition of full employment involves the relationship between unemployment and prices. This approach first requires a definition of "tolerable" price stability. Secondly, there must be agreement on the particular model of an inflation-unemployment relationship to be used. Finally, if it is determined that a well-defined tradeoff between inflation and unemployment exists, then there must be agreement over the optimum combination of the two.

Tolerable price stability is difficult to define. While economists generally believe that there is some relationship between unemployment and prices, at least in the short run, there is not a consensus as to the exact form of this relationship.

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[23]See Robert McMillan, "What Happens When the Unemployment Rate Changes," *Economic Review,* Federal Reserve Bank of Cleveland, June/July 1972.

CHART 2

**RELATIONSHIP BETWEEN PRICES AND RATE OF UNEMPLOYMENT
1948-72**

Percent Change in Consumer Price Index
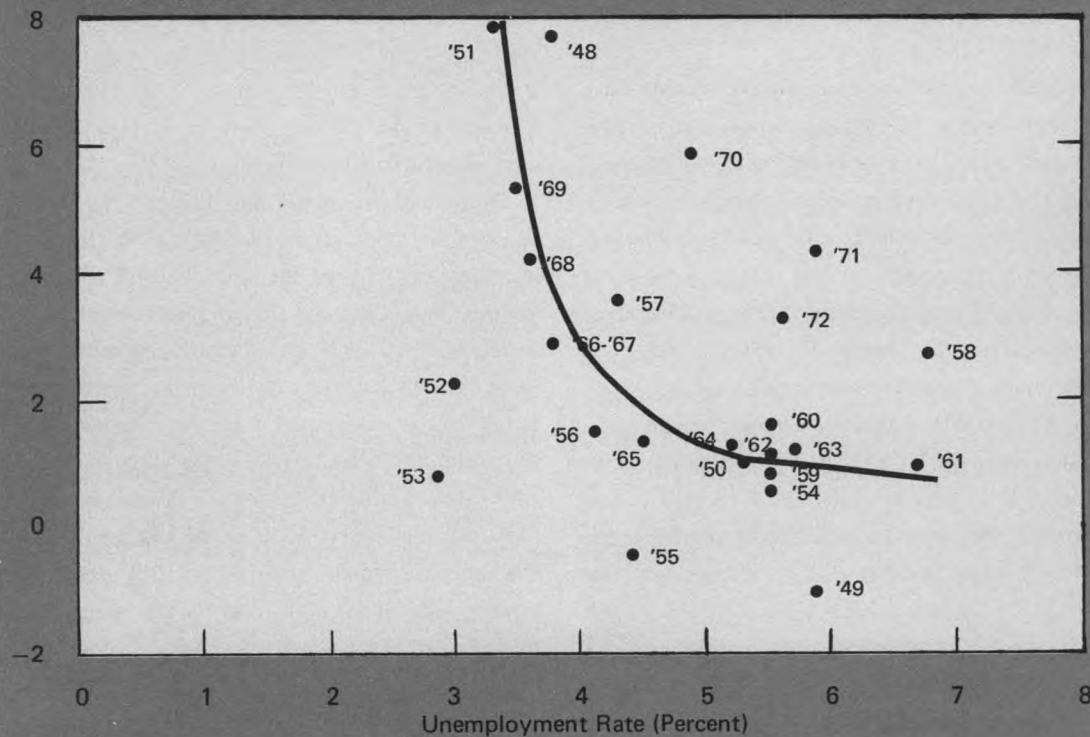
Sources: U. S. Department of Labor and Federal Reserve Bank of Cleveland

The body of literature on the unemployment price-tradeoff issue can be divided into two camps. One view holds that there is a long-run tradeoff between prices and unemployment; the other (the "accelerationist" view) holds that there is a natural rate of unemployment (an unemployment rate toward which the economy gravitates in the absence of interference from policy actions) and that attempts to drive unemployment below this level will result in accelerating inflation.[24] Generally, the accelerationist's position is that the "natural rate" is higher than the level that proponents of the "tradeoff" view would be willing to accept. Chart 2 portrays a simple relationship between prices and unemployment. According to a

[24]See Roger Spencer, "The Relation Between Prices and Employment: Two Views," *Review,* Federal Reserve Bank of St. Louis, March 1969.

curve drawn for data covering 1948-1972, at about 4.0 percent unemployment, prices would rise at rates somewhat above 3.0 percent, which for some would be an unacceptable rate of inflation. It can be seen from the scatter of points in Chart 2, however, that although there is a tendency for prices and unemployment to be related, this relationship is far from precise.

A great number of econometric studies have been done on the relationship between unemployment and prices, with variables including measures of: productivity, profits, output, labor force composition, unemployment, changes in unemployment, price changes, and the rate of change of price changes, and all manner of lagged variables that purport to be proxies for expectations. The studies have produced conflicting results, which seem to depend heavily on the period selected, the variables used, and the form of the equations. For example, at a "steady state" of 4 percent unemployment, the rates of inflation implied by different studies widely differ. Regressions by Spitaller for the years 1956-1969 at a steady state of 4 percent unemployment imply inflation rates of 5.7 percent, while the same regressions for the period 1960-1969 imply inflation rates of 3.8 percent.[25] A study by Hymans for the period 1959-1967 implied changes in the consumer price index of 2.8 percent at 4 percent unemployment.[26] George Perry found a tradeoff that suggests 2.8 percent increases in prices at 4.0 percent unemployment in the mid-fifties, but 4.5 percent rate of inflation in 1970.[27] In still another study, Lucas and Rapping found that there is no stable relationship between unemployment and prices over the long run.[28] These are but a few of a large collection of studies yielding divergent results on the inflation-unemployment issue. In short, given the conflicting results, basing an unemployment goal on some fixed tradeoff concept appears to be tenuous.

Does It Matter What the Goal Is? The level of full employment is very important in the determination of the need for, and potential effects of, various monetary and fiscal policy actions. For example, if a 5.0 percent unemployment rate were to replace the current 4.0 percent full employment target, the estimated loss in output, represented by the computed "gap" between potential and actual GNP, would have to be revised downward. Using "Okun's Law" (that a 1.0 percentage point rise in the unemployment rate means 3.3 percentage points less growth in real GNP) as a rough measure, moving the full employment target to 5.0 percent would have decreased the "gap" in the fourth quarter of 1971 by about $27 billion (or by about 1/2 of the estimated gap in that period). At the same time, according to one estimate, such a change would also have boosted the full employ-

[25] Erich Spitaller, "Prices and Unemployment in Selected Industrial Countries," *IMF Staff Papers,* Vol. XVIII, No. 3, November 1971, pp. 528-569.

[26] Saul H. Hymans, "The Tradeoff Between Unemployment and Inflation: Theory and Measurement," in *Readings in Money, National Income, and Stabilization Policy,* ed. W. L. Smith and R. L. Teigen, (Homewood, Illinois: Richard D. Irwin, Inc., 1970), pp. 152-163.

[27] See Perry, *op. cit.*

[28] R. E. Lucas and L. A. Rapping, "Price Expectations and the Phillips Curve," *The American Economic Review, LIX,* June 1969, pp. 342-350.

ment budget deficit in fiscal 1972 from $8.1 billion to $23.5 billion.[29]

Must There be a Specific Full Employment Goal? Some economists have suggested that numerical unemployment goals should not be set. If this approach were used, all unemployment targets would become qualitative; e.g., less unemployment or perhaps a range of acceptable unemployment rates. The elimination of a numerical unemployment target would also nullify such concepts as the "full-employment budget" or potential gross national product. While policymakers might feel monetary and fiscal policy should be more, or less, restrictive, they would not be able to define the degree of change that should be made.

Another approach to defining full employment is to use a measure other than unemployment to gauge the degree of labor utilization in the economy. Measures tied to employment or labor force time lost in unemployment and underemployment have been suggested. However, discussion of this topic is outside the scope of this article.

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[29]Feige, *op. cit.*

SOME CONCLUDING OBSERVATIONS

The 4 percent unemployment rate as a full employment target has been examined to determine whether it should be altered. It was concluded that structural shifts in the labor force affect the unemployment rate in both an upward and a downward direction and probably do not provide sufficient reason to alter the 4 percent goal. The study points out two important matters that should be considered when analyzing the recent unemployment picture. First, a particular demographic change in the labor force may affect the overall unemployment rate, but it should not be examined as if it occurred in a vacuum. The labor force is a dynamic body, which constantly changes in many dimensions, not just one. Second, short-run changes in the unemployment rate cannot be explained by long-run structural changes in the labor force. Unemployment did not rise in 1970-1971 because of some change occurring over the 1960-1971 period. A difficult question confronting policymakers is whether the 4 percent unemployment goal was appropriate in the first place. The answer to this question seems to hinge on the full employment definition selected.

APPENDIX
COMPUTATION OF STRUCTURAL CHANGE
EFFECTS ON UNEMPLOYMENT

The aggregate rate of unemployment can be viewed as a weighted average of its component parts. For example, if the labor force is broken down into adult men, adult women, and teenagers, the overall unemployment rate would be calculated as follows:

Overall Unemployment Rate = (unemployment rate adult men x adult men as percent of labor force) + (unemployment rate adult women x adult women as percent of labor force) + (unemployment rate of teens x teens as percent of labor force).

As an example, in 1971 adult men with an unemployment rate of 4.4 percent made up 56.9 percent of the labor force, adult women with a 5.7 percent rate made up 34.2 percent, and teens with a 16.9 percent rate made up 8.9 percent. Thus:

$(.044 \times .569) + (.057 \times .342) + (.169 \times .089) = .059571 = 6.0$ percent.

The difference from the actual unemployment rate reported by BLS (5.9 percent) is due to rounding error.

If the share of the labor force accounted for by these groups were changed and everything else remained constant, the overall unemployment rate would be changed. For example, if the labor force in 1971 had been the same as in 1960—62.6 percent adult male, 30.4 percent adult female, and 7.0 percent teenagers—the calculation of the overall unemployment rate would be:

$(.044 \times .626) + (.057 \times .304) + (.169 \times .070) = .056702 = 5.7$ percent.

The lower proportion of women and teens results in a lower overall unemployment rate. This analysis indicates that the effect of this one change in the composition of the labor force from 1960 added 0.2 percentage points to the overall unemployment rate in 1971. Of course, this is merely a mathematical property of the equation.

PERFORMANCE OF BANKS ACQUIRED BY MULTI-BANK HOLDING COMPANIES IN OHIO

Robert F. Ware

When a bank is acquired by a multi-bank holding company, it becomes part of an established banking organization and, therefore, subject to some changes in operating policies. These operational aspects of bank acquisitions have been of interest to the Federal Reserve System as part of its responsibility in reviewing proposed bank acquisitions.

This study examines the performance of banks acquired by multi-bank holding companies in Ohio. Each acquired bank was paired with a similar size independent bank located in the same market area and differences in their asset composition, deposit structure, capital structure, loan portfolio composition, prices of services, expenses and profitability were analyzed for periods up to three years after the year of acquisition.

The results indicate that the banks acquired by multi-bank holding companies in Ohio tended to experience changes in their asset composition and loan portfolios. More specifically, there was a trend toward increasing holdings of state and local government securities and loans and decreasing cash balances and U. S. Government securities. The loan portfolios of acquired banks evidenced some shift toward business and consumer loans. Acquired banks also had a significant increase in "other operating expenses," but otherwise their performance did not materially differ from that of independent banks in their respective markets. This study also indicates that the changes in performance of acquired banks tended to occur at different time intervals.

The growth of multi-bank holding companies in Ohio has been fairly rapid in recent years. At the beginning of 1965, only two multi-bank holding companies controlled 22 banks and 9 percent of the total deposits in the State.[1] In 1972, there were eight multi-bank holding companies with 87 banking subsidiaries that controlled 30 percent of total deposits in the State (see Table I). Other bank holding companies are currently being formed in Ohio, and there are indications that bank acquisitions will continue at a rapid rate during the next few years. So far in 1973, six banks have been acquired, and several applications are pending.

The Bank Holding Company Act of 1956 stipulates that acquisitions of banks by holding companies receive prior approval from the Board of Governors of the Federal Reserve System. In making its decision, the Board is required by law to take into consideration the financial aspects of the proposed acquisition, the effect on competition, and the convenience and needs of the community. As part of the review process, the Board takes into account the performance of banks previously acquired by holding companies.

The performance of banks acquired by multi-bank holding companies throughout the United States has been examined in a number of studies.[2]

[1] Banks affiliated with one-bank holding companies are not included in this study. There are currently 30 subsidiary banks of one-bank holding companies in Ohio.

[2] Gerald Fisher, *The Future of Registered Bank Holding Companies* (Washington, D. C.: Association of Registered Bank Holding Companies, 1971), p. 54-57; Robert J. Lawrence, *The Performance of Bank Holding Companies* (Washington, D. C.: Board of Governors of the Federal Reserve System, June 1967); Joe M. McLeary, "Bank Holding Companies: Their Growth and Performance," *Monthly Review,* Federal Reserve Bank of Atlanta, October 1968; Samuel H. Talley, "The Effect of Holding Company Acquisition on Bank Performance," *Staff Economic Studies, No. 69* (Washington, D. C.: Board of Governors of the Federal Reserve System).

TABLE I

Multi-Bank Holding Companies in Ohio
1965-1972

Year	Number of Companies	Number of Banks Controlled	Deposits as Percent of Total in State
1965	2	25	9.4%
1966	2	26	9.6
1967	3	29	12.3
1968	4	31	14.6
1969	6	36	17.1
1970	7	55	20.9
1971	7	69	28.1
1972	8	87	30.0

Source: Federal Reserve Bank of Cleveland

These studies, which covered the entire U. S., have generally found that the major effect of holding company acquisition is to alter the portfolio composition of the acquired banks. That is, the acquired banks tended to shift out of U. S. Government securities and into state and local government securities and loans, particularly instalment loans.

This study seeks to determine whether performance of banks acquired by multi-bank holding companies in Ohio has changed over a three-year period after their acquisition. Because the study examines changes after acquisition, it is limited to banks acquired by holding companies between 1965 and 1970. This investigation differs from previous studies in that it is limited to banks acquired by holding companies in one state, and it attempts to pinpoint the timing of the performance changes over a three-year period. Changes in asset and loan portfolios, capital structure, deposit structure, prices of services, expenses, and profitability are used in evaluating performance (Table II). The results of the study indicate that, for each of the years after acquisition, banks

TABLE II

Ratios Used in Comparing the Performance of Acquired and Independent Banks

I. Bank Asset Composition

  (1) $\dfrac{\text{cash balances}}{\text{total assets}}$

  (2) $\dfrac{\text{state and local government securities}}{\text{total assets}}$

  (3) $\dfrac{\text{U. S. Government securities}}{\text{total assets}}$

  (4) $\dfrac{\text{gross loans}}{\text{total assets}}$

II. Bank Deposit Structure

  (5) $\dfrac{\text{IPC demand deposits}}{\text{total deposits}}$

  (6) $\dfrac{\text{total time and savings deposits}}{\text{total deposits}}$

  (7) $\dfrac{\text{U. S. Government deposits}}{\text{total deposits}}$

III. Bank Capital Structure

  (8) $\dfrac{\text{total capital accounts}}{\text{total deposits}}$

  (9) $\dfrac{\text{total capital accounts}}{\text{total risk assets}}$

IV. Bank Loan Portfolio Composition

  (10) $\dfrac{\text{farm loans}}{\text{gross loans}}$

  (11) $\dfrac{\text{residential mortgage loans}}{\text{gross loans}}$

  (12) $\dfrac{\text{instalment loans}}{\text{gross loans}}$

  (13) $\dfrac{\text{business loans}}{\text{gross loans}}$

V. Average Prices of Services of Banks

  (14) $\dfrac{\text{interest on loans}}{\text{gross loans}}$

  (15) $\dfrac{\text{service charges on demand deposits}}{\text{IPC demand deposits}}$

  (16) $\dfrac{\text{interest on time and savings deposits}}{\text{total time and savings deposits}}$

VI. Bank Expenses

  (17) $\dfrac{\text{total operating expenses}}{\text{total assets}}$

  (18) $\dfrac{\text{wage and salary expense}}{\text{total assets}}$

  (19) $\dfrac{\text{interest on deposits}}{\text{total assets}}$

  (20) $\dfrac{\text{other operating expenses}}{\text{total assets}}$

  (21) $\dfrac{\text{total operating expenses}}{\text{total operating income}}$

VII. Bank Profitability

  (22) $\dfrac{\text{net income after taxes}}{\text{total assets}}$

  (23) $\dfrac{\text{net income after taxes}}{\text{total capital accounts}}$

  (24) $\dfrac{\text{net current operating earnings}}{\text{total assets}}$

VIII. Selected Ratios

  (25) $\dfrac{\text{total operating revenue}}{\text{total assets}}$

  (26) $\dfrac{\text{loan losses}}{\text{gross loans}}$

  (27) $\dfrac{\text{gross loans}}{\text{total deposits}}$

Source: Federal Reserve Bank of Cleveland

acquired by holding companies in Ohio tended to increase their holdings of state and local government securities and loans, and to decrease their cash balances and U. S. Government securities. Acquired banks had a significant increase in "other operating expenses" for the second and third year after acquisition; and there were some tendencies for acquired banks to shift from lower to higher yield loans. These findings indicate that acquired banks in Ohio underwent changes in performance similar to those experienced by banks that were acquired throughout the U. S.; however, this study also shows that performance changes of acquired banks tended to occur at different time intervals.

ANALYTICAL APPROACH

One approach to determine whether a bank's behavior changes after acquisition by a holding company is to compare its performance before and after acquisition. However, just comparing the performance of the acquired banks before and after acquisition does not take into account changes in market conditions that may have occurred over time. For example, certain performance ratios of a bank may be affected simply because a new business firm has located in its local market. To account for changes in market conditions, each acquired bank in the study was paired with an independent bank of similar deposit size in the acquired bank's market area. The assumption made in this pairing technique is that any changes in market conditions will have similar effects upon the performance of both the acquired and independent banks. Therefore, changes in performance that show up after the pairing technique is employed can be attributed, with some justification, to the fact that one bank, and not the other, was acquired by a holding company.

In this study, the performance of the acquired and independent banks one year before acquisition was compared to their performance one, two, and three years after acquisition. This technique differs from other studies because it not only permits one to observe whether there have been changes in performance, but it also attempts to identify the point in time when changes began occurring. Some changes in performance may start immediately upon acquisition, while others may not take place until two or even three years after a bank is acquired. In addition, examination of the ratios at three points in time permits observation of trends in performance changes. Small changes may take place one year after acquisition, but these changes may intensify the longer a bank is affiliated with the holding company.

The approach used in this study was somewhat limited by the fact that most of the bank holding company acquisitions in Ohio took place after 1969. Therefore, the acquired and independent banks were divided into three different samples, based on the period of time the acquired banks were controlled by holding companies: 1) 27 pairs in the one-year group; 2) 10 pairs in the two-year group; and 3) 7 pairs in the three-year group.[3]

The data for the study were taken from year-end "Reports of Conditions" and "Reports of Earnings and Dividends" submitted to the bank regulatory agencies. Data were obtained for each acquired and independent bank one year prior to the acquisition of the acquired bank and one, two, and three years after the acquired bank's affiliation with the holding company. The calculations made on each of the 27 performance ratios

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[3] Banks leading the formation of a multi-bank holding company were not included in the samples.

consisted of finding the differences between the acquired and independent banks' ratios at four points in time; i.e., one year before acquisition of the acquired bank and one, two and three years after acquisition. The differences of the ratios one year before acquisition were then subtracted from the differences of the one-, two-, and three-year-after-acquisition ratios. A t-statistic was then computed on the mean change in the differences in performance for one, two, and three years after acquisition to determine the statistical significance of each change.[4] Because of the limited sample in the two- and three-year-after-acquisition groups, some changes in performance are apparent, but they are not all statistically significant. The results of the calculations are presented in Tables III and IV.

HOW IS PERFORMANCE AFFECTED?

Asset Composition. One of the questions that may be raised regarding the effects of acquisition by a holding company is whether or not the asset composition of the acquired bank is altered. For example, is a subsidiary bank likely to hold larger or smaller cash balances in proportion to total assets than it did prior to its acquisition? According to this study, the asset composition of acquired banks changed rather systematically during the first three years of affiliation with a holding company. The acquired banks increased the proportion of assets devoted to state and local securities and gross loans when compared with independent banks (Table III, Ratios 2 and 4). However, none of the average changes in the differences between acquired and independent

banks for these two ratios are significant for any of the three years, although a trend toward increased holdings of these assets by acquired banks is evident. This is indicated by the fact that the mean changes in the differences are larger (positive) for both types of assets two years after acquisition than they are for one year after, and they become even greater three years after acquisition.

While the acquired banks tended to increase the proportion of state and local securities and gross loans in their portfolios, they decreased the percentage of cash balances and U. S. Government securities (Table III, Ratios 1 and 3). The acquired banks tended to hold a smaller proportion of both assets the longer they were controlled by a holding company, as indicated by the fact that the mean changes are larger (negative) for three years after acquisition than they are for one or two years after acquisition. The mean change in the differences for U. S. Government securities is significant two years after acquisition.[5] The mean change for cash balances, however, is not significantly different from zero for any of the three years.

The changes in asset composition that resulted from holding company acquisition are noteworthy because the acquired banks shifted to a more risky asset position than they previously maintained. This shift is consistent with the commonly expressed view that bank holding companies tend to pool the risk of their organizations because they are able to have a more diversified portfolio and larger asset base than their individual subsidiaries.

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[4]A definition of a t-statistic may be found in Wilfred J. Dixon and Frank J. Massey, Jr., *Introduction to Statistical Analysis* (3rd ed.; New York: McGraw-Hill Book Company, 1969), pp. 119-123.

[5]The small sample of banks for three years after acquisition may have prevented the much larger mean change (-0.158) for U. S. Government securities from being significantly different from zero.

TABLE III

Mean Changes in Differences Between Acquired
and Independent Banks' Balance Sheet Ratios

	One Year After Acquisition: Mean Change	Two Years After Acquisition: Mean Change	Three Years After Acquisition: Mean Change
I. Asset Composition			
(1) Cash balances/total assets	−0.008 (−0.826)	−0.015 (−0.505)	−0.020 (−1.388)
(2) State and local securities/total assets	0.021 (1.423)	0.050 (1.747)	0.079 (1.874)
(3) U. S. Government securities/total assets	−0.008 (−0.273)	−0.086 † (−2.034)	−0.158 (−1.712)
(4) Gross loans/total assets	0.001 (0.036)	0.071 (1.708)	0.101 (1.381)
II. Deposit Structure			
(5) IPC demand deposits/total deposits	0.003 (0.403)	−0.005 (−0.299)	−0.015 (−0.614)
(6) Total time and savings deposits/total deposits	−0.026* (2.262)	0.174 (0.842)	0.015 (0.410)
(7) U. S. Government deposits/total deposits	0.019† (1.922)	−0.002 (−0.501)	−0.011 (−0.767)
III. Capital Structure			
(8) Total capital accounts/total deposits	0.001 (0.334)	0.006 (1.154)	0.010† (1.970)
(9) Total capital accounts/total risk assets	−0.075 (−1.471)	−0.002 (−0.165)	−0.024 (−0.519)
IV. Loan Portfolio Composition			
(10) Farm loans/gross loans	−0.010 (−0.913)	−0.003 (−0.127)	−0.022 (−1.022)
(11) Residential mortgage loans/gross loans	0.003 (0.212)	−0.014 (−0.295)	−0.053 (−0.789)
(12) Instalment loans/gross loans	−0.020 (−1.237)	−0.010 (−0.228)	0.037 (0.656)
(13) Business loans/gross loans	0.017 (1.081)	0.020 (0.889)	0.033 (1.478)

NOTE: t-statistics are in parentheses.
* Significant at the 5 percent level
† Significant at the 10 percent level

Source: Federal Reserve Bank of Cleveland

TABLE IV

Mean Changes in Differences Between Acquired
and Independent Banks' Operating Ratios

	One Year After Acquisition: Mean Change	Two Years After Acquisition: Mean Change	Three Years After Acquistion: Mean Change
I. Average Prices of Services			
(1) Interest on loans/gross loans	0.001 (0.266)	−0.004 (−0.433)	−0.001 (−0.313)
(2) Service charges on demand deposits/ IPC demand deposits	0.001 (0.293)	−0.001 (−0.884)	−0.001 (−0.881)
(3) Interest on time and savings deposits/ total time and savings deposits	0.001 (0.231)	0.001 (0.106)	−0.004 (−1.017)
II. Expenses			
(4) Total operating expenses/total assets	0.001 (1.192)	0.006 (1.428)	0.003† (1.992)
(5) Wage and salary expense/total assets	0.031 (1.003)	0.001 (1.080)	0.001 (1.107)
(6) Interest on deposits/total assets	−0.001 (−0.114)	0.001 (0.878)	−0.002 (−0.620)
(7) Other operating expenses/total assets	−0.001 (0.885)	0.001† (1.938)	−0.002* (3.650)
(8) Total operating expenses/ total operating income	0.002 (0.101)	0.079 (1.626)	0.121 (1.450)
III. Profitability			
(9) Net income after taxes/total assets	−0.005 (−1.205)	−0.005 (−1.083)	0.001 (0.927)
(10) Net income after taxes/ total capital accounts	−0.009 (−0.767)	−0.051 (−1.216)	−0.008 (−0.537)
(11) Net current operating expenses/total assets	−0.001 (−0.414)	−0.003 (−1.011)	−0.001 (−0.344)
IV. Selected Ratios			
(12) Total operating revenue/total assets	0.002 (1.005)	0.003* (2.232)	0.003 (1.862)
(13) Loan losses/gross loans	0.001 (0.103)	0.006 (1.440)	0.001 (0.466)
(14) Gross loans/total deposits	−0.001 (−1.002)	−0.002 (−0.889)	−0.001 (−0.882)

NOTE: t-statistics are in parentheses.
* Significant at the 5 percent level
† Significant at the 10 percent level

Source: Federal Reserve Bank of Cleveland

Acquired banks are also able to reduce their holdings of liquid assets, such as cash, since they have access to the financial resources of the holding company.

Deposit Structure. The acquired banks showed little change in their deposit structure after their acquisition by a holding company (Table III, Ratios 5, 6 and 7). There was a slight tendency for acquired banks to experience an increase in their time and savings deposits and a decrease in their demand deposits over the three years after acquisition, but the mean changes are generally insignificant. In fact, only two of the nine mean changes are significant for the three deposit ratios; one year after acquisition, the acquired banks held a significantly lower percentage of time and savings deposits and a significantly higher percentage of U. S. Government deposits than the independent banks in their areas.

Capital Structure. It is generally held that holding companies may be able to improve the capital positions of their acquired banks because of better access to capital markets (reflecting their size and better known names) than most independent banks. However, the evidence in support of this hypothesis is slight. This study indicates that the acquired banks tended to gradually experience an increase in their total capital accounts (as a percent of total deposits) after they were purchased by a holding company (Table III, Ratio 8). In the third year after acquisition, the acquired banks showed a significant increase in their capital accounts—at least at the 10 percent confidence level. This result suggests that the capital position of the acquired banks may have been improved to meet their move towards a more risky asset composition. However, the acquired banks' total capital as a percent of risk assets[6] did not change significantly for any of the three years after acquisition (Table III, Ratio 9).

Loan Portfolio. The composition of the loan portfolios of acquired banks did not change significantly after their acquisition by holding companies. Nevertheless, some changes in performance of subsidiary banks are evident. Instalment and business loans as a proportion of gross loans tended to increase for the acquired banks during the three years after their acquisition (Table III, Ratios 12 and 13). For example, the ratio of instalment loans to gross loans increases from a negative 0.020 one year after acquisition to a positive 0.037 three years after acquisition. On the other hand, acquired banks tended to reduce the proportion of mortgage loans held for the three years after acquisition (Table III, Ratio 11). These changes in the composition of the loan portfolios of the acquired banks show a shift into the more profitable business and instalment loan categories from the less profitable residential loan market. The shifts into business loans may have been the result of increased participation loans with the lead bank of the holding company, while the changes in instalment loans generally reflect increased credit for consumers at the local level. Both shifts in the loan portfolio of the acquired banks, like the changes in asset composition, most probably reflect a change in management philosophy toward higher risk and a more profitable loan portfolio.

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[6]Risk assets are defined as federal funds + real estate owned by banks + customers' liability for bankers' acceptances + state and local obligations + gross loans + other securities + other assets.

Prices of Services. If there are economies of scale in holding company acquisition, it could be reflected in lower costs and therefore lower prices of bank services—loans, demand deposits, and time and savings deposits—at the acquired banks. However, this study did not reveal any significant differences in the pricing behavior of banks acquired by holding companies in comparison to independent banks (Table III, Ratios 1, 2 and 3). There may be two reasons why this study did not detect any changes in pricing behavior by the acquired banks. First, changes in specific loan rates or service charges may not be detected by using aggregate ratios. For example, the total interest on loans/gross loan ratios does not account for any changes in loan mix that may have occurred in the acquired banks' portfolios during the three-year period; however, these highly disaggregated data were not available. Secondly, prices of banking services in a given market may tend to be dictated by supply and demand factors; therefore, differences between the pricing behavior of an acquired bank and an independent bank in the same market area would not be evident.

Expenses. It has been hypothesized that economies of scale in holding company operations could also result in lower expenses for the acquired banks. However, the evidence in this study indicates that banks acquired by holding companies had slight increases in total operating expenses in the three years after their acquisition. The total operating expenses/total assets ratio was higher for the acquired banks than the independent banks in all three years, mainly because of increases in the "other" operating expenses. However, the mean change was significant in only the third year after acquisition (Table IV, Ratio 4). Other types of expenses—wage and salary expenses and interest on deposits (both as a percent of total assets)—for

the acquired banks did not change significantly during any of the three years after acquisition (Table IV, Ratios 5 and 6). The proportion of "other operating expenses," however, did increase significantly in the second and third years after acquisition (Table III, Ratio 7).[7] Some of this increase could be due to the management fees paid to the holding company by the affiliate banks, since this expense is included in that category. There was no significant change in the proportion of total operating expenses to total operating income for any of the three years after the acquisition, although the proportion rose for the acquired banks during each of the three years after acquisition (Table IV, Ratio 8). This implies that the acquired banks tended to be generating slightly higher expenses relative to their operating income after acquisition by a holding company.

While the acquired banks tended to have slightly higher operating expenses after their acquisition than the independent banks, their total operating revenue as a percent of total assets also tended to be higher. This result probably reflects the fact that acquired banks tended to increase the risk of their asset and loan portfolios after their acquisition. Acquired banks had a significantly larger total operating revenue two years after their acquisition (Table IV, Ratio 12). Higher operating revenues were also experienced in the first and third years after acquisition, but these changes were not statistically significant.

Profitability. Since the acquired banks had slightly higher operating revenues and expenses

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[7]Other operating expenses include all operating expenses of a bank not reported in specific expense categories. These include fees and expenses to directors, cost of examination by supervisory authorities, retainer fees, operating expenses connected with holdings of real estate other than bank premises, losses on counterfeit money and forged checks, and office supplies bought.

after their acquisition by a holding company, it could be expected that their profitability ratios would be unchanged. Results of this study generally support this expectation (Table IV, Ratios 9, 10 and 11). Net income after taxes, as a percent of total assets and of total capital, and net current operating earnings, as a percent of total assets, tend to be slightly lower for the acquired banks than the independent banks, but the mean changes are all insignificant. In addition, the three ratios do not reveal any trends in profitability behavior for the acquired banks in the three years after their acquisition.

SUMMARY

Banks acquired by holding companies in Ohio between 1965 and 1970 tended to increase the proportion of state and local government securities and loans in their portfolios and decrease their holdings of cash balances and U. S. government securities. There was also a trend for acquired banks to shift into more profitable loan categories. Other operating expenses of the acquired banks showed a significant increase in the second and third year after acquisition. In addition, there was a tendency for acquired banks to increase capital accounts as a proportion of total assets, especially those banks that had been under the control of a holding company for three years. Prices of services offered, deposit structure, and profitability of

banks acquired by holding companies were not measurably affected by the acquisition. In essence, except for changes in asset management and other operating expenses, the performance of acquired banks was not significantly different from independent banks in the same market.

These findings are generally consistent with those of other studies that investigated holding company activity in the United States. A notable result of this study is that it shows that some of the changes in the performance ratios of the acquired banks tended to occur at different time intervals after they were acquired by a holding company.

The question may be asked—Why hasn't holding company affiliation changed the performance of subsidiary banks to a greater degree? Part of the answer may hinge on the fact that banks, are generally subjected to market forces that cannot be altered simply through affiliation with a holding company. Unless a holding company purchases a bank that is a monopolist in its market area, it will not have discretionary power to alter various aspects of the bank's performance (for example, change prices of banking services) without responses by other banks in and out of the market. Since most of the banks that have been acquired by holding companies are not monopolists, their performance changes tend to be limited by competition from other banks and financial institutions.